N25 Little Island Pedestrian and Cyclist Bridge
Environmental Impact Assessment Report

Chapter 11
Air Quality

Contents

Tables

Images

11. Air Quality

11.1 Introduction

This chapter assesses the potential significant effects on air quality resulting from the construction, operation and decommissioning of the Proposed Development.

The air quality assessment includes a qualitative assessment of construction air emissions and considers the likely significant effects on the atmospheric environment as a result of the operation and decommissioning of the Proposed Development.

11.2 Assessment Methodology

Air quality assessments are concerned with the presence of airborne pollutants in the atmosphere. The likely significant effects of the Proposed Development on air quality have been assessed by considering the background concentration levels of pollutants in the atmosphere and the potential for construction, operational and decommissioning effects associated with the Proposed Development.

This assessment has been undertaken with regard to the Transport Infrastructure Ireland (TII) (2022) *Air Quality Assessment of Proposed National Roads – Standard* (hereafter referred to as the 'TII guidelines') and Institute of Air Quality Management (IAQM) (2014) *Guidance on the assessment of dust from demolition and construction* (hereafter referred to as the 'IAQM guidance'). These guidelines provide a methodology for the assessment, management and mitigation of air quality that can be adapted accordingly, depending on the nature of the works.

Predicted concentrations due to the construction and operation of the Proposed Development are compared to the relevant limit values to determine likely significant effects.

11.2.1 Guidance and Legislation

11.2.1.1 Overview

This chapter has been prepared in accordance with the following legislation and guidance:

- Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022);
- Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (the 'EIA Directive');
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the 'CAFÉ Directive');
- Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment (the 'amended EIA Directive');
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018;
- Planning and Development Act 2000 – 2022;
- Planning and Development Regulations 2001 – 2022;
- Department of Housing, Planning and Local Government (DHPLG) (2018). *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment;*
- Environmental Protection Agency (EPA) (2022a). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (the 'EPA guidelines');
- Institute of Air Quality Management (IAQM) (2014). *Guidance on the assessment of dust from demolition and construction (Version 1.1)* (the 'IAQM guidance');
- UK Highways Agency (UKHA) (2019) Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality (hereafter referred to as LA 105 Air Quality Guidance); and

- TII (2022) *Air Quality Assessment of Proposed National Roads – Standards* (the 'TII guidelines').

11.2.1.2 Air Quality Standards

In order to reduce the risk to human health and the environment due to poor air quality, national and European statutory bodies have set limit values for a range of air pollutants in ambient air. These limit values or Air Quality Standards (AQS) are defined for the protection of human health and ecosystems.

The Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022) transpose EU Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the 'CAFE Directive') into Irish law. The purpose of the regulations is to establish limit values and alert thresholds for concentrations of certain pollutants, to provide for the assessment of certain pollutants using methods and criteria common to other European Member States, to ensure that adequate information on certain pollutant concentrations is obtained and made publicly available and to provide for the maintenance and improvement of ambient air quality, where necessary. The limit values established under the Directive relevant to this assessment are included in **Table 11.1**.

Table 11.1: Limit values in the CAFE Directive

Pollutant	Limit value for the protection of:	Averaging period	Limit value ($\mu g/m^3$)	Basis of application of limit value
Particulates (PM_{10})	Human Health	24-hours	50	≤ 35 exceedances p.a. (90%ile)
		Calendar year	40	Annual mean
Particulates ($PM_{2.5}$)	Human Health	Calendar year	25	Annual mean
Nitrogen Dioxide (NO_2)	Human Health	1-hour	200	≤ 18 exceedances p.a. (99.7%ile)
		Calendar year	40	Annual mean
Nitrogen Oxides (NO_x)	Vegetation	Calendar year	30	Annual mean
Carbon Monoxide (CO)	Human Health	8-hours	10,000	Annual mean
Sulphur Dioxide (SO_2)	Human Health	1-hour	350	≤ 24 exceedances p.a. (99.7%ile)
	Human Health	24-hour	125	≤ 3 exceedances p.a. (99.2%ile)
	Vegetation	Calendar year	20	Annual mean

There are no statutory limits for dust at a European or national level. However, TA Luft (TA Luft, 2002) provides a guideline for the rate of dust deposition of 350 mg/m^2/day averaged over one year. The EPA concurs (EPA, 2006) that this guideline may be applied, although the EPA typically applies the guideline limit as a 30-day average.

11.2.2 Traffic

The TII guidelines state that increases in annual average daily traffic (AADT) flows of 1,000 vehicles or 200 heavy duty vehicles (HDV) (greater than 3.5 tonnes) during the Construction and Operational Phases are unlikely to result in significant air quality effects. Likely significant effects on air quality are, therefore, assessed when the AADT flows are projected to increase above these thresholds.

As traffic volumes are not projected to increase by 1,000 vehicles or 200 HDVs during the Construction Phase or Operational Phase of the Proposed Development, traffic related air quality impacts have been scoped out of the assessment. Refer to **Chapter 7**, *Traffic and Transportation* for further information on construction and operational traffic associated with the Proposed Development.

11.2.3 Construction Phase

For the Construction Phase assessment, the focus is on air quality sensitive receptors adjacent to the proposed works that are susceptible to dust impacts. The greatest potential impact on air quality during the Construction Phase will be related to construction dust.

The construction effects have been assessed using the qualitative approach described in the IAQM guidance, which applies to the assessment of dust from construction and demolition activities. The IAQM guidance provides guidelines to air quality consultants and environmental health officers on how to assess air quality impacts from construction activities. It provides a method for classifying the significance of effects from construction activities based on the 'dust magnitude' (high, medium or low) and proximity of the site to the closest receptors. The guidance recommends that once the significance of effect from construction is identified, appropriate mitigation measures are implemented. The guidance notes that once the appropriate mitigation measures are applied, in most cases the resulting dust impacts can be reduced to negligible levels.

In the context of this assessment, an 'impact' refers to a change in pollutants concentrations or dust deposition, while an 'effect' refers to the consequence of same. The main impacts that may arise during construction of the Proposed Development are:

- Dust deposition, resulting in the soiling of surfaces;
- Visible dust plumes;
- Elevated PM_{10} concentrations as a result of dust generating activities on site; and
- An increase in NO_2 and PM_{10} concentrations due to exhaust emissions from non-road mobile machinery (NRMM) and vehicles accessing the site.

The IAQM guidance considers the potential for dust emissions from dust-generating activities, such as demolition of existing structures, earthworks, construction of new structures and trackout. Earthworks refer to the processes of soil stripping, ground levelling, excavation and land capping, while trackout is the transport of dust and dirt from the site onto the public road network where it may be deposited and then re-suspended by vehicles using the network. This arises when vehicles leave the site with dusty materials, which may then spill onto the road, or when they travel over muddy ground on site and then transfer dust and dirt onto the road network.

For each of these dust-generating activities, the guidance considers three separate effects: annoyance due to dust soiling; harm to ecological receptors; and the risk of health effects due to a significant increase in PM_{10} exposure. The receptors can be human or ecological and are chosen based on their sensitivity to dust soiling and PM_{10} exposure.

The methodology takes into account the scale to which the above effects are likely to be generated (classed as small, medium or large), along with the levels of background PM_{10} concentrations and the distance to the closest receptor, in order to determine the sensitivity of the area. This is then taken into consideration when deriving the overall risk for the site. Suitable mitigation measures are also proposed to reduce the risk of the site. **Image 11.1** outlines the steps to be undertaken.

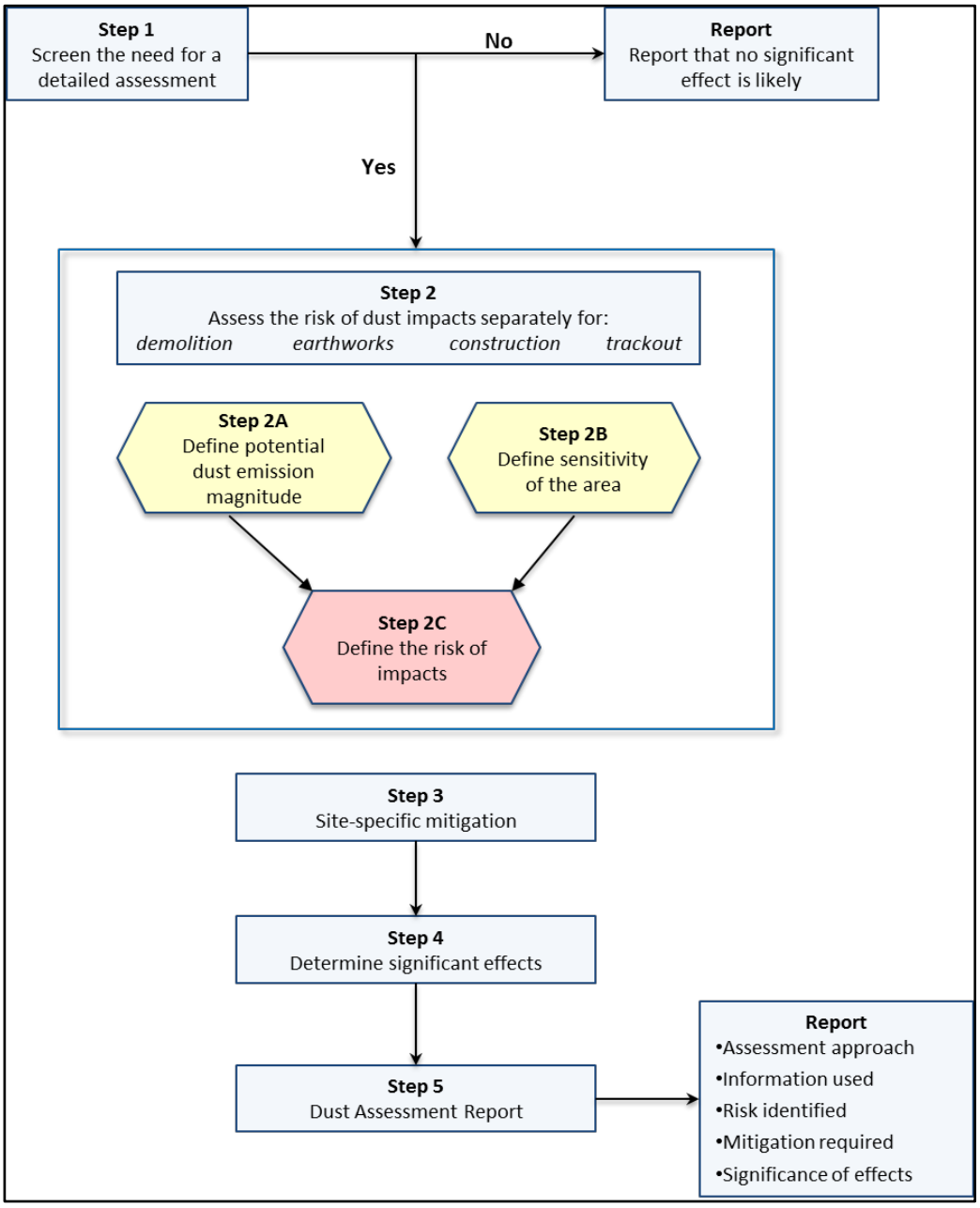

Image 11.1: Steps to undertake a dust assessment

Step 1: Screen need for assessment

The first step is the initial screening for the need for a detailed assessment. According to the IAQM guidance, an assessment is required where there are sensitive receptors within 350m of the site boundary, for ecological receptors within 50m of the site boundary and / or within 50m of the route(s) used by the construction vehicles on the public highway, and up to 500m from the site entrance(s). There are sensitive receptors within 350m of the site boundary and, therefore, an assessment of the air quality effects is required. There are no ecological sensitive areas in proximity to the Proposed Development (as per above thresholds). Therefore, the potential air quality effects on such receptors have been screened out of this assessment.

Step 2: Assess the risk of dust impacts

This step is split into three sections as follows:

2A. Define the potential dust emission magnitude;

2B. Define the sensitivity of the area; and

2C. Define the risk of impacts.

Each of the dust-generating activities is given a dust emission magnitude depending on the scale and nature of the works (step 2A) based on the criteria shown in **Table 11.2**.

As no demolition work is associated with the Proposed Development, it has been excluded from the assessment.

The sensitivity of the surrounding area is then determined (step 2B) for each dust effect from the above dust-generating activities, based on the proximity and number of receptors, their sensitivity to dust, the local PM_{10} background concentrations and any other site-specific factors. **Table 11.3** and **Table 11.4** show the criteria for defining the sensitivity of the area to different dust effects.

The health effects of PM_{10} on *high sensitivity receptors* includes residential areas, residential properties, schools and residential care homes in close proximity to the Proposed Development.

The overall risk of the impacts for each activity is then determined (step 2C) prior to the application of any mitigation measures and an overall risk for the site derived.

Table 11.2: Categorisation of dust emission magnitude

Dust Emission Magnitude		
Small	**Medium**	**Large**
Earthworks		
• total site area <2,500m^2 • soil type with large grain size (e.g., sand) • <5 heavy earth moving vehicles active at any one time • formation of bunds <4m in height • total material moved <10,000 tonnes • earthworks during wetter months	• total site area 2,500m^2-10,000m^2 • moderately dusty soil type (e.g., silt) • 5 – 10 heavy earth moving vehicles active at any one time • formation of bunds 4-8m in height • total material moved 20,000 - 100,000 tonnes	• total site area >10,000m^2 • potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size) • >10 heavy earth moving vehicles active at any one time • formation of bunds >8m in height • total material moved >100,000 tonnes
Construction		
• total building volume <25,000 m^3 • construction material with low potential for dust release (e.g., metal cladding or timber)	• total building volume 25,000 - 100,000m^3 • potentially dusty construction material (e.g., concrete) • on-site concrete batching	• total building volume >100,000m^3 • on-site concrete batching • sandblasting
Trackout		
• <10 HDV (>3.5t) outward movements in any one day • surface material with low potential for dust release • unpaved road length <50m	• 10 – 50 HDV (>3.5t) outward movements in any one day • moderately dusty surface material (e.g., high clay content) • unpaved road length 50 – 100m;	• >50 HDV (>3.5t) outward movements in any one day • potentially dusty surface material (e.g., high clay content) • unpaved road length >100m

Table 11.3: Sensitivity of the area to human health impacts

Background PM_{10} concentrations (annual mean)	Number of receptors	Distance from the source (m)				
		<20	<50	<100	<200	<350
High Receptor Sensitivity						
> 32µg/m³	> 100	High	High	High	Medium	Low
	10 – 100			Medium	Low	
	< 10		Medium	Low		
28 – 32µg/m³	> 100	High	High	Medium	Low	Low
	10 – 100		Medium	Low		
	< 10					
24 – 28µg/m³	> 100	High	Medium	Low	Low	Low
	10 – 100					
	< 10	Medium	Low			
< 24µg/m³	> 100	Medium	Low	Low	Low	Low
	10 – 100	Low				
	< 10					
Medium Receptor Sensitivity						
–	> 10	High	Medium	Low	Low	Low
	< 10	Medium	Low			
Low Receptor Sensitivity						
–	> 1	Low	Low	Low	Low	Low

Table 11.4: Sensitivity of the area to dust soiling effects on people and property

Receptor Sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	> 100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	< 10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

Table 11.5: Risk of dust impacts

Sensitivity of Area	Dust Emissions magnitude		
	Large	Medium	Small
Earthworks			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
Construction			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
Trackout			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Low risk site	Negligible
Low	Low risk site	Low risk site	Negligible

11.2.4 Operational Phase

For the Operational Phase, an assessment of dust impacts from the maintenance of the Proposed Development has been scoped out on the basis that these activities have low potential for dust release and are likely to have a negligible impact on air quality sensitive receptors. As outlined in Section 11.2.2, in accordance with the TII guidelines, operational phase traffic related air quality impacts have also been scoped out of the assessment.

11.2.5 Decommissioning Phase

For the Decommissioning Phase, the decommissioning of the Proposed Development will have the potential to generate dust. However, impacts are not likely to be greater than Construction Phase impacts. As traffic volumes generated during the Decommissioning Phase are anticipated to be minimal, traffic related air quality impacts have been scoped out of the decommissioning assessment.

11.3 Baseline Environment

11.3.1 Overview

The Air Quality Standards (AQS) Regulations describe the air quality zoning adopted in Ireland as follows:

- Zone A (Dublin Conurbation);
- Zone B (Cork Conurbation);
- Zone C (16 Cities and Towns with population greater than 15,000); and
- Zone D (Rural Ireland: areas not in Zones A, B and C).

The Proposed Development is in Zone B.

The annual mean background levels of NO_2, NO_x, PM_{10}, $PM_{2.5}$ and Carbon Monoxide (CO) from EPA monitoring undertaken from 2019 to 2021, are presented in **Table 11.6**. Concentrations of each pollutant recorded in Zone B are averaged to represent typical background levels.

Table 11.6: Annual mean background pollutant concentrations for Zone B

Years	Annual Average NO_2 (µg/m³)	Annual Average NO_x (µg/m³ NO_2)	Annual Average PM_{10} (µg/m³)	Annual Average $PM_{2.5}$ (µg/m³)	8-hour average CO (µg/m³)
2019	15.5	-	8.0	8.5	300
2020	11.0	22.6	13.3	7.0	600
2021	12.3	22.1	12.4	7.2	350 *Note 5*
Average	12.5	18.8	12.8	8.2	433.3
Limit	*40*	*30* *Note 6*	*40*	*20* *Note 7*	*10,000*

Note 5: Only one concentration was provided in the report tables which includes a 79% data capture. The average of Zone A sites (above the required 90% capture rate) was therefore used instead.
Note 6: Limit for the protection of human health.
Note 7: Limit for the protection of vegetation. As stated by the EPA this limit only applies to rural stations in Zone B

Concentrations of each pollutant recorded in Zone B are averaged to represent typical background levels. Average concentrations were obtained from all Zone B stations where 90% data capture was achieved. This is in accordance with the air quality standards which specifies that any site used for assessment purposes must comply with 90% data capture. For pollutants where the 90% capture rule was not achieved at any Zone B sites, the average of Zone A was taken instead.

Air quality monitoring at Zone B has indicated that average background concentrations for NO_2, NO_x, PM_{10}, $PM_{2.5}$ and CO are all below the standard air quality limits outlined in **Table 11.6**.

11.3.2 National ambient air quality network

The EPA's National Ambient Air Quality Network[1] records air quality at several monitoring stations around the country, including at locations in the vicinity of the Proposed Development site. The closest station to the Proposed Development site is located in Cobh, Carrignafoy (Station 60). Air quality data from this monitoring station in 2023 has been summarised below**.**

This station is located approximately 7.5km to the southeast of the Proposed Development. This station measures PM_{10} and $PM_{2.5}$. For the six-month period from January 2023 to July 2023, the average PM_{10} and $PM_{2.5}$ levels were approximately 12.3µg/m³ and 7.4µg/m³, respectively. These are below the 40 µg/m³ PM_{10} and $PM_{2.5}$ limit values.

11.3.3 Sensitive receptors

The guidance defines sensitive receptors as locations including residential housing, schools, hospitals, places of worship, sports centres and shopping areas, i.e., locations where members of the public are likely to be regularly present. There are a number of sensitive receptors in proximity to the Proposed Development. The following are the properties present within 500m of the site boundary of the Proposed Development which are considered 'sensitive' in terms of air quality:

- Radisson Blu Hotel & Spa, approximately 50m south of the site boundary;
- Multiple residential properties to the north and northwest of the site boundary, with the closest located approximately 80m north of the site boundary;
- Little Island train station, approximately 100m southeast of the site boundary; and
- Shopping area with various commercial premises, approximately 250m southeast of the site boundary.

Most properties surrounding the Proposed Development site are industrial developments. There are currently no hospitals, schools or places of worship within 500m of the site boundary.

[1] www.airquality.ie

Sensitive receptors in the wider area include Cork Golf Club, approximately 570m south of the site boundary, the Little Island National School, approximately 580m southwest of the site boundary, the Time of Wonder Montessori School, approximately 600m southeast of the site boundary, St. Lappan's Church, approximately 640m southwest of the site boundary and the Little Island Dental Surgery, approximately 670m southeast of the site boundary.

As discussed above, potential impacts on ecological sensitive receptors have been screened out of this assessment, as there are no such sites situated on the site of the Proposed Development or in the immediate vicinity.

11.4 Potential Impacts

11.4.1 'Do-Nothing' Impact

The 'Do-Nothing' scenario considers the likely scenario that would arise, assuming the Proposed Development were not progressed, i.e., if nothing were done. In the 'Do-Nothing' scenario, the Proposed Development would not be constructed, and the air quality impacts described herein would not occur. The Do-Nothing' scenario would be consistent with the baseline conditions and trends in the receiving environment, as detailed above. The resultant air quality impact would be neutral.

11.4.2 Construction Phase

11.4.2.1 Dust

The primary air quality issues associated with the construction of the Proposed Development will be short-term dust. Dust emissions during the Construction Phase are likely to result from the following activities:

- Site clearance;
- Utility diversions;
- Bridge foundation construction;
- Site excavation;
- Piling;
- Stockpiling of materials;
- Handling of construction materials;
- Construction traffic movements; and
- Landscaping.

As per the IAQM guidance (IAQM, 2014), the following three types of overarching dust generating activities have been assessed to reflect the different potential impacts:

- Earthworks;
- Construction; and
- Trackout.

The fourth type, demolition, has been excluded as noted previously in Section 11.2.3 as no demolition work is associated with the Proposed Development.

Dust Emission Magnitude

Following the methodology outlined in Section 11.2.3 (refer to **Table 11.2**), each dust generating activity has been assigned a dust emission magnitude as shown in **Table 11.7**.

Table 11.7: Dust emission magnitude for construction activities

Activity	Dust emission magnitude	Reasoning
Earthworks	Large	Total site area >10,000 m^2
Construction	Small	Construction material with low potential for dust release
Trackout	Medium	Moderately dusty surface material (e.g., high clay content) Unpaved road length 50 – 100 m

Sensitivity of the Area

The sensitivity of the area to human health has been assigned as 'low' as the background PM_{10} concentration is less than the lower value of 24 µg/m^3 (refer to **Table 11.3**). The sensitivity of the area to dust soiling has been assigned as 'medium', due to the number of sensitive receptors within proximity of dust generating activities. The overall sensitivity has been summarised as shown in **Table 11.8**.

Table 11.8: Sensitivity of the area

Potential Impact	Sensitivity
Human health	Low
Dust soiling	Medium

Risk of Impacts

Taking into consideration the dust emission magnitude and the sensitivity of the area, the risk of dust impacts in the absence of mitigation is presented in **Table 11.9**.

Table 11.9: Risk of dust impacts

Potential Impact	Activity		
	Earthworks	Construction	Trackout
Human health	Low	Negligible	Low
Dust soiling	Medium	Low	Low

Overall, the site has been classified as low to medium risk for earthworks, a negligible to low risk for construction and a low risk for trackout (in the absence of mitigation).

There are a number of receptors located relatively close to the proposed works, as described in Section 11.3.3. Therefore, there is potential for air quality effects arising from dust during construction activities. The worst-case risk is assigned as Medium, as shown in **Table 11.9**, prior to the implementation of mitigation measures. In accordance with IAQM Guidance, the significance of effects is determined after the application of mitigation measures. Specific mitigation is described in Section 11.5.

11.4.3 Operational Phase

As discussed in Section 11.2.2, there will be no significant change in traffic volumes as a result of the Operational Phase and no significant operational air emissions sources. Therefore, no significant negative air quality effects are predicted during the Operational Phase. There is the potential for a positive impact on air quality during the operational phase due to the modal shift away from private car due to the provision of the proposed development.

11.4.4 Decommissioning Phase

As outlined in **Chapter 4**, *Description of the Proposed Development*, the design life of the proposed new pedestrian and cyclist bridge is 120 years. During the potential future decommissioning works, the main bridge span and approach spans will be decommissioned by cutting the concrete decking and steel spans into a number of large sections. This will be done either *in situ* or at ground level, with the decking and spans being lifted out by a mobile crane and moveable gantry.

The decommissioning activities have the potential to generate dust, but the intensity and duration of the activities will be less than that associated with the Construction Phase. i.e., negligible temporary effects are predicted.

11.5 Mitigation and Monitoring

11.5.1 Mitigation

11.5.1.1 Construction Phase

The assessment of likely significant effects during construction (as noted in Section 11.4.2) includes for the implementation of 'standard mitigation', as stated in the TII guidance. The measures which are appropriate and practicable to the Proposed Development include:

- During very dry periods when dust generation is likely, construction areas will be sprayed with water;
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators and other plant equipment, will be controlled by the contractor through regular servicing of machinery;
- Vehicle speeds will be limited in the construction site;
- Wheel-wash facilities may be provided, if required. Wheel-wash facilities will have rumble grids to remove excess mud from wheels. These facilities will be located at the exit from the construction compounds and away from sensitive receptors, where possible; and
- Surrounding roads used by trucks to access to and egress from the site will be cleaned regularly using an approved mechanical road sweeper. Roads will be cleaned on a daily basis, or more regularly, as required.

In addition, the following measures will be implemented. These measures are based on best practice as outlined in the British Research Establishment (BRE) document *Controlling particles, vapour and noise pollution from construction sites* (BRE, 2003) and the Institute of Air Quality Management (IAQM) document *Guidance on the assessment of dust from demolition and construction* (IAQM, 2016):

- Areas where materials will be handled and stockpiled will be designed to minimise their exposure to wind – all temporary stockpiles shall be kept to the minimum practicable height with gentle slopes;
- Material drop heights from plant to plant or from plant to stockpile will be minimised; and
- Where practicable, truck loads will be covered when carrying material likely to generate dust.

A dust minimisation plan, forming part of the Construction Environmental Management Plan (CEMP) (refer to **Appendix 5.1** in **Volume 4** of this EIAR) will be prepared and implemented by the building contractor during the Construction Phase of the project.

The following measures shall also be implemented to minimise off-site dust impacts:

- Provision of hoarding around the site;
- Locating plant likely to generate emissions away from sensitive receptors; and
- Any stockpiled material will be covered / dampened during periods of dry weather to prevent the spreading of dust.

The above techniques will be adopted for all works will minimise the release of dust into the atmosphere.

At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

Staff training and the management of operations will ensure that all dust suppression methods are implemented and continuously inspected.

11.5.1.2 Operational Phase

As there are no significant negative effects on air quality predicted during the Operational Phase of the Proposed Development, no mitigation measures are proposed.

11.5.1.3 Decommissioning Phase

As there are no significant negative effects on air quality predicted during the Decommissioning Phase of the Proposed Development, no mitigation measures are proposed.

11.5.2 Monitoring

11.5.2.1 Construction Phase

The following monitoring measure will be implemented for the Construction Phase of the Proposed Development:

- The contractor will undertake on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Cork County Council (CCC) on request. The frequency of the inspections will be increased during site activities which have a high potential to generate dust.

11.5.2.2 Operational Phase

As there are no significant air quality effects predicted during the Operational Phase, no monitoring measures are required.

11.5.2.3 Decommissioning Phase

As there are no significant air quality effects predicted during the Decommissioning Phase, no monitoring measures are required.

11.6 Cumulative Impacts

A review of Cork County Council (CCC), An Bord Pleanála (ABP) and Department of Housing, Local Government and Heritage (DHLGH) online planning records has indicated that other projects have been permitted or proposed within the surrounding area that may give rise to cumulative impacts in combination with the impacts of the Proposed Development. The list of projects is included in **Chapter 20,** *Cumulative and Interactive Impacts*.

Taking the nearby projects together in combination with the Proposed Development, it is considered that there is a potential for short-term cumulative effects to air quality due to construction dust, should the Construction Phases overlap. However, given the implementation of the mitigation measures outlined in Section 11.5.1 and low volumes of construction traffic associated with the Proposed Development, no significant cumulative air quality effects are predicted during the Construction Phase.

Considering there are no significant operational emissions associated with the Proposed Development, there are no significant cumulative air quality effects predicted during the Operational Phase in combination with the projects listed in **Chapter 20,** *Cumulative and Interactive Impacts*.

Overall, there are no significant effects to air quality associated with the construction or operation of the Proposed Development in combination with the projects listed in **Chapter 20,** *Cumulative and Interactive Impacts.* Therefore, no significant cumulative construction or operation effects are predicted.

11.7 Residual Impacts

11.7.1 Construction Phase

With the implementation of the mitigation measures outlined in Section 11.5.1, no significant negative residual effects on air quality are envisaged during the Construction Phase.

11.7.2 Operational Phase

There are no significant negative residual air quality effects expected as a result of the operation of the Proposed Development.

11.7.3 Decommissioning Phase

There are no significant negative residual air quality effects expected as a result of the decommissioning of the Proposed Development.

11.8 References

Department of Housing, Planning and Local Government (DHPLG) (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.

Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment.

EC Directive (2008). 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe. European Parliament and European Council, Strasbourg, France.

Environmental Protection Agency (2022a). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

Environmental Protection Agency (2022b). Air Quality in Ireland 2021 - Indicators of Air Quality. [online] Available at: http://www.epa.ie/air/quality/

Environmental Protection Agency (2021). Air Quality in Ireland 2020 - Indicators of Air Quality. [online] Available at: http://www.epa.ie/air/quality/

Environmental Protection Agency (2020). Air Quality in Ireland 2019 - Indicators of Air Quality. [online] Available at: http://www.epa.ie/air/quality/

Environmental Protection Agency (2006). Environmental Management in the Extractive Industry (Non-Scheduled Minerals). EPA, Wexford, Ireland.

European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

Highways England (2020) UK Design Manual for Roads and Bridges Environmental and Sustainability Appraisal - Air Quality.

Highways England (2007) UK Design Manual for Roads and Bridges (DMRB) Screening Method.

Institute of Air Quality Management (IAQM) (2014). Guidance on the assessment of dust from demolition and construction.

Planning and Development Act 2000 – 2022.

Planning and Development Regulations 2001 – 2022.

S.I. No. 739 of 2022 Air Quality Standards Regulations 2022.

TA Luft (2002). Technical Instructions on Air Quality.

Transport Infrastructure Ireland (TII) (2022). Air Quality Assessment of Proposed National Roads. TII, Dublin, Ireland.