Appendix A12.2
Potential Dust Generating Activities

Table of contents

APPENDIX A12.2 – POTENTIAL DUST GENERATING ACTIVITIES

1.1 Introduction

This appendix of the Environmental Impact Assessment Report (EIAR) assesses the potential for construction phase dust impacts at the individual construction sites of the proposed development on Air Quality.

This appendix provides an overview of the typical activities and methods that have potential for dust impacts during construction of the proposed development. While each individual site compound will differ, the processes that have the potential for the generation of construction dust will be similar. This appendix should also be read in conjunction with the Section 12.3.5.2 of the Air Quality Chapter which details the construction phase dust assessment criteria. This section provides an overview of the typical activities that have potential for dust impacts during the construction phase of the proposed development.

An outline CEMP has been prepared in accordance with the IÉ Environmental Management Policy (EMP). The Outline Construction Environmental Management Plan (CEMP) also includes the Environmental Operating Plan (EOP) and Construction Demolition Waste Management Plan (CDWMP).

Further details on construction methods can be found in Chapter 5 of the EIAR which contains an overview of the typical activities and methods that are anticipated to be used during construction and commissioning of the proposed development.

1.1.1 Vegetation Clearance

The clearance of vegetation from land is required at a number of sites. Cleared land has the potential to be a dust emission source as grass and other soil covering prevented emission generation. The potential for dust generation is particularly present during extended period of dry conditions combined with high wind events which can lead to emissions from cleared land.

1.1.2 Concrete Batching

Currently there is no sites where onsite concrete batching will be required. However should this change during detailed design due to the nature of the raw materials required there is the potential for dust generation if batching plants are not maintained and run effectively. The batching plants are sealed silo units and best practice dictates the installation of a dust collector on the top of the silos which store the raw material in order to reduce the potential for dust pollution. The dust collector will be sized correctly and regularly maintained. In addition to ensuring that the batching plant is correctly sealed, loading bays for the raw materials will be enclosed to further reduce any risk of dust emissions.

Mixed concrete is a wet mix or slurry and therefore does not pose a risk as a dust generating material.

1.1.3 Demolition

There will be some demolition associated with the proposed Project. These include:

- OBG24 (Royal Canal) existing superstructure.
- 43.5 m of platform on the Down Track at Maynooth.
- At Diswellstown Road junction eastern arm boundary wall.
- OBG5 Broombridge Arch Deck.
- UBD233 (Newcomen Bridge).
- North Wall Permanent Facilities.
- OBD228 Sheriff Street Bridge

A detailed demolition study will be conducted, and a demolition plan formulated for each site. This plan will take into consideration the potential for dust generation at nearby sensitive receptors. Surveys will be required to identify the location of any asbestos or other harmful substances, which will require removal in accordance with the Guidelines on ACM Management and Abatement by Health and Safety Authority (HAS), code of practice for demolition (BS6187). All works and disposal operations will be undertaken by licensed specialist contractors.

1.1.4 Changes to vertical and horizonal alignments

To construct the Overhead Line Equipment (OHLE) below some of the existing bridges along the route, it is necessary to lower sections of the existing track for specific lengths. To complete this work old track panels will need to be cut out and removed using road-rail vehicles, excavators, crane on truck and other necessary engineering equipment. Degraded ballasts are then removed prior to the section being excavated and the process of new ballast and track being installed. This work is discussed in detail in Section 5.3.7.1 and Section 5.3.7.2 of the EIAR.

Changes to the vertical alignment is required beneath specific bridges, namely OBO11, OBG7A, OBG13, OBCN286, OBCN290 and OBG18. This work will be carried out before the main construction phase, during the enabling works.

New track horizontal alignment is required mainly at the new track configuration located at:

- Double track from Maynooth to the depot – this will require the modification of the existing ballast track to double track alignment until the depot.
- Spencer Dock-Docklands-East Wall – this will require the installation of a new slab track configuration.

Machinery proposed to be used are road-rail vehicles, trains to bring materials to/from site with flat wagons, hopper wagons, loader and ballast tamper. The use of heavy machinery, excavation, removal and cutting of old rail track have the potential to generate dust emissions. For the new horizontal alignment in the Spencer Dock-Docklands-East Wall zone, piled walls, micro-piled walls and cantilever walls will be required. Piled walls and micro-piled walls require significant amounts of excavations and heavy machinery and therefore have the potential for generating dust if not managed carefully.

1.1.5 Site vehicles and HGVs

A large portion of potential dust emissions from construction sites are due to site vehicles moving across temporary roads. Where possible railway will be used to transport materials to and from the sites.

The haulage routes to different compounds have been planned by road, so the routes have been chosen considering the nearest main road from the compound. In this case, an access route to the N2 national primary route has been planned. Chapter 5 in Volume 2 of the EIAR details the average HGV movements per day for different compounds, these range from an average of 28 to 52 HGV movements per day. The greatest number of movements at all sites were associated with OHLE Foundations. There will be a main storage and distribution center compound which serves all other compounds and has been adequately sized to allow storage of material to serve 1–2 month construction works. This main storage and distribution center has been located in proximity to the N2 to allow for ease of access by HGVs.

HGVs delivering or removing materials from site have the potential to track-out material on their wheels generating nuisance dust on public roads. Deposition of this material typically occurs in close proximity to each site (up to 350m) and potential impacts may occur up to 500 m from the site entrance on public roads, with potential impacts on sensitive receptors up to 50 m from the impacted road (IAQM 2014). Once HGVs have travelled 500m from the site it is assumed they are no longer a significant source of dust. Hence, dust impacts due to trackout associated with construction HGVs is considered not significant on haul routes once past this 500 m buffer from sites. The final Access/ Egress route will minimise the damage to any existing hedges and trees, whilst ensuring safe and efficient access / egress to the works.

There is not a high risk of dust generation from materials carried once they are covered/enclosed when appropriate however there is a potential risk from dust generated from trackout and wheel movements on site. Where possible, all site compounds will have a separate site entrance and exit with segregated vehicle and pedestrian routes within the site, unloading and holding areas, security and a wheel wash. The one-way system will reduce the need to complete turning movements on site which may cause additional agitation and resuspension of dust.

1.1.6 New Road Construction

The construction of new roads is required at a number of locations, including for supplying access to substations and at the depot. New road construction works will typically include the following construction sequencing:

- Earthworks which may involve the removal of topsoil, along with any vegetation, cut and fill works, grading the area and levelling the ground.
- Installation of the utilities, surface water drainage system comprising pipes and chambers, as required, and connect to the designated outfall point.
- Laying of the road foundation material.
- Installation of any required kerbs and the drainage collector system, such as gullies, and lighting, signing and traffic signals.
- Laying the road pavement material.

1.1.7 Excavation works

Cleared land and earthworks during the new road construction has the potential to be a dust emission source. The potential for dust generation is particularly present during extended period of dry conditions combined with high wind events which can lead to emissions from cleared land.

Shallow excavation works will be undertaken across the works. Shallow trench excavation uses a road-rail vehicle with excavator attachment and/or hand tools. The removal of surface material and excavation has the potential for dust generation. Shallow excavations will be used as part of the concrete trough required to complete some sections of the cable management system (CMS).

The excavated material will be stored at one of the site compounds where it will then be loaded onto road going tippers for transport to a local facility for disposal or recycling. Temporary material storage areas stores will be established and monitored. These areas will ensure materials are stored in a manner to reduce any potential for dust generation. However, in general, excavated material will be placed directly into tipper-type HGVs for transport to the final offsite disposal point. This reduces the potential for dust generation from stockpiles of excavated material.

1.1.8 Stockpiles

Stockpiles have the potential to generate dust due to dry material movement and wind erosion. Where stockpiles are present the US EPA's AP 42 handbook states that freshly processed aggregate has the highest potential for dust emissions. Stockpiles and aggregates for the DART+ sites will mainly consist of excavated soil and blasted rock.

As stockpiles are left on sites they weather, and moisture causes aggregation and cementation of fines to the surfaces of larger particles. Any significant rainfall soaks the interior of the pile, and thereafter the drying process is very slow. During periods of dry weather, surface moisture can be applied. In addition, for long-term stockpile areas, use of enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions.

Due to space restrictions at site compounds, materials will be moved off-site as soon as possible to a licensed facility for processing and where possible recycling and reuse. Where possible material will be loaded straight onto vehicles for removal from site in order to reduce resuspension potential.

1.1.9 Utility Diversions

Due to the urban nature of the location of the proposed development, there are a large number of utilities and services located along the public road, adjacent to carriageways and in footpaths along the alignment. These existing utilities and services include:

- Surface water, foul and combined sewers.
- Watermains.
- Electricity supplies.
- Overhead and underground ESB cables.
- Gas mains.
- Telecommunication and cable services including fibre optics.

These activities have the potential to generated dust as surfaces such as roads and footpaths need to be dug up and the ground below excavated. Due to the linear nature of these works and depth of excavations required these works do not have a high risk of generating significant volumes of dust. However correct management of the works will minimise any dust generation.