# 9. AIR QUALITY

## 9.1 Introduction

MKO have prepared the Air Quality Chapter of this Environmental Impact Assessment Report (EIAR) for the Proposed Development at Hodson Bay, Co. Roscommon. This chapter identifies, describes and assesses the potential significant direct and indirect effects on air quality arising from the construction and operation of the Proposed Development. The full description of the Proposed Development is detailed in Chapter 4.

### 9.1.1 Background

The Proposed Development site is located within the townland of Barrymore and is 4 kilometres (km) to the northwest of Athlone, Co. Roscommon. The Proposed Development site comprises the existing Waterways Ireland-operated marina facility, the Baysports Waterpark facility, vegetated areas, areas of land currently owned by Roscommon County Council, Athlone Golf Club, the Hodson Bay Hotel, Inland Properties Ltd and other parties as outlined in the Planning Statement, car parking and landscaping areas. The area is renowned as a leisure destination, and the Hodson Bay Hotel and Athlone Golf Club are adjacent to the subject site.

Due to the nature of the Proposed Development and the general character of the surrounding environment, air quality sampling was deemed to be unnecessary for this EIAR. It is expected that air quality in the existing environment is good, since there are no major sources of air pollution (e.g. heavy industry) in the vicinity of the site.

### 9.1.2 Statement of Authority

This chapter of the EIAR has been prepared by Feargal Lennon and Karen Mulryan, and reviewed by Eoin O'Sullivan, all of MKO. Feargal Lennon joined MKO in 2023. He holds an MSc in Environmental Resource Management from University College Dublin. Feargal has prepared numerous Air chapters for EIARs across a variety of project types, including greenways, quarries, waste facilities, industrial and residential developments. Feargal is a member of the Institute of Environmental Management and Assessment (IEMA).

Karen is a Senior Environmental Scientist with MKO with over 10 years' experience in the consultancy sector. Karen holds a BA International in Archaeology from NUI Galway and a MSc in Archaeology from the University of Edinburgh. Karen's professional consultancy experience comprises project management, environmental impact assessment reporting and peer reviewing, site selection, feasibility assessment, client liaison and stakeholder engagement. Karen's project management and EIA coordination experience includes large scale renewable energy developments, specifically wind and solar, grid infrastructure, large scale flood relief schemes and residential developments. Karen holds memberships with the Chartered Institute for Archaeologists (ACIfA) and the Institute of Archaeologists of Ireland (IAI).

Eoin O'Sullivan is a Project Director at MKO with over 18 years of experience in the environmental assessment of a wide range of energy and infrastructure related projects and working in the fields of environmental and human health risk assessment, waste management, waste policy and permitting. Eoin has also experience in completing Environmental Impact Assessment Reports for renewable energy projects, quarries, waste infrastructure and wastewater treatment facilities. Eoin holds a BSc (Hons) in Environmental Science & Technology and an MSc in Environmental Engineering. Eoin's key strengths include project strategy advice for a wide range and scale of projects, project management and liaising with the relevant local authorities, Environmental Protection Agency (EPA) and statutory consultees as well as coordinating the project teams and sub-contractors. Eoin is a Chartered Member of the Chartered Institute of Water and Environmental Management and Chartered Environmentalist with the Society of Environment.

### 9.1.3 Limitations and Difficulties Encountered

No limitations or difficulties were encountered during the preparation of the Air Quality Chapter of the EIAR.

## 9.2 Relevant Guidance

The air quality chapter of this EIAR has been completed in accordance with the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU and having regard, where relevant, to guidance listed below.

- Transport Infrastructure Ireland (TII) (2025). Air Quality Assessment of Proposed National Roads – Standard (PE-ENV-01107). December 2025.[1]
- European Environment Agency (EEA) (2025). Air Quality Status Report 2025[2]
- European Environment Agency (EEA) (2024). Ireland – Air Pollution Country Fact Sheet 2024[3].
- European Environment Agency (EEA) (2023). Air Quality in Europe 2023[4].
- Environmental Protection Agency (EPA) (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR). June 2022[5]
- European Commission (EC) (2017). Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report. 2017[6].
- Environmental Protection Agency (EPA) (2025). Air Quality in Ireland Report 2024[7].
- Environmental Protection Agency (EPA) (2021). Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects. 2021[8].
- Institute of Air Quality Management (IAQM) (2024). Guidance on the Assessment of Dust from Demolition and Construction. 2024[9].
- National Roads Authority / Transport Infrastructure Ireland (TII) (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes[10].
- Government of Ireland (2023). Clean Air Strategy for Ireland. 2023 [11].
- UK Highways Agency / National Highways (2024). Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality. Version 0.1.0, June 2024[12].
- World Health Organization (WHO) (2021). Global Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide.

[1] Transport Infrastructure Ireland (TII) (2022): *'Air Quality Assessment of Proposed National Roads – Standard PE-EN-01107'.* TII. Ireland. Available at: https://cdn.tii.ie/publications/PE-ENV-01107-01.pdf
[2] *Air Quality Status Report 2025 (EEA, 2025) https://www.eea.europa.eu/en/analysis/publications/air-quality-status-report-2025*
[3] *Ireland – air pollution country fact sheet 2024. Available at: Ireland – air pollution country fact sheet 2024 | European Environment Agency's home page*
[4] *Europe's air quality status 2023 (EEA, 2023). Available at: https://www.eea.europa.eu/en/analysis/publications/europes-air-quality-status-2023*
[5] Environmental Protection Agency (EPA) (2022): *'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'.* EPA. Ireland. Available at: https://www.epa.ie/publications/monitoring assessment/assessment/EIAR_Guidelines_2022_Web.pdf
[6] European Commission (EC) (2017): *'Guidance on the preparation of the Environmental Impact Assessment Report'. EC. Ireland. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf.*
[7] Environmental Protection Agency (EPA) (2024): *'Air Quality in Ireland Report 2024'.* EPA. Ireland. Available athttps://www.epa.ie/publications/monitoring--assessment/air/air-quality-in-ireland-2024.php
[8] Environmental Protection Agency (EPA) (2021): *'Best Practice Guidelines for the preparation of Resource & Waste Management Plans for Construction & Demolition Projects'.* EPA. Ireland. Available at: https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf.
[9] The Institute of Air Quality Management (IAQM) (2024): *'Guidance on the Assessment of Dust from Demolition and Construction'.* IAQM. UK. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf.
[10] Transport Infrastructure Ireland (TII) (2009): *'Guidelines for Assessment of Ecological Impacts of National Road Schemes'.* TII. Ireland. Available at: https://www.tii.ie/media/kzldoawo/guidelines-for-assessment-of-ecological-impacts-of-national-road-schemes.pdf.
[11] Government of Ireland (GOF) (2023): *'Clean Air Strategy for Ireland'.* GOF. Ireland. Available at: https://assets.gov.ie/static/documents/clean-air-strategy.pdf.
[12] UK Highways Agency (UKHA) (2024): *'Design Manual for Roads and Bridges'.* UKHA. UK. Available at: https://www.standardsforhighways.co.uk/search/html/25cefcd4-3464-4e41-8e4f-fffc155723ea?standard=DMRB

(Latest guideline update; supported by updated global standards database released 2025–2026)[13].

- Federal Government of Germany (2021). Technical Instructions on Air Quality Control (TA Luft)[14].
- European Environment Agency (EEA). Ireland – Air Pollution Country Fact Sheet 2024.

## 9.3 Relevant Legislation

In 1996, the Air Quality Framework Directive (on ambient air quality assessment and management) (96/62/EC) was published. This Directive was transposed into Irish law by the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (S.I. No. 33 of 1999). The Directive was followed by four Daughter Directives, which set out limit values for specific pollutants:

- The first Daughter Directive (1999/30/EC) addresses sulphur dioxide, oxides of nitrogen, particulate matter and lead.
- The second Daughter Directive (2000/69/EC) addresses carbon monoxide and benzene. The first two Daughter Directives were transposed into Irish law by the Air Quality Standards Regulations 2002 (SI No. 271 of 2002).
- The third Daughter Directive, Council Directive (2002/3/EC) relating to ozone was published in 2002 and was transposed into Irish law by the Ozone in Ambient Air Regulations 2004 (SI No. 53 of 2004).
- The fourth Daughter Directive (2004/107/EC), published in 2004, relates to polyaromatic hydrocarbons (PAHs), arsenic, nickel, cadmium and mercury in ambient air and was transposed into Irish law by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2009 (S.I. No. 58 of 2009) as amended by the Air Quality Standards (Amendment) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2016 (S.I. 659 2016).

The Air Quality Framework Directive and the first three Daughter Directives have been replaced by the Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC on ambient air quality and cleaner air for Europe) (as amended by Directive European Union (EU) 2015/1480) which encompasses the following elements:

- The merging of most of the existing legislation into a single Directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives.
- New air quality objectives for $PM_{2.5}$ (fine particles) including the limit value and exposure concentration reduction target.
- The possibility to discount natural sources of pollution when assessing compliance against limit values.
- The possibility for time extensions of three years (for particulate matter $PM_{10}$) or up to five years (nitrogen dioxide, benzene) for complying with limit values, based on conditions and the assessment by the European Commission.

Table 9-1 below sets out the limit values of the CAFE Directive, as derived from the Air Quality Framework Daughter Directives. Limit values are presented in micrograms per cubic metre ($\mu g/m^3$) and parts per billion (ppb). The notation $PM_{10}$ is used to describe particulate matter or particles of ten micrometres or less in aerodynamic diameter. $PM_{2.5}$ represents particles measuring less than 2.5 micrometres in aerodynamic diameter.

[13] World Health Organisation (WHO) (2021): *'Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide'*. WHO. Switzerland. Available at: https://iris.who.int/bitstream/handle/10665/345329/9789240034228-eng.pdf?sequence=1.
[14] Bundesministerium fuer Umwelt, Naturschutz und nukleare Sicherheit (2002): *'First General Administrative Regulation Pertaining the Federal Immission Control Act (Technical Instructions on Air Quality Control – TA Luft)'*. [english translation from Technische Anleitung zur Reinhaltung der Luft – TA Luft]. Gemeinsames Ministerialblatt. Germany. Available at: https://www.bmuv.de/fileadmin/Daten_BMU/Download_PDF/Luft/taluft_engl.pdf

The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) as amended by the Air Quality Standards (Amendments) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2016 (S.I. 659 2016). The 2011 Regulations superseded the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and the Ambient Air Quality Assessment and Management Regulations 1999 (S.I. No. 33 of 1999). The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) was revoked on 31 December 2022 and has been replaced by the Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022).

On 10th December 2024, Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe came into force. This directive recasts Directive 2008/50/EC (the CAFE Directive) and the fourth Daughter Directive (Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air) and incorporates them into a single directive. This recast directive sets out limit values, target values, average exposure reduction obligations, average exposure concentration objectives, critical levels, alert thresholds, information thresholds and long-term objectives. It sets out air quality provisions with the aim of achieving the objectives of the European Commission's Zero Pollution Action Plan, so that air pollution within the EU is progressively reduced to levels no longer considered harmful to health and natural ecosystems at the latest by 2050. Member States must transpose this Directive into national law by the 11th December 2026. At the time of writing Directive (EU) 2024/2881 has not yet been transposed into Irish law.

## 9.4 Air Quality Standards

The recently implemented Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022) remains aligned to the CAFÉ Directive and diverts to the CAFÉ Directive for the limit values outlined in Table 9-1, the assessment thresholds in Table 9-2, the ozone limits and assessment thresholds in Table 9-3 and Table 9-4 respectively.

*Table 9-1 Limit values of the CAFE Directive 2008/50.EC, Source: https://airquality.ie/information/air-quality-standards)*

| Pollutant | Limit Value Objective | Averaging Period | Limit Value (µg/m³) | Basis of Application of Limit Value | Attainment Date |
|---|---|---|---|---|---|
| Sulphur dioxide ($SO_2$) | Protection of Human Health | 1 hour | 350 | Not to be exceeded more than 24 times in a calendar year | 1st Jan 2005 |
| Sulphur dioxide ($SO_2$) | Protection of human health | 24 hours | 125 | Not to be exceeded more than 3 times in a calendar year | 1st Jan 2005 |
| Sulphur dioxide ($SO_2$) | Protection of vegetation | Calendar year | 20 | Annual mean | 19th Jul 2001 |
| Sulphur dioxide ($SO_2$) | Protection of vegetation | 1st Oct to 31st Mar | 20 | Winter mean | 19th Jul 2001 |
| Nitrogen dioxide ($NO_2$) | Protection of human health | 1 hour | 200 | Not to be exceeded more than 18 times in a calendar year | 1st Jan 2010 |

| Pollutant | Limit Value Objective | Averaging Period | Limit Value (µg/m³) | Basis of Application of Limit Value | Attainment Date |
|---|---|---|---|---|---|
| Nitrogen dioxide ($NO_2$) | Protection of human health | Calendar year | 40 | Annual mean | 1st Jan 2010 |
| Nitrogen monoxide (NO) and nitrogen dioxide ($NO_2$) | Protection of vegetation | Calendar year | 30 | Annual mean | 19th Jul 2001- |
| Particulate matter 10 ($PM_{10}$) | Protection of human health | 24 hours | 50 | Not to be exceeded more than 35 times in a calendar year | 1st Jan 2005 |
| Particulate matter 10 ($PM_{10}$) | Protection of human health | Calendar year | 40 | Annual mean | 1st Jan 2005 |
| Particulate matter 2.5 ($PM_{2.5}$) Stage 1 | Protection of human health | Calendar year | 25 | Annual mean | 1st Jan 2015 |
| Particulate matter 2.5 ($PM_{2.5}$) Stage 2 | Protection of human health | Calendar year | 20 | Annual mean | 1st Jan 2020 |
| Lead | Protection of human health | calendar year | 0.5 | Annual mean | 1st Jan 2005 |
| Carbon Monoxide | Protection of human health | 8 hours | 10,000 | Not to be exceeded | 1st Jan 2005 |
| Benzene | Protection of human health | calendar year | 5 | Annual mean | 1st Jan 2010 |

*Table 9-2 Assessment Thresholds from CAFE Directive 2008/50/EC*

| Pollutant | Limit Value Objective | Averaging Period | Limit Value (µg/m³) | Basis of Application of Limit Value |
|---|---|---|---|---|
| Sulphur dioxide ($SO_2$) | Upper assessment threshold for the protection of Human Health | 24 hours | 75 | Not to be exceeded more than 3 times in a calendar year |
| Sulphur dioxide ($SO_2$) | Lower assessment threshold for the protection of human health | 24 hours | 50 | Not to be exceeded more than 3 times in a calendar year |

| Pollutant | Limit Value Objective | Averaging Period | Limit Value (µg/m³) | Basis of Application of Limit Value |
|---|---|---|---|---|
| Nitrogen dioxide ($NO_2$) | Upper assessment threshold for the protection of human health | 1 hour | 140 | Not to be exceeded more than 18 times in a calendar year |
| Nitrogen dioxide ($NO_2$) | Lower assessment threshold for the protection of human health | 1 hour | 100 | Not to be exceeded more than 18 times in a calendar year |
| Particulate matter 10 ($PM_{10}$) | Upper assessment threshold | 24 hours | 35 | Not to be exceeded more than 35 times in a calendar year |
| Particulate matter 10 ($PM_{10}$) | Lower assessment threshold | 24 hours | 25 | Not to be exceeded more than 35 times in a calendar year |
| Lead (Pb) | Upper assessment threshold | Calendar Year | 0.35 | - |
| Lead (Pb) | Lower assessment threshold | Calendar Year | 0.25 | - |
| Carbon Monoxide (CO) | Upper assessment threshold | 8 hours | 7000 | - |
| Carbon Monoxide (CO) | Lower assessment threshold | 8 hours | 5000 | - |
| Benzene ($C_6H_6$) | Upper assessment threshold | Calendar Year | 3.5 | - |
| Benzene ($C_6H_6$) | Lower assessment threshold | Calendar Year | 2 | - |

Ozone is set out differently in the CAFE Directive in that it sets target values and long-term objectives for ozone rather than limit values. Table 9-3 presents the limit and target values and long-term objectives target value for ozone and Table 9-4 details the threshold values for Ozone.

*Table 9-3 Target values for Ozone defined in Directive 2008/50/EC*

| Objective | Parameter | Target Value for 2010 | Long- term Objective |
|---|---|---|---|
| Protection of human health | Maximum daily 8-hour mean | 120 µg/m³ not to be exceeded more than 25 days per calendar year averaged over 3 years | 120 µg/m³ |
| Protection of vegetation | AOT40* calculated from 1-hour values from May to July | 18,000 µg/m³.h averaged over 5 years | 6,000 µg/m³.h |

* AOT40 is a measure of the overall exposure of plants to ozone. It is the sum of the excess hourly concentrations greater than 80 µg/m³ and is expressed as µg/m³ hours.

*Table 9-4 Threshold for Ozone Defined in Directive 2008/50/EC (source: https://airquality.ie/information/air-quality-standards and Directive 2008/50/EC)*

| Pollutant | Averaging Period | Threshold |
|---|---|---|
| Information Threshold | 1-hour average | 180 µg/m$^3$ |
| Alert Threshold | 1-hour average | 240 µg/m$^3$ |

### 9.4.1 Air Quality and Health

Environmental pollution likely contributes to a range of health issues. Air pollution, aircraft and road traffic noise, exposure to lead (Pb), second-hand smoke (SHS), endocrine disruptors and other chemicals may increase the risk of health issues. Progress towards zero pollution targets can deliver co-benefits for health and well-being; additionally, nature-based solutions (NbS) can support health through contact with good quality green and blue spaces.[15] Environmental factors contribute to cardiovascular disease, as found in the European Environmental Agency Briefing in 2025. Environmental risk factors cause nearly one in five cardiovascular deaths in the European Union. The main environmental cardiovascular risk factors include air pollution, noise, chemicals and extreme temperatures.[16]

Harmful exposures including air, water, radiation and noise pollution can have substantial negative impacts on our health and wellbeing. Reducing pollution, adapting to and mitigating climate impacts, and restoring ecosystems means that people can be healthier and live longer. The State of the Environment Report for Ireland 2025 has the following Key Messages[17]:

- Ireland is not meeting the guidelines set by World Health Organisation (WHO) for multiple pollutants including fine particulate matter and nitrogen dioxide. Meeting the health-based WHO air quality guideline limits will have a significant and positive impact on health.
- In Ireland, over 1 million people are likely to be exposed to noise levels above the mandatory reporting thresholds.
- Climate change is already having an impact on people, animals and plants in Ireland. The evidence is unequivocable, Ireland is being affected by climate change now, and the severity of the impacts is likely to increase significantly in the coming years.

In September 2025, the EPA published *'Air Quality in Ireland 2024'*[18] which reports that although Ireland met the current EU legal air quality limits in 2024, Ireland is falling behind on the targets set in Ireland's Clean Air Strategy (discussed below) for 2026. The *Air Quality in Ireland 2024* report also reports that monitoring results were higher than the more stringent health-based WHO air quality guidelines for a number of pollutants including: particulate matter (PM), nitrogen dioxide ($NO_2$), sulphur dioxide ($SO_2$) and ozone ($O_3$). PM and $NO_2$ are the most significant pollutants in Ireland. The main sources of these pollutants are the burning of solid fuel in our towns and villages and traffic in our cities. People's health and the health of our environment is impacted by these pollutants.

The EEA Report, *Air Quality in Europe 2023*[19], highlights the negative effects of air pollution on human health across the EU. The report concluded that in 2021, exposure to air pollution in the EU-27 member countries led to:

[15] European Environment Agency (EEA) (2026), *'Pollution and mental health: Current scientific evidence'. Available at: Pollution and mental health: current scientific evidence | Publications | European Environment Agency (EEA)*
[16] EEA (2025), *'Preventing cardiovascular disease through a health environment'.* Available at: Preventing cardiovascular disease through a healthy environment | Publications | European Environment Agency (EEA)
[17] Environmental Protection Agency (EPA) (2025) *'Irelands State of the Environment Report 2024'*, Available at: Ireland's State of the Environment Report 2024 | Environmental Protection Agency
[18] *Air Quality in Ireland Report 2024. Available at: https://www.epa.ie/publications/monitoring--assessment/air/EPA-Air-Quality-in-Ireland-Report-2024-INTERACTIVE.pdf*
[19] *Europe's air quality status 2023 (EEA, 2023). Available at: https://www.eea.europa.eu/en/analysis/publications/europes-air-quality-status-2023*

- 253,000 deaths were attributable to exposure to $PM_{2.5}$ concentrations above the World Health Organisation (WHO) guideline level of 5 µg/m$^3$.
- 52,000 deaths were attributable to exposure to $NO_2$ concentrations above the WHO's guideline level of 10 µg/m$^3$.
- 22,000 deaths were attributable to short-term exposure to $O_3$ concentrations above 70 µg/m$^3$.

These figures are further informed by the EEA publication of '*Ireland – Air Pollution Country Fact Sheet 2024*' on the 10th December 2024[20]. This states that 530 Irish deaths were attributable to fine particulate matter ($PM_{2.5}$), 100 Irish deaths were attributable to nitrogen oxides ($NO_2$), and 240 Irish deaths were attributable to Ozone ($O_3$).

More recently a few key messages are outlined in the '*Air Quality Status Report 2025*' published on the 9th April 2025 on the EEA website[21]. These are:

- EU air quality standards are still not fully met across Europe, despite ongoing overall improvements.
- Since 2011, all countries have reduced exposure of their urban population to fine $PM_{2.5}$ particles, the most harmful pollutant from a health perspective. Nevertheless, the vast majority (94%) of the EU urban population remains exposed to $PM_{2.5}$ concentrations above the WHO guideline level, highlighting the need for additional measures to reduce the associated health risks.

Many locations already have air quality concentrations below the new EU 2030 standards. But in order to meet these new standards everywhere, and based on current progress, additional measures to improve air quality, especially in cities, are likely to be needed.

Ireland's *Clean Air Strategy 2023*[22] sets out the detail of seven strategic frameworks that will be used to ensure that air quality continues to improve (Figure 9-1). The aims of these key strategic frameworks are:

- To set the appropriate targets and limits to ensure continuous improvements in air quality across the country and to deliver health benefits for all.
- To ensure the integration of clean air considerations into policy development across Government.
- To increase the evidence base that will help Ireland to continue to evolve it's understanding of the sources of pollution and their impacts on health, in order to address them more effectively.
- To enhance regulation required to deliver improvements across all pollutants.
- To improve the effectiveness of our enforcement systems.
- To promote and increase awareness of the importance of clean air, and the links between cleaner air and better health.
- To develop the additional targeted/specific policy measures as required to deal with national or local air quality issues.

[20] *Ireland – air pollution country fact sheet 2024. Available at: Ireland – air pollution country fact sheet 2024 | European Environment Agency's home page*
[21] *Air quality status report 2025. Available at: Air quality status report 2025 | European Environment Agency's home page*
[22] *Rialtas na hÉireann Clean Air Strategy April 2023. Available at: https://www.gov.ie/en/publication/927e0-clean-air-strategy/#:~:text=The%20Clean%20Air%20Strategy%20provides,delivering%20on%20wider%20national%20objectives.*


*Figure 9-1: Seven Strategic Frameworks for Air Quality, with associated chapters in brackets. Reproduced as Figure 1 from Clean Air Strategy 2023*

Chapter 11 of the Clean Air Strategy discusses Air Quality Policy Development. The chapter discusses energy policy and acknowledges how the State's accelerated transition to renewable electricity will be critical to successfully meeting the ambitious renewable energy and greenhouse gas emission reduction targets outlined in the European Green Deal and Ireland's Climate Action Plan 2023, as well as to protecting against security of supply risks and removal of fossil fuels from power generation. Wind (offshore and onshore) and solar energy will be the leading cost-effective technologies to achieve our energy and emissions targets, as well as displacing emissions in other sectors, including household heating and vehicle transport. In the Clean Air Strategy, the Climate Action Plan 2023, while Climate Action Plan 2025 is currently the latest revision. The targets of the Climate Action Plan 2025 and the Green Deal are to deliver net-zero GHG emissions by 2050 and reduce GHG emissions by at least 55% by 2030, compared to 1990 levels.

In 2024 a progress report was released which detailed the progress made on the actions in the Clean Air Strategy since its publication in April 2023. In July 2025, a second progress report titled 'Clean Air Strategy for Ireland – Progress Report 2025' was released which states that Ireland has made further progress in reducing air pollution emissions and improving overall air quality, while recognising that additional measures will still be needed to meet future EU and WHO standards. The seven Strategic Frameworks introduced in the 2023 Clean Air Strategy for Ireland and illustrated above in Figure 9-1 remain the core structure underpinning the 2025 Progress Report.

Key points from the 2025 Progress Report include:

- Ireland remains compliant with current EU air quality standards for major pollutants.
- Emissions reductions have continued, supported by cleaner energy generation, reduced coal use, improved transport measures, and changes in home heating.
- Ireland achieved compliance with EU emissions reduction targets for all five major air pollutants in 2023, including ammonia.
- The Government approved the Air Pollution (Amendment) Bill 2025 to strengthen enforcement powers and regulation of solid fuels.

The report highlights ongoing challenges from:

- Domestic solid fuel burning,
- Transport emissions,
- Agricultural emissions,
- Meeting the stricter standards under Directive (EU) 2024/2881.

The EPA notes that, although Ireland currently complies with existing EU standards, it may struggle to achieve the tighter 2030 air quality limits without further action. Following the completion of the two progress reports the Department of Climate, Energy and the Environment sought feedback on the strategy in order to assess the potential for new actions to be included. This public consultation ended in November 2025.

Whilst there is the potential of such emissions to be generated from the construction and operational phases of the Proposed Development, mitigation measures will be implemented at this site to reduce the impact from dust and vehicle emissions, which are discussed in Section 9.7 below.

# 9.5 Methodology

## 9.5.1 Air Quality Zones

The air quality zone for the Proposed Development was selected, followed by a review of EPA collated baseline air quality data namely Sulphur Dioxide ($SO_2$), Particulate Matter ($PM_{10}$), Nitrogen Dioxide ($NO_2$), Carbon Monoxide (CO) and Ozone ($O_3$) for the selected air quality zone to determine the representative levels of such emissions for the Proposed Development.

The EPA has designated four Air Quality Zones for Ireland:

- Zone A: Dublin
- Zone B: Cork
- Zone C: Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise.
- Zone D: Rural Ireland, i.e. the remainder of the State excluding Zones A, B and C.

These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the CAFE Directive. The site of the Proposed Development lies within Zone C, which represents the above listed cities and large towns in Ireland including Athlone Town which is in close proximity to the Proposed Development; the Proposed Development site itself is situated in a more rural area.

## 9.5.2 Air Quality Data Review

The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, 'Air Quality in *Ireland 2024*' was published by the EPA in 2025. The EPA reports provide $SO_2$, $PM_{10}$, $NO_2$ and $O_3$ concentrations for areas in Zone C. These are detailed in the Baseline Air Quality section below.

## 9.5.3 Dust

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024)[23] is considered in the dust impact assessment. The guidance document outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. This methodology has been used to predict the likely risk of dust as a result of the construction phase works, and the operational phase activities. The use of UK guidance is considered best practice in the absence of applicable Irish guidance. The major dust generating activities are divided into four types within the IAQM (2024) guidance to reflect their different potential impacts. These are:

[23] *Institute of Air Quality Management (IAQM), 2024. Guidance on the Assessment of Dust from Demolition and Construction. Version 2.2. [online] Available at: https://iaqm.co.uk/guidance/*

- Demolition.
- Earthworks.
- Construction.
- Trackout - The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when Heavy Goods Vehicles (HGVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HGVs transfer dust and dirt onto the road having travelled over muddy ground on site.

The magnitude of dust generating activities is divided into 'Large', 'Medium' or 'Small' scale depending on the nature of the activities involved. IAQM (2024) guidance provides example definitions for the scale of the activities, and these are applied for this development as outlined in Table 9-5.

*Table 9-5 Description of Magnitude for nature of activities (Adapted from: IAQM. 2024. Guidance on the Assessment of Dust from Demolition and Construction, pages 16 & 17)*

| Activities | Large | Medium | Small |
|---|---|---|---|
| Demolition | Total building volume >75,000 $m^3$, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level; | Total building volume 12,000 $m^3$ – 75,000 $m^3$, potentially dusty construction material, demolition activities 6-12 m above ground level | Total building volume <12,000 $m^3$, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months. |
| Earthworks | Total site area >110,000$m^2$, 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 >6m in height | Total site area 18,000$m^2$ – 110,000$m^2$, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3m - 6m in height | Total site area <18,000$m^2$, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3m in height |
| Construction | Total building volume >75,000$m^3$, on site concrete batching, sandblasting | Total building volume 12,000$m^3$ – 75,000$m^3$, potentially dusty construction material (e.g. concrete), on site concrete batching | Total building volume <12,000$m^3$, construction material with low potential for dust release (e.g. metal cladding or timber) |
| Trackout | >50 HDV (Heavy-Duty Vehicle) (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m | 20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100m | <20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m |
| | Note: A vehicle movement is a one-way journey. i.e. from A to B and excludes the return journey. HDV (or Heavy Goods Vehicles (HGVs)) movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average | | |

The demolition works for the Proposed Development comprises the demolition of the existing hardstanding under the current Baysports Waterpark facilities (approximately 3,800$m^2$), the current Baysports building (500$m^2$) and the adjacent public toilet block (40$m^2$). In line with Table 9-5, these works are classified as "Small". When assessing earthworks, as a worst-case scenario, the total area of the Proposed Development site i.e. the planning application boundary (approximately 9 hectares or 90,000$m^2$) is considered as the total site area and therefore the Proposed Development is classified as "Medium" in accordance with Table 9-5. The construction works, i.e. the total building volume for the Proposed Development buildings is approximately 5,550$m^3$ and as such is classified as "Small" in accordance with Table 9-5. Additionally, the daily HGV outward movements, as specified in Chapter 14 Material Assets of this EIAR, are estimated at 15 per day on paved roads and therefore in accordance with Table 9-5, are classified as "Small" for the Proposed Development. The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities.

### 9.5.3.1 Defining the Sensitivity of the Area

The IAQM (2024) guidance has outlined three types of effects on sensitive receptors to be considered:

- Sensitivities of People to Dust Soiling Effects
- Sensitivities of People to the Health Effects of $PM_{10}$
- Sensitivities of Receptors to Ecological Effects.

IAQM (2024) guidance identifies a screening distance of up to 250m for potential dust soiling effects from construction activities, while also noting that dust deposition reduces quickly with increasing distance from the source. As such, for the purposes of this EIAR, 250m is the dust soiling study area for the Proposed Development.

#### 9.5.3.1.1 *Sensitivities of People to Dust Soiling Effects*

The IAQM 2024 guidance states that high sensitivity of an area to dust soiling needs to take into account a number of factors:

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

The IAQM guidance cites residential dwellings as an example of a high sensitivity receptor where one '*would reasonably be expected to be present continuously, or at least regularly for* extended periods, as part of *the normal pattern of use of the land'.* A Medium sensitivity receptor is a property or location where '*the people or property wouldn't reasonably be expected to be present continuously or regularly for extended periods as part of the normal land use',* with parks and places of work cited as an example. A low sensitivity receptor is a property or location where '*there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.*' An indicative example provided include playing fields. In the case of the Proposed Development, residential dwellings within 250m are classified as High Sensitivity Receptors, reflecting their continuous occupation and high amenity expectations. The Hodson Bay Hotel is considered a Medium Sensitivity Receptor, as it represents a location of temporary or short-term occupancy where users are not continuously present throughout the day, and therefore overall exposure to dust soiling is less consistent than at residential properties. The Athlone Golf Club and Baysports water sports facility are classified as Low Sensitivity Receptors due to the transient nature of their use and the short duration of exposure typically experienced by users.

Table 9-6 below identifies the sensitivity of an area to dust soiling effects on people and their properties, relative to different receptor sensitivities. Only the highest level of area sensitivity from the table needs to be considered.

*Table 9-6 Sensitivity of the Area to Dust Soiling Effects on People and Property. (Source: IAQM. 2024. Guidance on the Assessment of Dust from Demolition and Construction, page 21)*

| Receptor Sensitivity | Number Of Receptors | Distance from source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <250 |
| **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 |

### 9.5.3.1.2 Sensitivities of People to the Health Effects of $PM_{10}$

When assessing sensitivity of people to the health effects of $PM_{10}$, the IAQM (2024) guidance recommends the use of sensitivities bands based on whether or not the receptor is likely to be exposed to elevated concentrations of $PM_{10}$ over a 24-hour period. Table 9-7 below identifies the sensitivity of an area to human health effects of $PM_{10}$, relative to different receptor sensitivities.

*Table 9-7 Sensitivity of the Area to Human Health Impacts. (Source: IAQM. 2024.Guidance on the Assessment of Dust from Demolition and Construction, page 22).*

| Receptor Sensitivity | Annual Mean $PM_{10}$ concentration | Number Of Receptors | Distance from source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| **High** | >32 µg/m³ | >100 | High | High | High | Medium |
| | | 10-100 | High | High | Medium | Low |
| | | 1-10 | High | Medium | Low | Low |
| | 28-32 µg/m³ | >100 | High | High | Medium | Low |
| | | 10-100 | High | Medium | Low | Low |
| | | 1-10 | High | Medium | Low | Low |
| | 24-28 µg/m³ | >100 | High | Medium | Low | Low |
| | | 10-100 | High | Medium | Low | Low |
| | | 1-10 | Medium | Low | Low | Low |
| | <24 µg/m³ | >100 | Medium | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| **Medium** | >32 µg/m³ | >10 | High | Medium | Low | Low |
| | | 1-10 | Medium | Low | Low | Low |
| | 28-32 µg/m³ | >10 | Medium | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| | 24-28 µg/m³ | >10 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| | <24 µg/m³ | >10 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| **Low** | -- | ≥1 | Low | Low | Low | Low |

### 9.5.3.1.3 Sensitivities of Receptors to Ecological Effects

Dust deposition due to earthworks, construction, and trackout has the potential to physically and chemically affect sensitive habitats and plant communities. Table 9-8 below identifies the sensitivity of an area to ecological impacts.

*Table 9-8 Sensitivity of the Area to Ecological Impacts. (Source: IAQM. 2024. Guidance on the Assessment of Dust from Demolition and Construction, page 23)*

| Receptor Sensitivity | Distance from source (m) | |
|---|---|---|
| | <20 | <50 |
| **High** | High | Medium |
| **Medium** | Medium | Low |
| **Low** | Low | Low |

### 9.5.3.2 Defining the Risk of Impacts

The dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts with no mitigation applied. The matrix in Table 9-9 provides a method of assigning the level of risk for each activity.

*Table 9-9 Risk of Dust Impacts for Earthworks, Construction, Trackout. (Adapted from: IAQM. 2024. Guidance on the Assessment of Dust from Demolition and Construction, page 24)*

| Sensitivity of Area | 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 |

The potential for dust soiling impacts from the Demolition, Earthworks, Construction and Trackout activities is assessed in section 9.7.2 below.

EPA classification terminology as presented in Table 1-1 of Chapter 1 Introduction of this EIAR have been correlated with the equivalent risk rating from Table 9-10 below.

*Table 9-10 Correlation of Impact Classification Terminology to Risk Rating*

| EPA Term | EPA Description | Risk Rating |
|---|---|---|
| Imperceptible | An effect capable of measurement but without significant consequences. | Negligible |
| Slight | An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. | Low |
| Moderate | An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends. | Medium |
| Significant | An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. | High |

## 9.6 Baseline Air Quality

The air quality in the vicinity of the Proposed Development site is typical of that of rural areas in the midlands of Ireland. Prevailing south-westerly winds carry clean, unpolluted air from the Atlantic Ocean onto the Irish mainland. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, *'Air Quality in Ireland 2024'* was published by the EPA in September 2025. The EPA reports provide $SO_2$, $PM_{10}$, $NO_2$ and $O_3$ concentrations for areas in Zone C.

### 9.6.1 Sulphur Dioxide ($SO_2$)

Sulphur dioxide data for representative Zone C towns Portlaoise, Letterkenny, Ennis and Dundalk in 2024 is presented in Table 9-11.

*Table 9-11 Average Sulphur Dioxide Data for Zone C Sites in 2024*

| Parameter | Measurement |
|---|---|
| Annual Mean | 6.5 µg/m³ |
| Hourly values > 350 | 3 |
| Hourly max (Average) | 173.2 µg/m³ |
| Daily values > 125 | 0 |
| Daily max (Average) | 39.6 µg/m³ |

During the monitoring period there were three exceedances of the hourly limit value (all at Letterkenny) and no exceedances of the daily limit value for the protection of human health. As can observed from Table 9-11, the average maximum hourly value recorded during the assessment period was 173.2 µg/m³. In addition, there were no exceedances of the annual mean limit for the protection of ecosystems. It is expected based on professional judgement that $SO_2$ values at the Proposed Development site would be similar to those recorded for the Zone C sites above.

### 9.6.2 Particulate Matter ($PM_{10}$)

Sources of particulate matter include vehicle exhaust emissions, soil and road surfaces, construction works and industrial emissions. The EPA report[24] provides annual mean $PM_{10}$ concentration for twenty-four Zone C towns and cities (Athlone, Bray, Carlow Town, Clonmel, Drogheda, Dundalk, Ennis, Galway Briarhill, Galway Eyre Square, Galway Rahoon, Greystones, Kilkenny Seville Lodge, Leixlip, Letterkenny, Limerick Henry Street, Limerick People's Park, Naas, Navan, Portlaoise, Sligo, Tralee, Waterford Browne's Road, Waterford Port and Wexford Town). Particulate matter ($PM_{10}$) data for 2024 is presented in Table 9-12.

*Table 9-12 Average Particulate Matter ($PM_{10}$) Data for Zone C Sites in 2024*

| Parameter | Measurement |
|---|---|
| Annual Mean | 12.3 µg/m³ |
| % Data Capture (Average) | 94.0% |
| Values > 50 ug/m³ | Max 9 days |
| Daily Max (Average) | 59.9 µg/m³ |

Notes: [1] $PM_{10}$ daily limit for the protection of human health: No more than 35 days >50 µg/m³

The daily limit of 50 µg/m³ for the protection of human health was exceeded on 24 days in total from all 24 sites combined, which is below the $PM_{10}$ daily limit for the protection of human health of a max 35 days >50 µg/m³ applicable from 2005. The greatest number of exceedances occurred at Ennis where the $PM_{10}$ daily limit was exceeded on 9 no. occasions. There were 3 no. exceedances recorded at the Athlone monitoring station. In the EPA 2024 report, it notes that particulate matter (PM) in Ireland mainly comes from the burning of solid fuel, such as coal, peat, and wood to heat our homes. It is expected based on professional judgement that $PM_{10}$ values at the Proposed Development site are similar to those recorded for the Zone C sites above.

[24] *Air Quality in Ireland Report 2024. Available at: https://www.epa.ie/publications/monitoring--assessment/air/EPA-Air-Quality-in-Ireland-Report-2024-INTERACTIVE.pdf*

### 9.6.3 Nitrogen Dioxide ($NO_2$)

Nitrogen dioxide data for eleven locations in Zone C towns and cities (Dundalk, Galway Briarhill, Galway Eyre Square, Kilkenny Seville Lodge, Limerick Henry Street, Limerick People's Park, Navan, Portlaoise, Sligo, Waterford Browne's Road and Waterford Port) in 2024 is presented in Table 9-13.

*Table 9-13 Average Nitrogen Dioxide Data for Zone C Sites in 2024*

| Parameter | Measurement |
|---|---|
| Annual Mean | 11.0 µg/m$^3$ |
| $NO_2$ Values >200 | 0 |
| Total no. of Values > 140 (UAT) | 3 |
| Total no. of Values >100 (LAT) | 22 |
| Hourly Max. | 89.3 µg/m$^3$ |

The annual $NO_2$ value was below the annual mean limit value for the protection of human health of 40 µg/m$^3$. Furthermore, there were a total of three instances of exceedances of the upper assessment threshold (140 µg/m$^3$) from all eighteen locations; there were twenty-two exceedances of the lower assessment threshold (100 µg/m$^3$) recorded in total from all eighteen locations (13 no. exceedances at the Sligo station) during the monitoring period. The average hourly max. $NO_2$ value of 89.3 µg/m$^3$ measured during the monitoring period was below the hourly max threshold of 200 µg/m$^3$. No exceedances of the hourly maximum threshold of 200 µg/m$^3$ were observed at any monitoring location.

It is expected, based on professional judgement, that $NO_2$ values at the Proposed Development site would be similar to those recorded for the Zone C sites above.

### 9.6.4 Carbon Monoxide (CO)

The EPA report[25] provides rolling 8-hour carbon monoxide concentrations for two Zone C sites, Dundalk and Portlaoise. Carbon Monoxide data for 2024 is presented in Table 9-14 below.

*Table 9-14 Average Carbon Monoxide Data for Zone C Sites in 2024*

| Parameter | Measurement |
|---|---|
| Annual Mean | 0.2 mg/m$^3$ |
| Median | 0.2 mg/m$^3$ |
| % Data Capture | 96.6% |
| Values > 10 | 0 |
| Max | 2.2 mg/m$^3$ |

The average concentration of carbon monoxide was 0.2 mg/m$^3$. The carbon monoxide limit value for the protection of human health is 10,000 µg/m$^3$ (or 10 mg/m$^3$). On no occasions were values in excess of the 10 mg limit value set out in Directive 2008/50/EC. It is expected based on professional judgement that

[25] *Air Quality in Ireland Report 2024. Available at: https://www.epa.ie/publications/monitoring--assessment/air/EPA-Air-Quality-in-Ireland-Report-2024-INTERACTIVE.pdf*

CO values at the Proposed Development site are similar or lower than those recorded for the Zone C sites above.

### 9.6.5 Ozone ($O_3$)

The EPA report[26] provides rolling 8-hour ozone concentrations for six Zone C sites – Bray, Kilkenny, Limerick Henry Street, Limerick People's Park, Waterford and Waterford Port. Ozone ($O_3$) data for 2024 is presented in Table 9-15.

*Table 9-15 Average Ozone Data for Zone C Sites in 2024*

| Parameter | Measurement |
|---|---|
| Annual Mean | 52.6 µg/m$^3$ |
| Median | 54.4 µg/m$^3$ |
| % Data Capture | 92.7% |
| No. of days > 120 | 0 days |

As can be observed from Table 9-15, there were no exceedances of the maximum daily eight-hour mean limit of 120 µg/m$^3$. The CAFÉ Directive stipulates that this limit should not be exceeded on more than 25 days. It is expected based on professional judgement that $O_3$ values at the Proposed Development site would be similar to those recorded for the Zone C sites above.

### 9.6.6 Dust

There are no statutory limits for dust deposition in Ireland. However, EPA guidance suggests that a deposition of 10 mg/m$^2$/hour can generally be considered as posing a soiling nuisance. This equates to 240 mg/m$^2$/day. The EPA recommends a maximum daily deposition level of 350 mg/m$^2$/day when measured according to the TA Luft Standard 2002. This limit value can also be implemented with regard to dust impacts from construction activities associated with the Proposed Development.

The extent of dust generation at any site depends on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, etc., and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or periods of dry weather. Construction dust has the potential to be generated from onsite activities such as earthmoving/earthworks and construction. Construction traffic movements (i.e. track-outs) also have the potential to generate dust as they travel along the haul route.
The potential dust-related effects on local air quality and the relevant associated mitigation measures are presented in Section 9.7 below.

#### 9.6.6.1 Sensitivity of Receiving Area

##### 9.6.6.1.1 *Human*

As discussed in section 9.5.3.1.3, dwellings, where people would be reasonably expected to be present regularly or continuously, are categorised as High Sensitivity Receptors.

- There are 17 no. High Sensitivity Receptor located within 20m of the Proposed Development.
- There are 6 no. High Sensitivity Receptors located between 20 and 50m from the Proposed Development.

[26] *Air Quality in Ireland Report 2024. Available at: https://www.epa.ie/publications/monitoring--assessment/air/EPA-Air-Quality-in-Ireland-Report-2024-INTERACTIVE.pdf*

- There are 9 no. High Sensitivity Receptors located between 50 and 100m from the Proposed Development.
- There are 38 no. High Sensitivity Receptors between 100 and 250m from the Proposed Development.

As such, there is a total of 70 no. High Sensitivity Receptors within 250m of the Proposed Development.

- There is 1 no. Medium Sensitivity Receptor located within 20m of the Proposed Development (Hodson Bay Hotel)
- There are 2 no. Low Sensitivity Receptors located within 20m of the Proposed Development (Athlone Golf Club and Baysports water sports facility.)

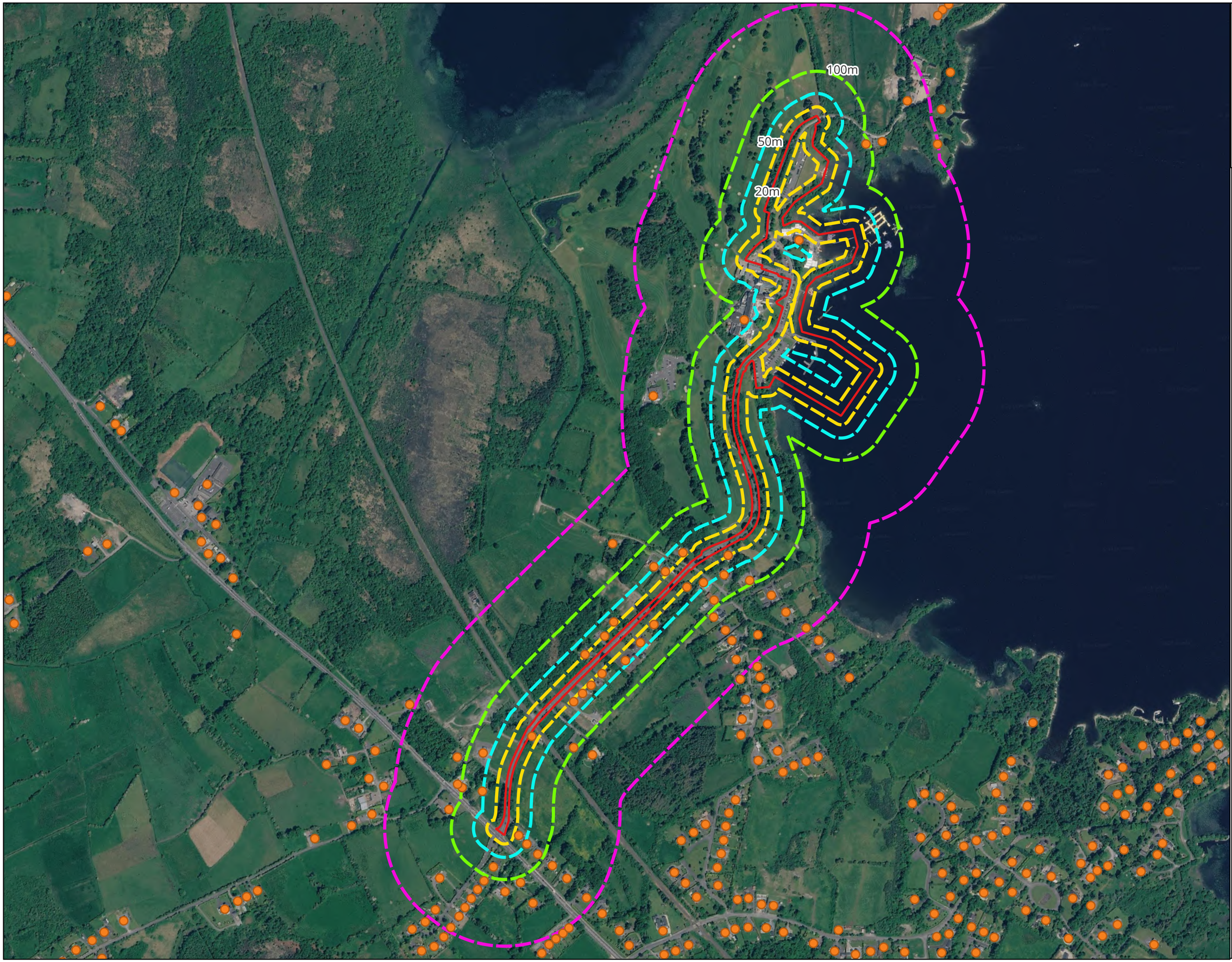
These human High Sensitivity Receptors are assessed below in Section 9.7 and illustrated on Figure 9-2.

#### 9.6.6.1.2 *Ecological*

Dust deposition due to demolition, earthworks, construction and trackout has the potential to affect sensitive habitats and plant communities within 50m of dust generating sources. Sensitive ecological receptors within or adjacent to a construction zone can often be Designated Sites such as Special Areas of Conservation (SAC) and Special Protection Areas (SPA), if the habitats or fauna it is designated for are particularly sensitive to dust. Proposed Development works area that may be sensitive to dust are listed below and illustrated on Figure 9-3:

- Lough Ree SAC
- Lough Ree SPA
- Alluvial Forest habitat
- Reed and large sedge swamp (FS1) habitat.

These ecological High Sensitivity Receptors are assessed below in Section 9.7 and have also been assessed within Chapter 6 Biodiversity and the accompanying Natura Impact Statement (NIS).




Map Legend

- Application Site
- 20m dust buffer
- 50m dust buffer
- 100m dust buffer
- 250m dust buffer
- Residential Dwellings



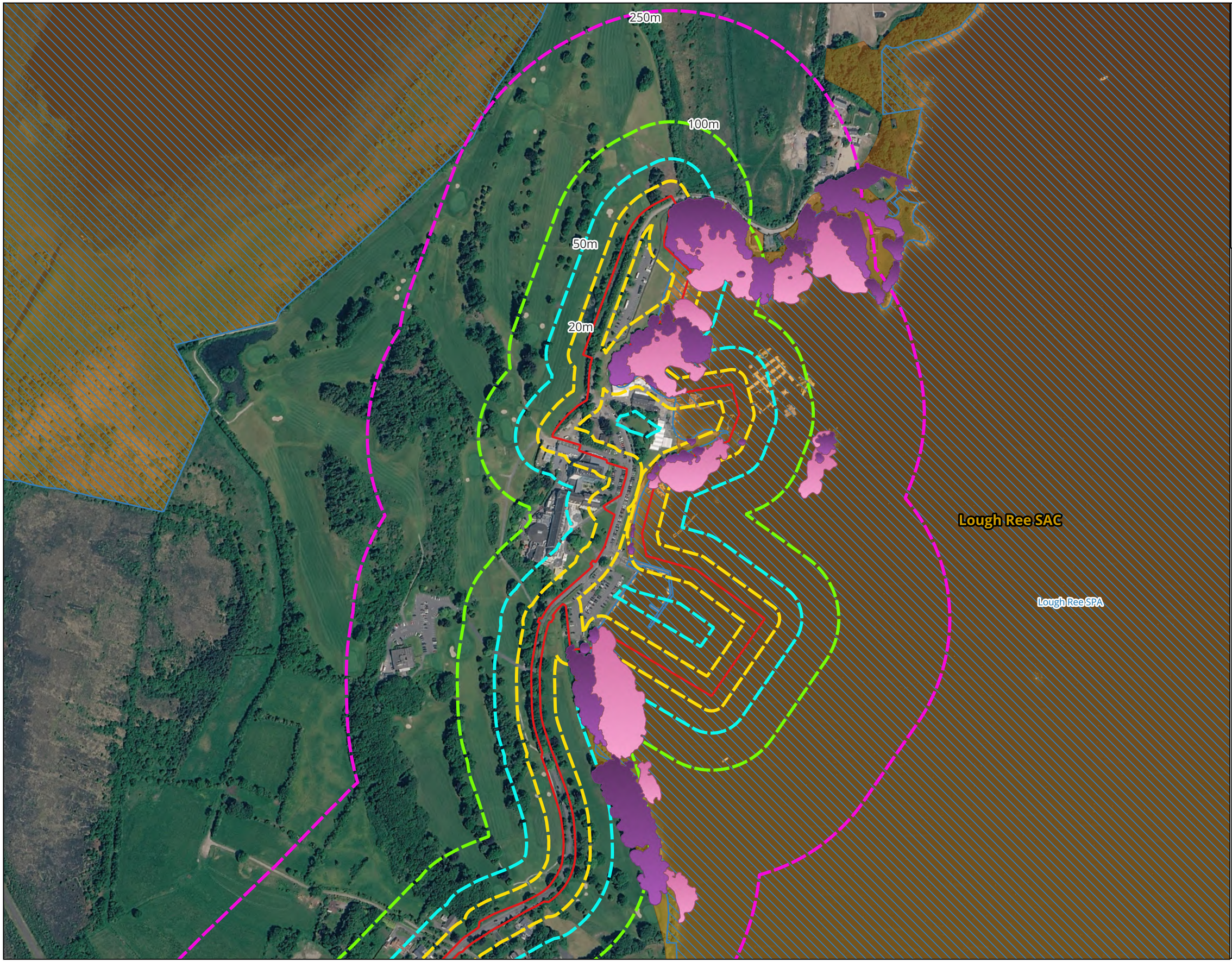
N

Drawing Title
High Sensitivity Residential Receptors

Project Title
Hodson Bay Waterfront Park and Marina Redevelopment

| Drawn By | Checked By |
|---|---|
| KM | EOS |
| Project No. | Drawing No. |
| 241220 | Figure 9-2 |
| Scale | Date |
| 1:7,500 | 01.07.2026 |

MKO
Planning and Environmental Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie




Map Legend

- Application Site
- 20m dust buffer
- 50m dust buffer
- 100m dust buffer
- 250m dust buffer
- Lough Ree SAC
- Lough Ree SPA
- Reed Beds
- Alluvial Forest



N

Drawing Title
High Sensitivity Ecological Receptors

Project Title
Hodson Bay Waterfront Park and Marina Redevelopment

| Drawn By | Checked By |
|---|---|
| KM | EOS |
| Project No. | Drawing No. |
| 241220 | Figure 9-3 |
| Scale | Date |
| 1:4,500 | 01.07.2026 |

MKO
Planning and Environmental Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

# 9.7 Likely and Significant Effects and Associated Mitigation Measures

## 9.7.1 "Do-Nothing" Scenario

If the Proposed Development were not to proceed, the site would continue to function as it does at present, with no changes to local air quality. The impact of this is considered neutral in the context of the EIAR. If the Proposed Development were not to proceed, there would be no potential for negative effects on human health during the construction and operational phases of the Proposed Development. However, the opportunity to redevelop a key tourism and amenity area in County Roscommon, and to provide safer access to the site for road users, pedestrians and cyclists would be lost. Additionally, the opportunity to fulfil socio-economic development goals, tourism promotion and the public realm enhancement, would be lost.

## 9.7.2 Construction Phase

### 9.7.2.1 Exhaust Emissions- $SO_2$, $PM_{10}$, $NO_2$, CO

#### Identification of Effects

The Proposed Development will involve (as outlined in Chapter 4 of this EIAR) the redevelopment of the Hodson Bay waterfront area. This will involve demolition of 2 no. existing buildings, the construction of a new Water Sports Pavilion, a marina extension, active travel improvements on the L2020 Local Road, the extension and relocation of parking spaces on site, public realm improvements and other ancillary works. These components of the Proposed Development will require the operation of construction vehicles and plant on site. Exhaust emissions associated with vehicles and plant such as $NO_2$, Benzene, and $PM_{10}$ will arise as a result of construction activities.

Given the relatively low volume of increase in traffic when compared to the existing baseline traffic volumes and the small quantity of plant which will be used on the Proposed Development site at any one time. This potential effect will be restricted to the approximately 30-month duration of the construction phase and localised to works areas. Therefore, this is considered a Short-term, Slight, Negative effect. Mitigation measures to reduce this effect are presented below.

The transport of construction materials, waste, and workers to and from the site (see Chapter 14: Material Assets) will also give rise to exhaust emissions associated with the transport vehicles. This constitutes a Short-term, Slight, Negative effect in terms of air quality due to the slight increase in overall traffic on the L2020 Local Road compared to baseline levels. Mitigation measures in relation to exhaust emissions are presented below.

#### Proposed Mitigation Measures

- All construction vehicles and plant used onsite during the construction phase will be maintained in good operational order. If a vehicle requires repairs this work will be carried out, thereby minimising any emissions that arise.
- Equipment powered by internal combustion engines will be properly maintained and regularly serviced to prevent excessive pollutant discharge, including smoke, toxic fumes, or odours.
- Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager will produce a site inspection and machinery checklist which will be followed and updated if/when required.
- All plant and materials vehicles shall be stored in dedicated areas.

- Users of the Proposed Development site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum.
- All machinery will be switched off when not in use.
- The Materials Recovery Facility (MRF) facility will be as close as possible to the Proposed Development site to reduce the amount of emissions associated with vehicle movements.
- Access routes will be established by the contractor, and appropriate accommodations will be made to facilitate construction machinery, site access, and egress.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-1).

### Residual Effects

Following implementation of the mitigation measures above, residual effects of emissions arising from the construction phase of the Proposed Development will result in a Short-term, Imperceptible, Negative effect on air quality.

### Significance of Effects

Based on the evaluation above there will be no significant direct or indirect effects on air quality due to the construction of the Proposed Development.

## 9.7.2.2 Dust Emissions

### Identification of Effects

The IAQM 2024 Guidance, as discussed in Section 9.5.3 above, is used to assess the potential risk to Receptor Locations from dust deposition. High Sensitivity Receptors located in the vicinity of the Proposed Development were identified using a constraints mapping process, and detailed and updated planning searches which informed the project sensitive receptor dataset.

As detailed in Section 9.6.6.1.1, and shown in Figure 9-2, in regard to Human receptors, there are a total of 70 residential High Sensitivity Receptors, 1 Medium and 2 Low Sensitivity Receptors within the study area. These are represented in Table 9-16 below via coloured box, representing the sensitivity of the receptor type relative to its distance from the dust soiling source. Only the highest level of area sensitivity from the table needs to be considered (IAQM, 2024). Therefore, the overall sensitivity of the area to dust soiling effects is considered to be "**High**".

*Table 9-16 Sensitivity Assessment of the Area to Dust Soiling Effects on People and Property from Proposed Development construction works. (Adapted from: IAQM. 2024. Guidance on the Assessment of Dust from Demolition and Construction, page 21)*

| Receptor Sensitivity | Number Of Receptors | Distance from source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | 20 - 50 | 50 - 100 | 100 - 250 |
| **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 9-17* below identifies the sensitivity of people in the area surrounding the development footprint of the Proposed Development site to the health effects of $PM_{10}$, as described in Section 9.5.3.1.2. Taking the

annual mean $PM_{10}$ for Zone C areas of 12.3 µg/m$^3$ (Table 9-12) into account, in conjunction with the High sensitivity of the area (Table 9-16), and the number of High Sensitivity Receptors within the study area as identified in Section 9.6.6.1.1, the effects of $PM_{10}$ on the health of Sensitive Receptors in the surrounding area is **Low**. Note that the subsection of the table is used because the expected $PM_{10}$ annual mean concentration for the site is anticipated to be similar or lower than that recorded for Zone C, as shown above (12.3 ug/m$^3$).

*Table 9-17 Sensitivity Assessment of the Area to Human Health Impacts from Proposed Development construction works. (Adapted from: IAQM. 2024.Guidance on the Assessment of Dust from Demolition and Construction, page 22)*

| Receptor Sensitivity | Annual Mean $PM_{10}$ Concentration | Number Of Receptors | Distance from source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| **High** | <24 µg/m$^3$ | >100 | Medium | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| **Low** | - | ≥1 | Low | Low | Low | Low |

As discussed in section 9.6.6.1.2, the Proposed Development site is located adjacent to and partially within, the Lough Ree SAC and SPA. Additionally, sensitive alluvial forest and reed and large sedge swamp habitats are located within 20m of proposed works. Therefore, in line with the guidance set out for high sensitivity ecological receptors as discussed in section 9.5.3.1.3 above, the sensitivity of ecological receptors within the study area to dust soiling during the construction phase is "**High**".

*Table 9-18 Sensitivity of the Area to Ecological Impacts. (Source: IAQM. 2024. Guidance on the Assessment of Dust from Demolition and Construction, page 23)*

| Receptor Sensitivity | Distance from source (m) | |
|---|---|---|
| | <20 | <50 |
| **High** | High | Medium |
| **Medium** | Medium | Low |
| **Low** | Low | Low |

## Summary of Dust Risk from the Proposed Development Activities

The overall risk sensitivity of the study area for the major dust generating activities during the construction phase is "High" for dust soiling, low for its impact to human health and for its impact "High" on ecological receptors, in the absence of any mitigation and not taking any screening from buildings, low ecological value hedgerow, scrub and construction materials e.g. cofferdam and hoarding.

*Table 9-19 Summary of Dust Risk for the Proposed Development Activities. (Adapted from: IAQM. 2024.Guidance on the Assessment of Dust from Demolition and Construction, page 24)*

| Potential Impact | Sensitivity of the Surrounding Area | | | |
|---|---|---|---|---|
| | Demolition | Earthworks | Construction | Trackout |
| **Dust Soiling** | High Risk | High Risk | High Risk | High Risk |
| **Human Health** | Low Risk | Low Risk | Low Risk | Low Risk |
| **Ecological** | High Risk | High Risk | High Risk | High Risk |

The potential effects of dust from the construction phase of the Proposed Development are considered to be equivalent to Short-term, Moderate Negative effects.

### Proposed Mitigation Measures

- The hardstanding/roads adjacent to the site will continue to be regularly inspected by the Site Manager for cleanliness and cleaned as necessary.
- If necessary, sporadic wetting of loose stone and soil surface will be carried out during the construction phase to minimise movement of dust particles to the air.
- Any hardstanding areas/site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- Water spraying of stockpiles will be carried out when necessary to reduce the production of dust.
- Water sprays will be used as required during transfer and loading activities, during dry and/or windy conditions.
- All plant and machinery will be maintained in good operational order while onsite.
- Vehicles on site will have their speed restricted and this speed restriction must be enforced rigidly.
- All trucks exiting the site carrying fine dry loads shall be covered and all other loads sprayed with water prior to exiting the site
- A wheel wash facility will be provided to clean HGV traffic leaving the site to minimise dust and dirt soiling on the L2020 Local Road.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-1). The CEMP includes dust suppression measures.

### Residual Effects

With the implementation of the above, the residual effect of Proposed Development on air quality from dust soiling is considered to be a Short-term, Slight, Negative effect on the surrounding area and on ecological receptors.

### Significance of Effects

The effects on air quality due to dust emissions during the construction phase of the Proposed Development is Not Significant.

## 9.7.3 Operational Phase

### 9.7.3.1 Exhaust Emissions- $SO_2$, $PM_{10}$, $NO_2$, CO

### Identification of Effects

Exhaust emissions during the operational phase of the Proposed Development will primarily arise from increased vehicular traffic associated with visitors accessing the redeveloped Hodson Bay Waterfront Park. These emissions will principally comprise nitrogen dioxide ($NO_2$) and particulate matter ($PM_{10}$ and $PM_{2.5}$.

The Traffic and Transportation Assessment (Section 14.1, Chapter 14) indicates that the operational phase will generate a net increase of approximately 432 two-way vehicle trips per day and the associated peak hour increase is approximately 44 two-way vehicle movements per hour during the summer season. The Proposed Development will result in an increase in berthing capacity and likely will generate an associated increase in boating activity in the area. However, scale in increased activity is not considered sufficient to result in any discernible impact on local air quality, and no measurable increase in dust emissions or exhaust fumes is anticipated. In the context of existing traffic levels along the L2020 Local Road, the predicted increase in traffic volumes is slight and will result in a corresponding slight increase in traffic-related air pollutant emissions. The receiving environment is not considered sensitive to minor changes in traffic flows, and the magnitude of impact is therefore considered low.

The provision of enhanced active travel infrastructure will encourage access by walking and cycling, while the inclusion of electrical vehicle charging points will facilitate the uptake of low-emission vehicles. No significant additional emission sources (e.g. from on-water activities or fixed plant) are anticipated.

Overall, the operational phase of the Proposed Development will result in a Long-term, Slight Negative effect on air quality.

### Proposed Mitigation Measures

- Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise.
- When stationary, delivery and on-site vehicles will be required to turn off engines.
- As detailed in section 14.1.7.2- to 14.1.7.4 of the Traffic and Transport assessment in Chapter 14 Material Assets, a number of measures are proposed for the use of sustainable modes of transport to the site by staff, contractors and guests. The Proposed Development provides for additional bus stops and bus parking spaces, lakeshore pathways, cycling and bike parking facilities, pedestrian and cycling paths along the L2020 Local Road, and additional electric vehicle (EV) parking spaces, thereby minimising the potential for emissions during this phase.

### Residual Effects

Long-term, Imperceptible, Negative effect.

### Significance of Effects

The effects on air quality due to exhaust emissions during the operational phase of the Proposed Development is Not Significant.

## 9.7.4 Human Health

Whilst the construction phase of the Proposed Development will give rise to minor increases in vehicle emissions, the implementation of the mitigation measures discussed above, and good management practices can prevent or minimise potential effects off-site. Good management practice consists of good site design and layout, adopting appropriate working methods and choosing the right equipment.

The potential for health effects is considered imperceptible as the potential for exhaust and dust emissions will be limited and controlled through site layout design and mitigation measures.

## 9.7.5 Cumulative Impact

This section presents an assessment of the cumulative effects associated with the construction and operation of the Proposed Development in combination with other projects and/or plans on air quality. Section 2.6 of Chapter 2 details the Cumulative Impact Assessment methodology undertaken for each discipline of this EIAR. Appendix 2-1 details all the valid applications, granted and proposed within 1km of the Proposed Development site boundary, while Appendix 2-5 details all the projects within the Shannon[Upper]_SC_090 WFD Sub Catchment within which the Proposed Development is located considered for cumulative assessment.

As outlined in Section 9.5.3.1 and Section 2.6 of Chapter 2, the assessment is based on a 250m study area, consistent with the IAQM (2024) screening criteria. As such, the list of projects in Appendix 2-1 have been considered for cumulative effects on air quality during the construction and operational phase of the Proposed Development.

The projects within Appendix 2-1 predominantly comprise one off housing as well as the Yew Point Eco tourism development (Planning Ref: 2360204, Granted 2024), an application for the current Baysports

Waterpark facilities (Planning Reference 31584-23, Granted, 2024) and an application by ESB for the restringing of 35.7km of overhead lines (OHL) from Athlone to Lanesboro (Planning Reference 2460559, Granted 2024).

The potential for largescale dust soiling from one off housing developments is considered extremely unlikely. Given the parameters for dust soiling from construction, excavation, demolition and trackout as set out in Table 9-5, the scale of works and traffic movements for a one-off house is considered negligible. As such, potential for cumulative effects with the Proposed Development is considered imperceptible.

Construction on the Yew Point development is well advanced, and this project is likely to be completed by the time the construction phase of the Proposed Development commences, and as such, temporal overlap is unlikely.

The Baysports Waterpark application comprises marquees, prefabricated buildings and waterslide inflatable installations. As these works are of minimal environmental impact, with negligible to no potential for dust soiling. Furthermore, these works are already installed onsite and will be dismantled and relocated temporarily to facilitate the construction of the Proposed Development. As such, cumulative effects of dust soiling from the dismantling and relocating of this type of development alongside the construction phase of the Proposed Development are not anticipated.

Given the low number of high-sensitivity receptors within the air quality study area (70 within 250m with just 17 within 20m, together with the implementation of standard construction mitigation measures (Sections 9.7.2.1 and 9.7.2.2), the potential for significant negative effects arising from construction-related dust and exhaust emissions are considered unlikely and imperceptible. In addition, the residual effects of the Proposed Development alone are assessed as Low and Not Significant; therefore, in the absence of significant residual effects and considering the limited potential for spatial and temporal overlap with other developments, cumulative effects are also considered Low and Not Significant.

During the operational phase, cumulative effects on air quality are considered unlikely due to the absence of any substantial operational emission sources associated with either the Proposed Development or cumulative projects identified in Appendix 2-1. As stated, the neighbouring developments predominantly comprise one-off residential dwellings, the Hodson Bay Hotel and utility infrastructure, none of which are expected to generate significant emissions to air during normal operation.

The operational phase of the Proposed Development will result in an increase in visitor numbers to the area (refer to Appendix 5-1, Hodson Bay Tourism and Economic Study), which will result in increased traffic numbers. As detailed in the Traffic and Transport assessment in Chapter 14 Traffic Material Assets, a number of measures are proposed for the use of sustainable modes of transport to the site by staff, contractors and guests, thereby minimising any emissions that arise. In the absence of significant operational emissions and given the localised and limited nature of traffic movements and dust soiling works/activities associated with the operation of the Proposed Development and any projects listed in Appendix 2-1, any cumulative operational effects on air quality would be Long-term, Imperceptible and Not Significant.