Commercial Street, Risca

Air Quality Assessment

Lidl Great Britain Ltd

Prepared by:

SLR Consulting Limited

3rd Floor, Brew House, Jacob Street, Tower Hill, Bristol, BS2 0EQ

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Table of Contents

1.0 Introduction 1
1.1 Scope of Assessment 1
2.0 Background Context 2
2.1 Legislation 2
2.2 Policy 4
2.3 Guidance 5
3.0 Assessment Methodology 6
3.1 Construction Phase 6
3.2 Operational Phase 6
4.0 Baseline Environment 8
4.1 Baseline Air Quality 8
5.0 Construction Phase Assessment 10
5.1 Construction Dust Assessment 10
6.0 Operational Phase Assessment 14
6.1 Road Traffic Screening Assessment 14
6.2 Site Suitability Assessment 14
7.0 Mitigation Measures 15
7.1 Construction Phase 15
7.2 Operational Phase 17
8.0 Conclusion 18
8.1 Construction Phase 18
8.2 Operational Phase 18

Tables in Text

Table 2-1: Relevant Ambient AQALs (England) 3
Table 2-2: Human Health Relevant Exposure 3
Table 4-1: Defra Mapped Background Pollutant Concentrations 9
Table 5-1: Potential Dust Emission Magnitude 11
Table 5-2: Sensitivity of the Area 11
Table 5-3: Risk of Dust Impacts (Unmitigated) 12
Table 6-1: Proposed Development Trip Generation (LDVs) 14
Table 7-1: Construction Dust Mitigation Measures 15

Figures in Text

Figure 5-1: Construction Dust Assessment Buffers 13

1.0 Introduction

SLR Consulting Ltd (SLR) has been commissioned by Lidl Great Britain Ltd to undertake an air quality assessment to support an outline planning application for the change the use of the existing Lidl store site to a mixed-use development (the 'Proposed Development') on Commercial Street, Risca, Caerphilly, Wales (the 'Site'). The proposals are seeking outline permission for up to 42 residential units alongside up to approximately 350m^2 of retail space with associated parking and infrastructure.

The Site is located at the approximate National Grid Reference (NGR): 323920,190215 within Caerphilly County Borough Council's (CCBC – the 'Council') administrative area.

The Site is bounded by:

- Commercial street immediately to the north, with Risca Police Station and residential areas beyond;
- A small area of undesignated woodland and residential areas immediately to the east, with Commercial Street further beyond;
- The Ebbw River runs along the south of the development, with an area of undesignated woodland and the A467 beyond; and
- Bethany Baptist Church and Risca rugby sports complex to the west.

Vehicular access to the Site will be via the existing entrance off Commercial Street.

1.1 Scope of Assessment

Pre-assessment consultation with the Environmental Health Officer (EHO) at CCBC was attempted to agree upon the extent and methodology of the air quality assessment. However, to date, no response on the scope has been received. The following scope of works, as proposed to the EHO, and has been undertaken:

- Baseline Evaluation;
- Construction Phase Assessment;
- Operational Phase Assessment; and
- Mitigation Measures.

2.0 Background Context

2.1 Legislation

A dual set of regulations, separately applicable to National and Local Government, are currently operable within the UK.

2.1.1 National Obligations

The Air Quality Standards (Wales) Regulations 2010[1] (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within Welsh legislation. The AQSR includes Limit Values which are legally binding ambient concentration thresholds which, however, are only applicable at specific locations (Schedule 1: AQSR)[2].

Following the UK's withdrawal from the EU, the Environment (Miscellaneous Amendments) (Wales) (EU Exit) Regulations 2020[3] was introduced to mirror revisions to supporting EU legislation. As a result, the fine particulate matter ($PM_{2.5}$) Limit Value was reduced to 20µg/m^3 (to be met by 2020).

The responsibility of achieving the AQSR is a National obligation for the Welsh Government who undertake assessments on an annual basis. Local Authorities have no statutory obligation to achieve the AQSR or the European equivalent Directives.

On 14 February 2024, The Environment (Air Quality and Soundscapes) (Wales) Act became law in Wales. The act supports delivery of the measures set out in The Clean Air Plan for Wales to improve air quality. The Act imposes a duty on Welsh Ministers to set at least one target, in regulations, in respect of annual mean fine particulate matter ($PM_{2.5}$) levels.

2.1.2 Local Obligations

Part IV of the Environment Act 1995 (as amended by the Environment Act 2021) requires the Welsh Ministers to review the national Air Quality Strategy (AQS) every five years and modify this if required. It also established the system of Local Air Quality Management (LAQM) for Local Authorities to regularly review and assess air quality within their respective administrative areas.

The Air Quality (Wales) Regulations 2000, as amended by the Air Quality (Wales) (Amendment) Regulations 2002, provide the statutory basis for the Air Quality Objectives Local Authorities must adhere to under LAQM in Wales. $PM_{2.5}$ is not currently part of the LAQM framework; however, as per the national AQS, Local Authorities are required to work towards reducing $PM_{2.5}$.

The Air Quality Objectives apply at locations where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period (referred to as 'relevant exposure'). Table 2-2 provides an indication of those locations. Where any of the prescribed Air Quality Objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action

[1] The Air Quality Standards (Wales) Regulations 2010, Wales Statutory Instrument No. 1433 (W. 126).

[2] Schedule 1 of the 2010 AQSR provides the locations of the sampling points where the AQSR Limits Values can be assessed.

[3] The Environment (Miscellaneous Amendments) (Wales) (EU Exit) Regulations 2020, Wales Statutory Instrument No. 1215 (W. 274).

Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality and achieve compliance.

In 2020, the Welsh Government published The Clean Air Plan for Wales[4] which sets out the over-arching strategic framework for air quality management in Wales. In 2023, following a review of the AQS for England, Scotland, Wales and Northern Ireland, which was published in 2007[5], the Welsh Government formerly adopted The Clean Air Plan for Wales as the National AQS for Wales, to replace the 2007 document. However, the objectives of the former 2007 strategy were retained.

The ambient air quality standards of relevance to this assessment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report) are provided in Table 2-1. These are primarily based upon the Air Quality Objectives Local Authorities are responsible for achieving. The $PM_{2.5}$ AQSR AQAL has also been included for completeness.

Table 2-1: Relevant Ambient AQALs (England)

Pollutant	Standard (µg/m^3)	Averaging Period
Nitrogen Dioxide (NO_2)	40	Annual mean
	200	1-hour mean (not to be exceeded on more than 18 occasions per annum)
Particles (as PM_{10})	40	Annual mean
	50	24-hour mean (not to be exceeded on more than 35 occasions per annum)
Particles (as $PM_{2.5}$)	20	Annual mean

Table 2-2: Human Health Relevant Exposure

AQAL Averaging Period	AQALs should apply at	AQALs should not apply at
Annual mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

2.1.3 Environmental Protection Act 1990

The Environmental Protection Act 1990[6] sets out provisions for the regulation of statutory nuisances. Section 79 sets out this statutory nuisance as, ‘any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance’.

[4] Welsh Government, The Clean Air Plan for Wales: Healthy Air, Healthy Wales, 2020.

[5] Defra, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, July 2007.

[6] The Environmental Protection Act 1990. Available at http://www.legislation.gov.uk/ukpga/1990/43/contents.

Section 79 requires that, where a complaint of a statutory nuisance is made to it by a person living within its area, a Local Authority must take steps as are reasonably practicable to investigate the complaint.

Fractions of dust greater than 10µm (i.e. greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.2 Policy

2.2.1 National Policy

2.2.1.1 Clean Air Strategy

The 2019 Clean Air Strategy[7] sets out the Government's proposals aimed at delivering cleaner air across the UK and indicates how Devolved Administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.2.1.2 Environmental Improvement Plan 2023

The 2023 Environmental Improvement Plan[8] is the first revision of the UK Government's 25 Year Environment Plan (25YEP) – planned on a five-year rolling cycle. This document sets out the 5-year delivery plan to improve the natural environment. The 2023 Environmental Improvement Plan builds on the 2019 Clean Air Strategy by setting environmental targets and commitments to reduce air pollution. Goal 2 of the 25YEP is Clean Air – which relates to improving air quality.

2.2.1.3 National Planning Policy Framework

The Planning Policy Wales (PPW)[9] document sets out the Welsh Government's land use planning policies for development across Wales.

The document states the following in relation to air quality and planning:

> "*When considering a scheme of enabling development, planning permission should be granted only where all of the following can be applied:*
>
> *[…]*
>
> - *the enabling development does not give rise to significant risks, for example residential development in the floodplain or significantly impact on air quality or soundscape.*"

Furthermore, in relation to addressing air quality in the planning system:

> "*The planning system should maximise its contribution to achieving the well-being goals, and in particular a healthier Wales, by aiming to reduce average population exposure to air and noise pollution alongside action to tackle high pollution hotspots. In doing so, it should consider the long-term effects of current and predicted levels of air and noise pollution on individuals, society and the environment and identify and pursue any opportunities to reduce, or at least,*

[7] Defra, The Clean Air Strategy, January 2019.

[8] Defra, Environmental Improvement Plan 2023, 2023.

[9] Welsh Government, Planning Policy Wales, Edition 12, February 2024.

minimise population exposure to air and noise pollution, and improve soundscapes, where it is practical and feasible to do so."

PPW is accompanied by the National Development Framework, published as Future Wales – The National Plan 2040[10]. Improved air quality is detailed as part of the regional approach to development planning.

2.2.2 Local Policy

The Caerphilly County Borough Local Development Plan (LDP) up to 2021[11] was adopted by CCBC in November 2010. The plan sets out the vision and policies for development across the region up to 2021. It contains the following policy of relevance to this air quality assessment:

SP6 Place Making

"*Development proposals should contribute to creating sustainable places by having full regard to the context of the local, natural, historic and built environment and its special features through:*

[…]

H The incorporation of mitigation measures that improve and maintain air quality"

CCBC have commenced preparation on a new 2nd replacement LDP which has included a review of the adopted LDP. The Review Report[12] was published in June 2021. This concluded that Policy SP6 is '*being delivered as anticipated*' with '*No action required*'.

2.3 Guidance

This assessment has been informed by the principles contained within the guidance documents below.

- Welsh Government in partnership with Department for Environment, Food and Rural Affairs (Defra): Local Air Quality Management Technical Guidance (TG22) (LAQM.TG22)[13];
- Defra: COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021[14];
- Environmental Policy Implementation Community (EPIC) (formerly EPUK) and the Institute of Air Quality Management (IAQM): Land-Use Planning and Development Control: Planning for Air Quality[15];
- IAQM: Guidance on the Assessment of Dust from Demolition and Construction[16]; and
- IAQM: Position Statement: Use of 2020 and 2021 Monitoring Datasets[17].

[10] Welsh Government, Future Wales – The National Plan 2040, February 2021.

[11] CCBC, Caerphilly County Borough Local Development Plan Up to 2021, adopted November 2010.

[12] CCBC, Caerphilly County Borough Adopted Local Plan Up to 2021, Review Report, 1st June 2021.

[13] Local Air Quality Management Technical Guidance (TG22), Published by Defra in partnership with the Scottish Government, Welsh Government and Department of Agriculture, Environment and Rural Affairs Northern Ireland. August 2022.

[14] Defra and the Greater London Authority, COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021. April 2021.

[15] EPIC (formerly EPUK) and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, v1.2 2017.

[16] IAQM, Guidance on the Assessment of Dust from Demolition and Construction, v2.2 2024.

[17] IAQM, Position Statement: Use of 2020 and 2021 Monitoring Datasets, Version 1.1, December 2023.

3.0 Assessment Methodology

3.1 Construction Phase

The assessment has been undertaken in accordance with IAQM demolition and construction dust guidance. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation. The assessment will consider the potential dust impacts associated with the following activities:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to PM_{10}; and
- Harm to ecological receptors.

The first stage of the assessment involves a screening to determine if there are sensitive receptors within threshold distances of the site and activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- Human receptor is located within 250m of the Site boundary, and/or within 50m of routes used by construction vehicles, up to 250m from the Site entrance(s); and/or
- Ecological receptor is located within 50m of the Site boundary, and/or within 50m of routes used by construction vehicles, up to 250m from the Site entrance(s).

The dust emission class (or magnitude) for each activity is determined based on the guidance, indicative thresholds and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the appropriate mitigation requirements, whereby through effective application, residual effects are considered to be ‘not significant’.

Given the short-term nature of the construction phase and the low volume of vehicle movements that will likely arise, there is not considered to be any potential for significant air quality effects from development related road traffic emissions during the construction phase.

3.2 Operational Phase

3.2.1 Road Traffic Screening Assessment

The assessment of air quality effects on human receptors in relation to the Proposed Development’s operational phase has been undertaken in accordance with EPIC & IAQM guidance.

The EPIC & IAQM guidance provides a series of indicative screening criteria where if exceeded, should warrant further consideration of potential impacts on air quality. If the Proposed Development is found not to exceed any of the relevant indicative criteria presented, then a detailed impact assessment is consequently not required and potential effects are concluded to be ‘insignificant’.

The indicative screening criteria are as follows:

- Outside of an AQMA:
  - A change of Light-Duty Vehicle (LDV) flows of more than 500 as a 24-hour Annual Average Daily Traffic (AADT) flow; and/or
  - A change of Heavy-Duty Vehicle (HDV) flows of more than 100 as a 24-hour AADT.
- Within an AQMA:
  - A change of LDV flows of more than 100 as a 24-hour AADT; and/or
  - A change of HDV flows of more than 25 as a 24-hour AADT.

Traffic data and information used for the purposes of the screening assessment has been provided by Corun Associates Ltd – the appointed transport consultant.

3.2.2 Site Suitability Assessment

A site suitability assessment is required to assess the likely exposure future occupants of the Proposed Development may experience in respect of the considered AQALs, to ensure the Site is suitable for its residential use. The scope of the site suitability assessment has been informed by the EPIC & IAQM guidance requirements, and in relation to the Site locale considers:

- The background and future baseline air quality and whether this will be likely to approach or exceed an AQAL;
- The presence and location of any AQMAs as an indicator of local hotspots where the AQALs may be exceeded; and
- The presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular NO_2), that would cause unacceptably high exposure for users of the new development.

To determine the overall significance with respect to the suitability of the Site for future occupants and likely exposure to pollutant concentrations, the EPIC & IAQM guidance states:

> "*Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.*"

In line with this, a qualitative site suitability assessment has been undertaken, with reference to publicly available air quality data, to determine whether further consideration is required or whether effects can be considered 'not significant'.

4.0 Baseline Environment

4.1 Baseline Air Quality

Pollutant concentrations monitored during 2020 and 2021 (i.e. affected by the COVID-19 pandemic) are expected to be atypical and not representative of the local environment. This data has not been considered for the determination of baseline conditions (as per Defra guidance and an IAQM position statement), although has been presented for completeness.

4.1.1 LAQM Review and Assessment

CCBC, in fulfilment of statutory requirements, has conducted an on-going exercise to review and assess air quality within their administrative area. The latest publicly available LAQM report at the time of writing is the 2021 Air Quality Progress Report[18] (APR), this has been reviewed to inform the following sections.

CCBC presently has two AQMAs declared for exceedances of the annual mean NO_2 AQAL at locations of relevant public exposure, both are >8km from the Site. However, the closest AQMA is located within Newport City Council's (NCC) administrative area, approximately 3.8km southeast of the Site.

4.1.2 Review of Air Quality Monitoring

4.1.2.1 Automatic Air Quality Monitoring

As presented in the 2021 APR, CCBC undertakes automatic monitoring at six locations. The closest monitor to the Site is 'IRW', located approximately 3.4km to the northwest. Due to the separation distance between 'IRW' and the Site, similar conditions are unlikely, and automatic monitoring has not been considered further in the assessment.

4.1.2.2 Passive Diffusion Tube Monitoring

Passive NO_2 diffusion tube monitoring is currently undertaken by CCBC at numerous locations, in fulfilment of their statutory LAQM obligations.

The nearest diffusion tube to the Site is located approximately 3.2km northwest of the Site in Wattsville. Due to the disparity in settings and the separation distance between the Site and the diffusion tube, diffusion tube monitoring has not been considered further in this assessment.

4.1.3 Defra Mapped Background Concentrations

Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution which is routinely used to support LAQM requirements and air quality assessments. The data sets include annual average concentration estimates for NO_2, PM_{10} and $PM_{2.5}$ using a reference year of 2021 (the year in which comparisons between modelled and monitored concentrations are made).

The Defra mapped annual mean background concentrations for the current year (2025) and the likely opening year of the development (2027) for the grid square containing the Site are presented in Table 4-1.

The mapped background concentrations presented are well below the respective annual mean AQALs.

[18] CCBC, Caerphilly 2021 Air Quality Progress Report, February 2022.

Table 4-1: Defra Mapped Background Pollutant Concentrations

Grid Square (X, Y) (m)	Year	Annual Mean Concentration (µg/m^3)		
		NO_2	PM_{10}	$PM_{2.5}$
323500, 190500	2025	7.3	11.1	6.8
	2027	6.8	10.9	6.6
AQAL		***40***	***40***	***20***

5.0 Construction Phase Assessment

This section presents the potential air quality impacts and effects associated with the construction of the Proposed Development.

5.1 Construction Dust Assessment

Where figures relating to area of the site, volume of the site, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM guidance to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

5.1.1 Assessment Screening

As shown in Figure 5-1, there are human receptors within 250m of the Site, however, no designated ecological sites within 50m of the Site boundary or the roads anticipated to witness construction traffic movements up to 250m of the Site entrance(s). Therefore, an assessment of construction dust on human receptors only is required.

5.1.2 Potential Dust Emission Magnitude

5.1.2.1 Demolition

The Site currently houses the existing Lidl store which will be removed prior to the build out of the Proposed Development. The total volume requiring demolition is 12,000m^3 – 75,000m^3. Given the height of the existing store, it is anticipated that demolition activities will be required at 6 – 12m above ground level. It is anticipated that the material requiring demolition will be of relatively low dust potential (i.e. glass, metal cladding and steel frame structure).

The dust emission magnitude for demolition is therefore considered to be ‘medium’.

5.1.2.2 Earthworks

The total Site area is <18,000m^2. Earthworks will be required over a large proportion of the Site. Given the size of the Site, it is considered that <5 heavy earth moving vehicles will be active at any one time.

The dust emission magnitude for earthworks is therefore considered to be ‘small’.

5.1.2.3 Construction

The total building volume requiring construction is estimated to be 12,000m^3 – 75,000m^3. It is anticipated that traditional building methods will be used (i.e. masonry).

The dust emission magnitude for construction is therefore considered to be ‘medium’.

5.1.2.4 Trackout

Given the existing hard standing surface across the Site and the tarmacked access road into the Site, it is considered highly unlikely that the unpaved road length would exceed 50m at any point during construction.

Furthermore, it is considered that <20 outward HDV movements would occur in any worst-case day.

The dust emission magnitude for trackout is therefore considered to be ‘small’.

5.1.2.5 Summary

A summary of the dust emission magnitude for the activities is detailed in Table 5-1.

Table 5-1: Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	Medium
Earthworks	Small
Construction	Medium
Trackout	Small

5.1.3 Sensitivity of the Area

5.1.3.1 Dust Soiling Impacts

There are 1-10 high sensitivity receptors within 20m of the Site, and <100 high sensitivity receptors within 50m of the Site.

Furthermore, assuming construction vehicles travel in both directions along Commercial Street when leaving the Site, there are 10-100 high sensitivity receptors within 20m of the access routes up to 250m from the Site exit.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to demolition, earthworks and construction is therefore considered to be 'medium' and 'high' in relation to trackout.

5.1.3.2 Human Health Impacts

The 2025 mapped background PM_{10} concentration for the $1km^2$ grid square centred on the Site is estimated to be $11.1\mu g/m^3$ (i.e. falls into the $<24\mu g/m^3$ class). As discussed in Section 4.1.2, no local background PM_{10} monitoring exists in the development locale.

Given the above information regarding the number of receptors within 20m/50m of the Site boundary and identified trackout routes, the sensitivity of the area with respect to human health impacts in relation to demolition, earthworks, construction and trackout is therefore considered to be 'low'.

5.1.3.3 Summary

A summary of the sensitivity of the surrounding area is detailed in Table 5-2, whilst the spatial density of nearby receptors is displayed in Figure 5-1.

Table 5-2: Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	High
Human Health	Low	Low	Low	Low

5.1.4 Risk of Impacts (Unmitigated)

The outcome of the assessment of the potential 'magnitude of dust emissions', and the 'sensitivity of the area' are combined in Table 5-3 below to determine the risk of impact (unmitigated) which is used to inform the selection of appropriate mitigation.

Table 5-3: Risk of Dust Impacts (Unmitigated)

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Low Risk	Medium Risk	Low Risk
Human Health	Low Risk	Negligible	Low Risk	Negligible

Following the construction dust assessment, the Site is found to be at worst 'medium risk' in relation to dust soiling effects on people and property, and 'low risk' in relation to human health impacts (Table 5-3). However, potential dust effects during the construction phase are considered temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

Nonetheless, commensurate with the above designation of dust risk, mitigation measures, as identified by IAQM guidance are required to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed. In accordance with IAQM guidance, providing effective mitigation measures are implemented, such as those outlined in Section 7.1, construction dust effects are considered to be not significant.

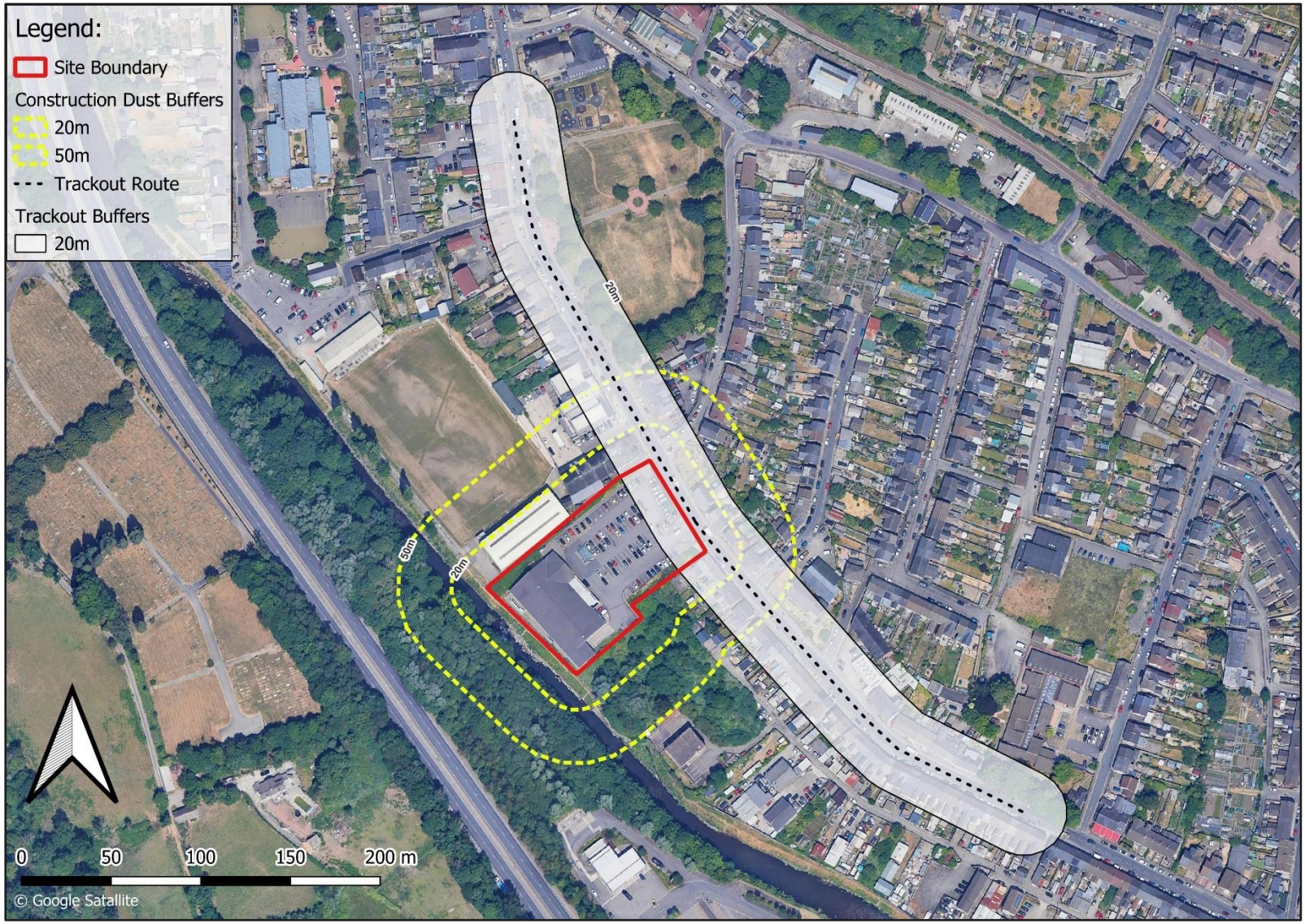


Figure 5-1: Construction Dust Assessment Buffers

6.0 Operational Phase Assessment

This section presents the potential air quality impacts and effects associated with the operation of the Proposed Development.

6.1 Road Traffic Screening Assessment

Corun Associates, the appointed transport consultant, has provided predicted operational phase trip generation and distributed trips associated with the Proposed Development.

Based on the dataset provided, the HDV composition comprises a 'negligible' contribution to the overall trip generation. As such, Table 6-1 and the discussion below focusses on the LDV trips associated with the Proposed Development.

Table 6-1: Proposed Development Trip Generation (LDVs)

Road Name	LDV AADT
Commercial Street (east of Site entrance)	288
Commercial Street (west of Site entrance)	288
Total Generated AADT	**576**
EPIC & IAQM Criteria (outside AQMAs)	***500***

On review of Table 6-1, it is noted that the total LDV AADT exceeds the indicative criteria for sites not located within or adjacent to an AQMA (i.e. change of 500 AADT). However, a 50/50 distribution is anticipated onto Commercial Street east and west, respectively. This represents 288 additional LDV trips east and west from the Site, respectively (i.e. <500 AADT).

Given the above, the road traffic emission impacts associated with the operation of the Proposed Development can be considered to have an 'insignificant' effect on local air quality at all locations based on the extent of distributed trips, and no further assessment is required.

6.2 Site Suitability Assessment

The following information, as discussed in Section 4.0, has been used to inform the suitability of the Site, relative to its proposed residential use:

- The Site is sufficiently distant from any AQMAs, with the nearest AQMA located approximately 3.8km southeast of the Site in NCC;
- The 2025 and 2027 Defra mapped background annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations predicted at the Site are considered to be 'well below' the respective AQALs; and
- The Proposed Development is not expected to generate additional road traffic volumes in exceedance of the EPIC & IAQM screening criteria. Consequently, it is considered to have an insignificant impact on local air quality, including within the Site.

Given the above information, in line with the EPIC & IAQM guidance, the Site is found to be suitable for its proposed purpose (i.e. residential use). A detailed site suitability assessment is not considered to be required, and pollutant concentrations are predicted to be below the respective AQALs across the Site. Effects associated with likely exposure of future occupants are considered to be 'not significant'.

7.0 Mitigation Measures

This section presents any proportionate mitigation measures required during the construction and operational phases of the Proposed Development.

7.1 Construction Phase

IAQM guidance outlines a number of site-specific mitigation measures based on the assessed site risk. The measures are grouped into those which are highly recommended and those which are desirable. With the effective application of the dust mitigation measures, as detailed in Table 7-1, residual effects are considered to be 'not significant'.

Table 7-1: Construction Dust Mitigation Measures

Site Application	Mitigation Measures
Highly Recommended	
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.
Construction	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Demolition	Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
	Avoid explosive blasting, using appropriate manual or mechanical alternatives.
	Bag and remove any biological debris or damp down such material before demolition.
Monitoring	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
	Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Operating Vehicle/Machinery and Sustainable Travel	Ensure all vehicles switch off engines when stationary - no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.

Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Operating Vehicle/Machinery and Sustainable Travel	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

7.2 Operational Phase

Road traffic impacts associated with the operation of the Proposed Development can be considered as having an ‘insignificant’ effect on local air quality. As such, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are therefore not considered to be necessary, however will be considered in line with best practice as the design of the Proposed Development progresses.

8.0 Conclusion

SLR has undertaken an air quality assessment to support an outline planning application for the change the use of the existing Lidl store site to a mixed-use development (residential and retail) on Commercial Street, Risca, Caerphilly, Wales.

8.1 Construction Phase

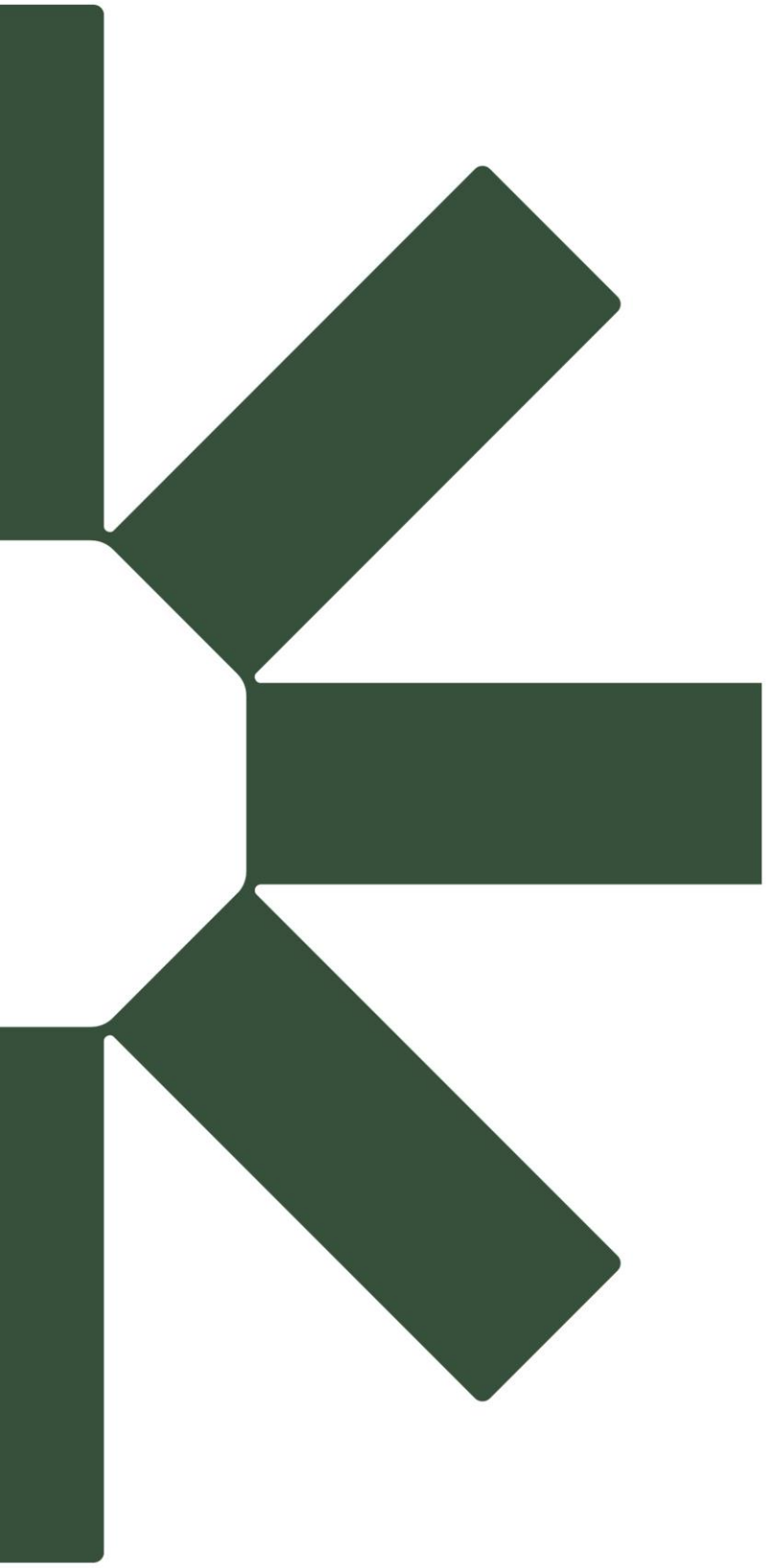
A qualitative assessment of the potential dust impacts during the construction of the development has been undertaken following the IAQM guidance. Providing mitigation measures are implemented, such as those outlined in Section 7.1 of this report, residual effects from dust emissions arising during the construction phase are considered to be ‘not significant’.

Given the short-term nature of the construction phase, there is predicted to be an insignificant effect on air quality from construction-generated vehicle emissions.

8.2 Operational Phase

The Proposed Development is expected to generate distributed road traffic volumes below the relevant indicative EPIC & IAQM screening criteria. As such, the operational effects on local air quality arising from road traffic emissions associated with the Proposed Development can be considered ‘insignificant’.

A qualitative site suitability assessment has been undertaken following EPIC & IAQM guidance, with reference to publicly available air quality datasets. Effects associated with likely exposure of future residents of the Proposed Development are considered to be ‘insignificant’.



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