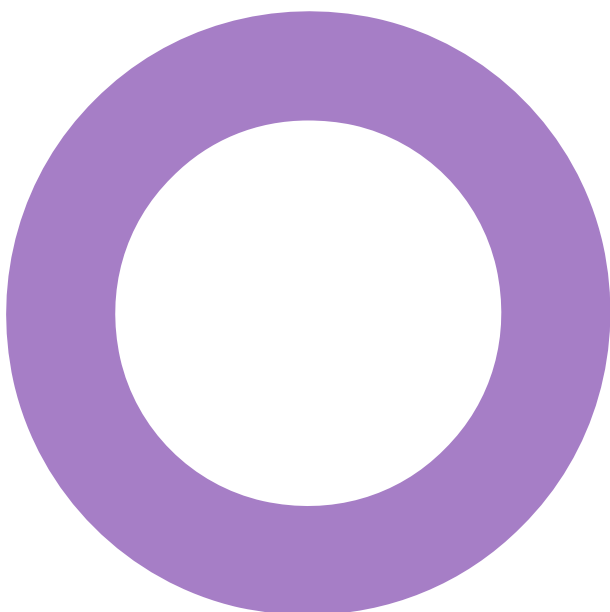


Premier Inn, Hosier Street. Reading. Inception (Reading) S.Á.R.L.

AIR QUALITY
SCREENING ASSESSMENT

REVISION 02 – 06 FEBRUARY 2020



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	27/01/2020	First draft for client comment	CS	KW	CR
01	30/01/2020	Second draft	CS	KW	CR
02	06/02/2020	First Issue	CS	KW	CR

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Project number: 10/11895

Document reference: REP-1011895-5A-CS-20200206-Hosier Street Reading-AQA-Screening-Rev2

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Executive Summary.

Hoare Lea have been commissioned by Inception (Reading) S.Á.R.L to undertake an Air Quality Assessment to discharge a planning condition for the consented Premier Inn hotel at Hosier Street, Reading (the 'Site').

The Consented Development comprises the demolition of the existing structures at the Site and the erection of a part seven, part eight storey building for use as a 101 bed hotel (Class C1 use) and a restaurant and ancillary bar (Class A3/A4 use) with associated access.

The baseline assessment shows that the Site is located within the Reading Air Quality Management Area which has been declared for exceedances of the annual mean objective for nitrogen dioxide (NO₂). Recent roadside monitoring data shows that the long term air quality objective for NO₂ has been exceeded at a number of locations within 1km of the Site but concentrations of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM₁₀) have been in compliance. Furthermore, predicted background concentrations at the Site are below the relevant air quality objectives.

As the Consented Development is for a hotel, the short-term objectives for NO₂ and PM₁₀ apply. A review of monitoring data from the closest passive diffusion tube does not indicate an exceedance of the short term air quality objective for NO₂. Furthermore, a review of PM₁₀ monitoring data from the closest automatic monitor to the Site shows no exceedances of the short term air quality objective for PM₁₀ in the last five years and as such, it is considered that pollutant concentrations at the Site are in compliance with the short term air quality objectives. The Site is therefore considered suitable for the consented end use as a hotel without the inclusion of mitigation measures.

The Consented Development does not include the provision of car parking and guests travelling by car would likely use the car park adjacent to the Site at the Broad Street Mall. The traffic generated by the Consented Development, as detailed in the Transport Statement undertaken by Connect Consultants (ref: Transport Statement 00416091) is predicted to be below the criteria set in the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) planning guidance for undertaking a more detailed assessment. The impact of additional traffic on local air quality is therefore considered to be not significant and a detailed assessment is not required.

The primary source of energy provision for the Consented Development will be from Air Source Heat Pumps and water heaters. The combined emission rate for the heaters is below the criteria detailed in the EPUK and IAQM guidance that requires a detailed assessment and as such, the impact on local air quality from combustion plant emissions is considered to be not significant and further assessment is not required.

The impacts of the construction work on dust and ambient PM₁₀ concentrations have been assessed and the risk of dust causing a loss of local amenity and increased exposure to PM₁₀ concentrations has been used to identify appropriate mitigation measures. Provided these are implemented and included within a dust management plan, for example through a planning condition, the residual impacts are considered to be not significant.

Based on the assessment results, the Site is considered suitable for the Consented Development without the inclusion of mitigation.

1. Introduction.

Hoare Lea have been commissioned by Inception (Reading) S.Á.R.L to undertake an Air Quality Assessment to discharge a planning condition for the consented Premier Inn hotel at Hosier Street, Reading (the 'Site').

Planning permission was granted for the development (ref: 182054) on the 4th November 2019 subject to the discharge of a number of conditions. This includes a planning condition relating to air quality, detailed in the decision notice as follows: *"12. **No development (excluding material operations including demolition, site clearance and preparation and temporary hoardings) shall take place until a detailed Air Quality Assessment to determine the impact of the development on current local air quality has been submitted to and approved in writing by the local planning authority. If a negative impact on air quality is identified – a Mitigation Plan demonstrating sufficient mitigation to prevent this negative impact on air quality including a timetable for implementation shall be and submitted to and approved in writing by the Local Planning Authority prior to commencement of development. The mitigation scheme, if required, shall be implemented as approved prior to occupation of any part of the development and retained as approved at all times thereafter.*

Reason: to protect the health of future occupants of the proposed development in accordance with Policy DM19 of the Reading Borough LDF Sites and Detailed Policies Document 2012 (Altered 2015)."

1.1 Consented Development.

The Consented Development comprises the demolition of the existing structures at the Site and the erection of a part seven, part eight storey building for use as a 101 bed hotel (Class C1 use) and a restaurant and ancillary bar (Class A3/A4 use) with associated access. It should be noted that the proposals do not include the provision of car parking.

1.2 Site Description and Location.

The Site is located within Reading Borough Council (RBC) administrative area at the approximate National Grid Reference (NGR): X 471310, Y 173320.

The Site is located along Hosier Street and currently comprises a disused night club which is to be demolished and is located adjacent to an existing bar/restaurant and the Broad Street Mall.

A visual representation of the location of the Site is shown in Figure 1.

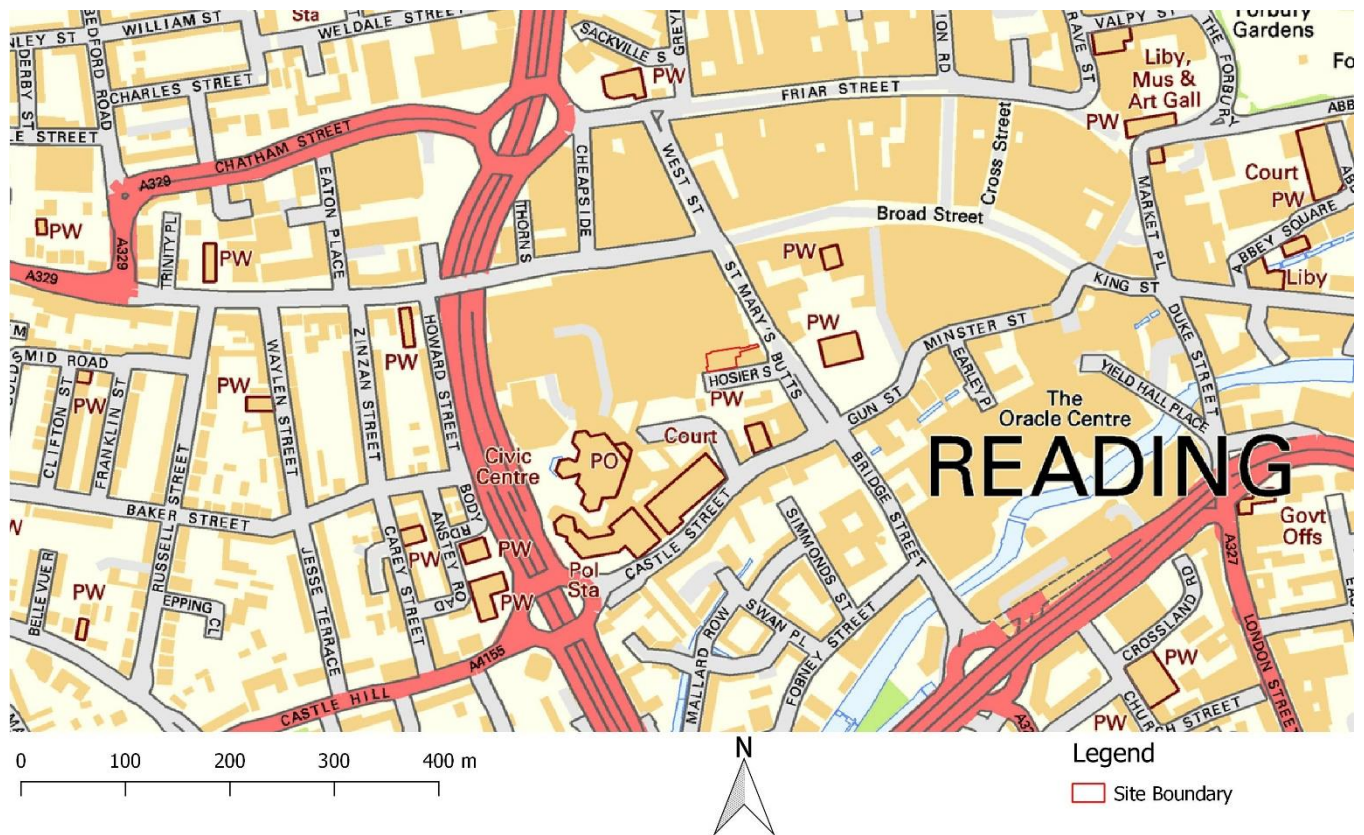


Figure 1: Site Boundary. Contains OS Data © Crown Copyright and Database rights 2020.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to RBC on the 27th January 2020 and was agreed via email by Ross Jarvis, Senior Environmental Health Officer at RBC. A copy of the correspondence with RBC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Determination of baseline scenario, using RBC monitoring data;
- Assessment of potential air quality impacts during the construction phase;
- Screening of potential air quality impact associated with road traffic emissions and combustion plant emissions associated with the Consented Development during the operational phase;
- Assessment of potential air quality impacts as a result of existing air quality on sensitive receptor locations at the Consented Development; and
- Identification of required mitigation measures.

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management.

The Environment Act 1995 (Part IV)¹ requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries. The latter has become known as Local Air Quality Management (LAQM).

The Air Quality Strategy² provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these air quality objectives.

Local authorities are required to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If the objectives are not achieved, the authority must declare an Air Quality Management Area (AQMA) and should prepare an action plan within 12 months. An action plan must identify appropriate measures and policies that can be introduced in order to work towards achieving the objective(s).

The air quality objectives set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations 2000³, and the Air Quality (England) (Amendment) Regulations 2002⁴.

The objectives for NO₂ and particulate matter (PM₁₀ and PM_{2.5}) are set out in Table 1. The objectives for NO₂ and PM₁₀ were to have been achieved by 2005 and 2004 respectively and continue to apply in all future years thereafter. The PM_{2.5} objective is to be achieved by 2020. It should be noted that local authorities in England have a flexible role in working towards reducing emissions and concentrations of PM_{2.5}.

Table 1: Air Quality Objectives for NO₂, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO ₂)	1-hour Mean	200 µg/m ³ Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
Fine Particles (PM ₁₀)	24-hour Mean	50 µg/m ³ Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
Fine Particles (PM _{2.5})	Annual Mean	25 µg/m ³

The objectives apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives should apply are provided in LAQM.TG16, and include building facades of residential properties, schools, hospitals. The annual mean objectives are not relevant for the building facades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

The 24-hour objective for PM₁₀ is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels.

The 1-hour objective for NO₂ also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, car parks and bus stations which are not fully enclosed. The 1-hour objective does not apply at kerbside sites where the public do not have regular access.

2.2 EU Limit Values.

The European Union has also set limit values for NO₂, PM₁₀ and PM_{2.5}; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010⁵.

The limit values for NO₂, PM₁₀ and PM_{2.5} are the same as the English objectives (Table 1), but applied from 2010 for NO₂, 2005 for PM₁₀ and 2015 for PM_{2.5}. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

2.3 General Nuisance Legislation.

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10µm (i.e. greater than PM₁₀) 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.

2.4 Clean Air Strategy.

The Clean Air Strategy (CAS)⁶, published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also 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.

2.5 Planning Policy.

2.5.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2019⁷ sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

Paragraph 170: "Planning policies and decisions should contribute to and enhance the natural and local environment by: preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality"

Paragraph 180: "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".

Paragraph 181: "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

Paragraph 183: "The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

Paragraph 54: "Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition."

The NPPF is supported by Planning Practice Guidance (PPG)⁸.

The PPG states that:

Paragraph 001 (Reference ID: 32-001-20191101): “Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit or where the need for emissions reductions has been identified.”

Paragraph 002 (Reference ID: 32-002-20191101): Plans may need to consider ways in which the development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable”.

Paragraph 005 (Reference ID: 32-005-20191101): “Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and / or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

The PPG also sets out the information that may be required in an air quality assessment, stating that:

Paragraph 007 (Reference ID: 32-007-20191101): “Assessments need to be proportional to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific. The scope and content of supporting information is best discussed and agreed between the local planning authority and applicant before it is commissioned”.

It also provides guidance on options for mitigating air quality impacts, and makes clear that:

Paragraph 008 (Reference ID: 32-008-20191101): “Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact.”

2.6 Local Policy.

2.6.1 Reading Borough Local Plan

The Reading Borough Local Plan was formally adopted in November 2019 and sets out the planning policies for development in Reading up to 2036 and assists in determining planning applications. A review of the Local Plan indicated the following policies are relevant to air quality:

“CC9: Securing Infrastructure

Proposals for development will not be permitted unless infrastructure, services, resources, amenities or other assets lost or impacted upon as a result of the development or made necessary by the development will be provided through direct provision or financial contributions at the appropriate time.

Employment development should provide mitigation measures in line with its impacts on labour and skills and on the transport network.

In determining appropriate provision or contribution, the highest priority will be given to the following:

- Transport infrastructure, including major cross boundary or sub-regional infrastructure projects;
- Open space, green infrastructure and other measures to improve or enhance biodiversity;
- Education, including cross-boundary facilities;
- Economic development services and infrastructure, including employment, skills and training development initiatives and childcare provision.

Where relevant a high priority will also be given to the appropriate provision of the following:

- Energy infrastructure, including decentralised energy projects;
- Health provision; and
- Police Service infrastructure.

Other measures, as follows, should also be considered where a specific need is identified and justified:

- Community facilities;
- Leisure and cultural infrastructure;
- Reading Central Area infrastructure and amenities, including public realm and street care enhancements;
- Environmental improvements outside the Central Area, such as within local centres, including off-site street tree and other tree planting;
- Measures to tackle poor air quality for on-going air quality monitoring; and
- Flood mitigation and prevention measures.”

And;

“EN15: Air Quality

Development should have regard to the need to improve air quality and reduce the effects of poor air quality.

- i. Development that would detrimentally affect air quality will not be permitted unless the effect is to be mitigated. The following criteria should be taken into account:
 - Where the proposal, including when combined with cumulative effect of other developments already permitted, would worsen air quality;
 - Whether the development is within, or accessed via, an Air Quality Management Area; and
 - Whether it can be demonstrated that a local worsening in air quality that would not detrimentally affect human health or the environment would be offset by an overall improvement in air quality, for instance through the reduction in the need to travel.
- ii. Where a development would introduce sensitive uses (such as residential, schools and nurseries, hospitals, care facilities) into, or intensify such uses within, an Air Quality Management Area, detrimental effects on that use will be mitigated. Mitigation measures should be detailed in any planning application. If there are significant detrimental effects that cannot be mitigated, the application should be refused.
- iii. Where required, planning obligations will be used to secure contributions to measures to tackle poor air quality for air quality monitoring.”

It should be noted that the Reading Borough LDF detailed in the planning condition for the Site is no longer available on the RBC website and as such, it has not been possible to review Policy DM19 in line with this Air Quality Assessment. It is understood that Policy EN15 in the recently updated Local Plan has replaced Policy DM19

2.7 Local Air Quality Management in Reading.

RBC currently have one Air Quality Management Area (AQMA) within their administrative boundary which has been declared for exceedances of the annual mean NO₂ air quality objective (AQO). As such, RBC has produced an Air Quality Action Plan of which the most recent version was published in 2016. The actions within the plan are split into two key areas, Intervention and Education/Promotion and aim to improve air quality across RBC.

2.8 Assessment Guidance.

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.8.1 Defra Local Air Quality Management Technical Guidance

Defra Local Air Quality Management Technical Guidance (LAQM.TG(16))⁹ was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air

quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

2.8.2 EPUK/IAQM Air Quality Guidance for Planning

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance¹⁰ to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

2.8.3 IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM¹¹. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

3. Methodology of Assessment.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to RBC for review and agreed via email by Ross Jarvis, Senior Environmental Health Officer at RBC on the 27th January 2020.

3.2 Existing Air Quality in the Study Area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Site.

This desk-top study was undertaken using the following sources:

- Air quality data for RBC including a review of the RBC air quality reports and local monitoring data;
- The UK Pollutant Release and Transfer Register¹²;
- Background pollution maps from Defra's Local Air Quality Management (LAQM) website¹³; and
- Aerial photography from Google Maps.

3.3 Construction Phase Impacts.

3.3.1 Construction Dust Assessment

The assessment of construction dust impacts has been undertaken in line with the IAQM methodology. Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

The risk of dust emissions was assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling; and
- The risk of health effects due to a significant increase in exposure to PM₁₀.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 350 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project 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 mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are reproduced in Appendix 2.

3.3.2 Construction Traffic

3.3.2.1 Construction Traffic Emissions Screening

The screening assessment has been undertaken with reference to the following EPUK and IAQM guidance¹⁰ indicative criteria:

- a change of Light Duty Vehicle (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) (outside an AQMA);

- a change of Heavy Duty Vehicle (HDV) flows of more than 100 AADT (outside an AQMA);
- a change of LDV flows of more than 100 AADT (within an AQMA); and/or
- a change of HDV flows of more than 25 AADT (within an AQMA).

3.3.2.2 NRMM Emissions Screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following LAQM.TG(16)⁹.

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Impacts

The screening assessment has been undertaken with reference to the following documents:

- EPUK and IAQM guidance indicative criteria, i.e.:
 - a change of LDV flows of more than 100 AADT (within an AQMA); and/or
 - a change of HDV flows of more than 25 AADT (within an AQMA).

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that “the criteria provided are precautionary and should be treated as indicative”, and “it may be appropriate to amend them on the basis of professional judgement”.

Where impacts can be screened out there is no need to progress to a more detailed assessment.

3.4.2 Combustion Plant Screening of Impacts

The assessment has been undertaken with reference to the EPUK and IAQM guidance¹⁰ indicative criteria i.e.:

- Combustion plant where the single or combined NO_x emission rate is less than 5mg/sec
- Provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion.
- In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.

Conversely, where existing NO₂ concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

This screening approach requires professional judgement, and the experience of the consultants preparing the assessment is set out in Appendix 3.

3.4.3 Site Suitability

A qualitative assessment has been undertaken to consider the Site Suitability which refers to the exposure of future occupants of the Consented Development to existing air quality.

The suitability of the Site for the consented end-use will be assessed qualitatively using RBC monitoring data from passive diffusion tube and automatic monitoring locations within the vicinity of the Site.

3.5 Assessment of Significance.

3.5.1 Construction Dust

The IAQM guidance¹¹ on the assessment of dust from demolition and construction states that the primary aim of the risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 3.

3.5.2 Significance of Effect – Site Suitability Assessment

To determine the significance of predicted air quality impacts based upon a site suitability assessment, the EPUK/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.”

4. Baseline Environment.

This section sets out the available information on air quality in the vicinity of the Site.

4.1 Site Setting.

The Site is located within RBC's area of administration at approximate NGR: X 471310, Y 173320.

The Site is located within Reading town centre and currently comprises a disused night club which is to be demolished. To the north and west of the Site lies the Broad Street Mall. To the south, lies Hosier Street and a market area and to the east, the Site is located adjacent to an existing bar/restaurant and Armed Forces Careers Office with St Mary's Butts beyond.

4.2 Local Air Quality Management Review and Assessment.

As required by the Environment Act (1195), RBC has undertaken Review and Assessment of air quality within their area of administration. This process has indicated that annual mean concentrations of NO₂ are above the AQO within the borough. As such, one Air Quality Management Area (AQMA) has been declared and is described as:

“Reading AQMA – An area covering Reading Town Centre, areas along the major radial routes into Reading (including J11 of the M4 and along the railway lines where they pass through built-up areas.”

The Site is located within the Reading AQMA and as such, this assessment considers the impacts of the Consented Development on existing air quality and assesses the site suitability for the consented end-use as a hotel.

4.3 Local Air Quality Monitoring.

The UK Automatic Urban and Rural Network (AURN) is a countrywide network of air quality monitoring stations operated on behalf of Defra. Monitoring data for AURN sites is available from the UK Air Information Resource website (UK AIR). There is currently one urban background AURN site located in Reading, approximately 2km east of the Site.

Additionally, RBC operate three automatic monitoring stations, with the closest site being RD1, located along Caversham Road, approximately 1km north of the Site.

Recent monitoring data for the automatic sites is detailed in Table 2 and a visual representation of the locations of the automatic monitoring sites is shown in Figure 2.

Table 2: Automatic Monitoring Locations

Monitoring site and distance (km) from site boundary (approx.)	Objective	2014	2015	2016	2017	2018
NO ₂						
AURN 2km from Site	Annual mean (µg/m ³)	27	22	34	29	26
	Number of hours with concentrations >200 µg/m ³	0	0	4	0	0

Monitoring site and distance (km) from site boundary (approx.)	Objective	2014	2015	2016	2017	2018
RD1 1km from Site	Annual mean ($\mu\text{g}/\text{m}^3$)	41	38	39	37	40
	Number of hours with concentrations $>200 \mu\text{g}/\text{m}^3$	0	1	0	0	7
PM₁₀						
AURN 2km from Site	Annual mean ($\mu\text{g}/\text{m}^3$)	14	12	13	12	13
	Number of days with concentrations $> 50 \mu\text{g}/\text{m}^3$	0	0	3	3	1
RD1 1km from Site	Annual mean ($\mu\text{g}/\text{m}^3$)	33	28	20	23	24
	Number of days with concentrations $> 50 \mu\text{g}/\text{m}^3$	31	8	5	7	3

The monitoring results at the AURN indicate compliance with the both the annual mean and 1-hour mean AQO for NO₂ and the annual mean and 24-hour mean AQO for PM₁₀ in recent years.

For RD1, the NO₂ annual mean AQO was exceeded in 2014 and 2018 however the monitoring results indicate compliance with the 1-hour mean in the last five years. Annual mean PM₁₀ concentrations have been below the AQO in the last five years and there have been no exceedances of the 24-hour mean AQO.

RBC also utilise 61 passive diffusion tubes to monitor NO₂ concentrations in the borough. A review of the most recent monitoring data available indicated that there are currently 24 passive diffusion tube monitoring locations within 1km of the Site. Recent monitoring results are shown in Table 3 and the passive diffusion tube locations are illustrated in Figure 3.

Table 3: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO ₂ Concentration ($\mu\text{g}/\text{m}^3$)				
				2014	2015	2016	2017	2018
DT01	Roadside	Kings Oak Flats, Queens Road	710	38	33	33	31	32
DT10	Roadside	10-20 Hieatt Close	870	38	34	32	32	31
DT15	Roadside	Red Cow, Southampton Street	595	45	38	38	35	38
DT16	Roadside	44 Crown Street	615	43	36	37	35	34

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³)				
				2014	2015	2016	2017	2018
DT17	Roadside	4 Tilehurst Road	700	35	29	30	30	29
DT18	Roadside	162a Castle Hill	550	40	36	37	35	35
DT19	Roadside	128 Castle Hill	420	52	45	45	46	42
DT20	Roadside	Blenheim Terrace	370	41	40	39	39	33
DT26	Roadside	Sidmouth Street – Trinity Hall	780	-	-	-	-	37
DT33	Roadside	165 Oxford Road	570	51	47	44	47	42
DT34	Roadside	10 Trinity Place	555	32	31	31	29	32
DT35	Roadside	Picture House	230	34	30	32	30	31
DT36	Roadside	Sackville Street	330	43	40	37	37	38
DT37	Roadside	Vachel Street	390	38	33	35	34	35
DT39	Roadside	Friar Street, near Nando's	270	53	47	52	50	42
DT40	Roadside	Station 1	480	-	-	50	47	35
DT41	Roadside	Station 2	480	-	-	47	49	33
DT42	Roadside	33 Caversham Road	430	51	48	43	45	44
DT43	Roadside	59a Caversham Road	555	47	42	41	43	39
DT44	Roadside	50 Cardiff Road	880	36	32	29	30	28
DT45	Roadside	125 Cardiff Road	840	33	32	28	28	23
DT46	Roadside	Railway Depot	790	42	39	35	34	27
DT51	Roadside	108 Caversham Road	900	48	41	41	40	42
DT52	Roadside	31a Vastern Road (lamppost)	800	40	36	37	38	33

As shown in Table 3 above, NO₂ concentrations were continuously below the AQO at 8 of the 24 passive diffusion tube locations within 1km of the Site in the last five years. However, NO₂ concentrations have been continuously above the AQO at 5 of the 24 passive diffusion tube locations within 1km of the Site in the last five years. In 2018, the most recent year in which monitoring data is available, 19 out of 24 passive diffusion tubes were below the AQO. The closest passive diffusion tube is DT39 located along Friar Street approximately 270m from the Site boundary and NO₂ concentrations have been above the AQO at this location between 2014 and 2018.

4.4 Industrial Pollution.

A desk-based review of potential industrial sources using the UK Pollutant Release and Transfer Register¹² did not identify any significant industrial or waste management sources of air pollution that are likely to affect the Site with regard to air quality.

4.5 Defra Predicted Concentrations.

The background concentrations have been obtained from the national maps published by Defra¹³. These estimated concentrations are produced on a 1km by 1km grid basis for the whole of the UK. The Site falls into grid square X 471500 Y 173500 and the predicted concentrations for this grid square for NO₂, PM₁₀ and PM_{2.5}

are provided in Table 4 for 2018 the most recent year with available monitoring data and for 2021, the anticipated opening year for the Consented Development.

Table 4: Predicted Background Concentrations

Year	Predicted Background Concentration (µg/m³)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
2018	46.1	27.7	16.2	11.2
2021	39.6	24.7	15.5	10.6

As shown in Table 4, background concentrations are below the relevant AQOs for all pollutants.

4.6 Summary of Background Data.

The baseline air quality assessment shows that the Site is located within the Reading AQMA, declared by RBC for exceedances of the annual mean AQO for NO₂.

Recent monitoring data shows that NO₂ concentrations in 2018 were below the annual mean AQO at 19 of the 24 passive diffusion tube locations and the AURN located within 2km of the Site. NO₂ concentrations at the closest diffusion tube to the Site is DT39, located along Friar Street, have been above the annual mean AQO in the last five years.

For PM₁₀, recent monitoring data shows that concentrations have been below the relevant AQO for both the annual mean and 24-hour mean in the last five years.

In addition, predicted background concentrations of all pollutants at the Site are below the relevant AQOs.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Consented Development are assessed in this section.

5.1 Construction Phase Dust Assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment Screening

There are 'human receptors' within 350 m of the Site but no designated habitat sites within 50 m of the Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

Therefore, an assessment of construction dust on ecological receptors can be screened out from this assessment but an assessment of construction dust at human receptors is required.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from demolition, earthworks, construction and trackout have been assessed, as identified in Table 5.

Table 5: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Demolition	Medium	There is currently a disused nightclub at the Site which is to be demolished as part of the Consented Development. The total building volume to be demolished is less than 20,000m ³ and demolition activities will occur at less than 10m above ground level. However, there is potential for dusty construction material as the existing building is mostly brick.
Earthworks	Small	The total site area of the Site is less than 2,500m ² and it is unlikely that more than 5 heavy moving vehicles will be active at any one time.
Construction	Medium	The Gross Internal Area (GIA) of the Consented Development is 3947.8 and therefore the total building volume is between 25,000 and 100,000m ³ . There is also the potential for the construction material to be dusty i.e. concrete.
Trackout	Small	Due to the size of the Consented Site it is unlikely that more there will be more than 10 HDV outward movements in one day. Additionally, as the Consented Site is located in Reading town centre, the unpaved road length is less than 50m.

5.1.3 Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM₁₀, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The sensitivity of the area and the factors considered are detailed in Table 6.

Table 6: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On-Site	Trackout
Dust Soiling	The Site is located within Reading town centre which mostly comprises retail and restaurant use which is considered to be of medium sensitivity. There is also a short-term car park within 50m of the Site however this is considered to be a low sensitivity receptor. However, from a review of the area on Google Maps, there are a number of buildings within 100m which also house residential properties on the upper floors, whereby a high level of amenity is expected. Not all buildings in the vicinity of the Site contain residential properties and therefore it is estimated that there between 10 and 100 receptors within 100m but potentially more than 100 within 50m of the road network, up to 500m from the Site entrance along St Mary's Butts.	Low	High
Human Health	Residential properties are considered to be highly sensitive receptors however as detailed in Table 4, the predicted PM ₁₀ background concentrations at the Site in both the current year and proposed opening year are below 24µg/m ³ . There are between 10 and 100 residential properties within 100m of the Site and potentially more than 100 within 50m of the road network, up to 500m from the Site entrance along St Mary's Butts.	Low	Low

5.1.4 Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 7 details the risk of dust impacts for demolition, earthworks, construction and trackout activities.

Table 7: Summary of Potential Unmitigated Dust Risks

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

5.2 Construction Phase – Vehicular Pollutants.

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the EPUK and IAQM criterion. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the Consented Development “can be considered to have insignificant effects” on air quality.

5.3 Construction Phase – Non-Road Mobile Machinery.

Pollutants emitted by NRMM that may have the most significant potential effects on local air quality are particulate matter (PM₁₀ and PM_{2.5}), and NO_x/NO₂. Typically, NRMM is associated with construction sites and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Consented Development.

However, LAQM.TG(16) guidance states that, with the application of suitable control measures and site management, exhaust emissions from on-site NRMM are “unlikely to make a significant impact on local air quality. In the vast majority of cases they will not need to be quantitatively assessed”.

6. Operational Phase Assessment.

6.1 Road Traffic Emissions.

The Consented Development does not include the provision of car parking and any customers of the hotel and/or bar and restaurant travelling by car are anticipated to use the multi-storey car park at the Broad Street Mall, adjacent to the Site. Furthermore, there is no designated taxi parking at the Consented Development.

The Transport Statement (ref: Transport Statement 00416091), submitted as part of the planning application and undertaken by Connect Consultants in November 2018 states that a total of 19 AM peak hour flows and 16 PM peak hour flows and '*negligible traffic effects*' are predicted.

The Consented Development is located within the Reading AQMA however it is not expected that the peak trip flows would result in a change of more than 100 LDV AADT or 25 HDV AADT. As a result, it is considered that air quality impacts associated with vehicles used by guests of the hotel will also be negligible and no further assessment is required.

6.2 Combustion Plant Screening Assessment.

It is understood that the primary source of energy provision will be from Air Source Heat Pumps (ASHP) with additional water heaters. ASHP do not give rise to air quality emissions however there is the potential for NO₂ emissions as a result of combustion processes within the water heaters. The Plant Room Block Plan (drawing ref: 0404887-HL-XX-GF-GA-U-500-001) has been provided by Kier, the Contractors for the Consented Development, and indicates the use of three MAXXflo 120/300 water heaters, each with an output of 122kW.

The combined emission rate of the three water heaters will be 4.473 mg/s which is below the 5 mg/s criteria set out in the EPUK and IAQM guidance¹⁰ and Section 3.4.2 of this report.

6.3 Site Suitability.

This section presents a review of RBC monitoring data in the vicinity of the Site, for the purpose of identifying the suitability of the Site for hotel use and identify any requirements for potential mitigation to be embedded into the Consented Developments design.

As presented in Section 2 in line with LAQM.TG(16), the 24-hour mean, and 1-hour mean AQOs apply to the Consented Development due to its consented hotel use. As such, this section considers the 24-hour mean, and the 1-hour mean pollutant concentrations at the Site.

6.3.1 Predicted NO₂ Concentrations

A review of the annual mean NO₂ concentrations monitored within 1km of the Site has been completed as part of the baseline review with recent monitoring results, presented in Table 3.

The closest passive diffusion tube, DT39, is located approximately 270m north-east of the Site along Friar Street. The Site is located adjacent to St Mary's Butts which is similar to Friar Street in that they are both town centre roads with the potential for similar volumes of cars, taxis and buses.

In 2018, the most recent year in which monitoring data is available, annual mean NO₂ concentrations at DT39 were 42µg/m³. It is suggested by Defra in LAQM.TG(16)⁹ that an annual mean concentration of 60µg/m³ or above is used to indicate a possible exceedance of the hourly mean NO₂ AQO. It is therefore unlikely that the hourly mean AQO for NO₂ will be exceeded at this location.

It should be noted that the DT39 passive diffusion tube is considered to be a roadside location which is defined in LAQM.TG(16) as 'a site sampling typically within one to five metres of the kerb of a busy road'. According to the RBC 2019 Annual Status Report¹⁴, DT39 is located 5m from the kerb of the nearest road and therefore is close to the source of emissions. The Consented Development however is located approximately 30m from the source of emissions i.e. St Mary's Butts and as pollutant concentrations decrease with distance, it is unlikely that elevated concentrations will be experienced at the Consented Development.

Furthermore, as shown in Table 4, the background NO₂ concentrations predicted by Defra at the Site are below the AQO.

Based on the above, it is therefore considered that the Site is suitable for the consented end use as a hotel and mitigation measures to protect future users are not required.

6.3.2 Predicted PM₁₀ Concentrations

The closest automatic monitor, RD1, is located approximately 1km north of the Site along Caversham Road. In 2018, the most recent year in which monitoring data is available, the annual mean PM₁₀ concentration was 40µg/m³ with 7 exceedances of the 24-hour mean PM₁₀ AQO. This is below the permitted 35 days of exceedances.

Furthermore, as shown in Table 4, the background PM₁₀ concentrations predicted by Defra at the Site are below the AQO.

Therefore, PM₁₀ concentrations in the locale of the Site are considered to be below the 24-hour mean AQO and the Site is considered to be suitable for the consented end use as a hotel without the inclusion of mitigation measures.

6.3.3 Significance of Air Quality Impacts

To determine the significance of predicted air quality impacts based upon a site-suitability assessment, such as that undertaken as part of this assessment, the EPUK & 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.”

With regards to the Consented Development, the unmitigated impact significance associated with the Consented Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

- The Consented Development will not introduce any new receptor into an area of exceedance of the 1-hour mean NO₂ AQO based upon a review of NO₂ monitoring data within the development locale; and
- The Consented Development will not introduce any new receptor exposure into an area of exceedance of the 24-hour mean PM₁₀ air quality objectives based upon a review of PM₁₀ monitoring data within the development locale.

As no exceedances of the considered AQOs are predicted, mitigation measures are not required for the operational phase of the Consented Development. As such, the overall effect is considered to be ‘not significant’.

7. Mitigation.

7.1 Construction Phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM guidance are implemented. These mitigation measures have been carefully selected for the Consented Development and are based upon the dust risk categories outlined in Section 5.1.4 of this report.

Table 8 below details the measures that will be undertaken in accordance with the Dust Management Plan (DMP) for the Site.

Table 8: Mitigation Measures

Issue	Mitigation Measure
Communications	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
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM ₁₀ continuous monitoring and/or visual inspections.
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 off- site, and the action taken to resolve the situation in the log-book
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 check of surfaces such as street furniture, cars, windowsills within 100 m of the site boundary, with cleaning to be provided if necessary
	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
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 cover as described below
	Ensure all vehicles switch off engines when stationary – no idling vehicles

Issue	Mitigation Measure
Operating vehicle/machinery and sustainable travel	Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph 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 applicable)
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
	Minimize 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
Waste management	Avoid bonfires and burning of waste materials
Demolition	Soft strip inside building before demolition
	Ensure effective water suppression is used during demolition activities
	Avoid blasting, using appropriate manual or mechanical alternatives
	Bag and remove any biological debris before demolition
Construction	Avoid scabbling (roughening of concrete surfaces) if possible
	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
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 in continuous 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 logbook
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable)

Potential dust effects during the construction phase are considered to be temporary in nature. The impacts are determined to be temporary as they will only potentially occur throughout the construction phase and short-term because these will only arise at particular times when certain activities and meteorological conditions for creating the level of magnitude predicted combine.

However, with the application of the above dust control and mitigation measures, it is considered that impacts at all receptors will be 'not significant' in accordance with the IAQM guidance.

7.1.1 Construction Phase Road Traffic Emissions

Potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out for further assessment with associated impacts on air quality predicted to result in an 'insignificant' effect. Therefore, mitigation measures are not required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM Control of Dust and Emissions guidance, all NRMM would need to adhere to the emissions standards for NO₂ and PM₁₀ set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational Phase.

7.2.1 Road Traffic Emissions

As the Consented Development does not include the provision of car parking and guests travelling via car to the hotel will likely utilise the adjacent car park at Broad Street Mall, air quality impacts are considered to be negligible in line with the submitted Transport Statement in November 2018 and EPUK/IAQM guidance¹⁰. As such, mitigation measures associated with road traffic emissions are not required.

7.2.2 Energy Combustion Systems

Emissions from the water heaters are predicted to be below the relevant criteria detailed in the EPUK and IAQM guidance¹⁰ and is not expected to cause significant impacts on local air quality. Therefore, mitigation measures are not required.

7.2.3 Baseline Site Suitability Review

A review of RBC monitoring data in consideration of the Site, and mapped concentrations by Defra in the locale of the Site, indicates no likely exceedance of the 1-hour mean NO₂ or the 24-hour mean PM₁₀ AQOs.

As no exceedances of any considered AQO are predicted, this follows the 1st hierarchy principle of the IAQM guidance to 'prevent and avoid' exposure¹⁵. Therefore, no embedded mitigation into the Consented Development design (in the form of mechanical ventilation, for example) is required.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of the consented Premier Inn hotel at Hosier Street, Reading.

The findings of the assessment are as follows:

- A qualitative assessment of the potential dust impacts during the construction of the Consented Development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature;
- The Consented Development does not include the provision of car parking and guests travelling by car would likely use the car park adjacent to the Site at the Broad Street Mall. The traffic generated by the Consented Development, is predicted to be below the criteria for a more detailed assessment set in the EPUK and IAQM planning guidance and therefore, the impact of additional traffic on local air quality is considered to be not significant.
- The primary source of energy provision for the Consented Development will be from ASHP with three water heaters. The combined emission rate for the heaters is below the criteria for a more detailed assessment set in the EPUK and IAQM guidance and as such, the impact on local air quality from combustion plant emissions is considered to be not significant
- A baseline site suitability review has been undertaken to assess the suitability of the Site for the consented end use as a hotel. The Consented Development will not introduce any new receptor exposure into an area of exceedance of the hourly mean for NO₂ or the 24-hour mean for PM₁₀, based upon a review of monitoring data within 1km of the Site and predicted background concentrations by Defra.

Based on the information above, it is considered that air quality should not be viewed as a constraint to planning and the Consented Development conforms to the principles of National Planning Policy Framework, the RBC Local Plan and the requirements of condition 12 of the planning decision notice.

9. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
AQO	Air Quality Objective
ASHP	Air Source Heat Pump
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles ($\leq$ 3.5 tonnes gross vehicle weight)
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be $\text{NO}_2 + \text{NO}$)
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$\text{PM}_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
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 duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site

References.

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- ¹ The Environment Act 1995 (Part IV)
- ² Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Defra
- ³ The Stationary Office (2000) Statutory Instrument 2000, No 921, The Air Quality (England) Regulations 2000, London
- ⁴ The Stationary Office (2002) Statutory Instrument 2002, No 304, The Air Quality (England) (Amendment) Regulations 2002, London
- ⁵ The Stationary Office (2010) Statutory Instrument 2010, No 1001, The Air Quality Standards Regulations 2010, London
- ⁶ The Clean Air Strategy, DEFRA. January 2019.
- ⁷ Ministry of Housing, Communities & Local Government (2019) National Planning Policy Framework, Department for Communities and Local Governments, February 2019
- ⁸ Ministry of Housing, Communities & Local Government (2018) Planning Practice Guidance.
- ⁹ Defra (2016) Technical and Supporting Guidance, Defra – [online], Available: <https://iaqm.defra.gov.uk/supporting-guidance.html>
- ¹⁰ Environmental Protection UK and Institute of Air Quality Management (2017) Guidance on land-use planning and development control: Planning for air quality – [online] (Last accessed: 22/01/20), Available: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>
- ¹¹ Institute of Air Quality Management (2016), IAQM Guidance on the Assessment of Dust from Demolition and Construction version 1.1 – [Online] (Last accessed: 02/01/18), Available: www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf
- ¹² Defra (2014) UK Pollutant Release and Transfer Register, Defra – [online], (Last accessed: 17/01/2020), Available: <https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets>
- ¹³ Defra (2017) Background Pollution Maps – [online], (Last accessed: 02/01/18), Available: <http://iaqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>
- ¹⁴ Reading Borough Council (2019) 2019 Air Quality Annual Status Report (ASR)
- ¹⁵ IAQM Mitigation of Development Air Quality Impacts, Version 1.1 (June 2018).

Appendix 1 – EHO Consultation.

Charlotte Smith

From: Jarvis, Ross <Ross.Jarvis@reading.gov.uk>
Sent: 27 January 2020 13:44
To: Charlotte Smith
Subject: RE: Air Quality Methodology - Hosier Street, Reading

[External email]

Hi Charlotte,

I can confirm that the proposed methodology is acceptable and also that EN15 has superseded DM19 as the new air quality policy in the new local plan.

Kind regards

Ross

Ross Jarvis
Senior Environmental Health Officer
Environmental Protection & Nuisance | Directorate of Economic Growth and Neighbourhood Services
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From: CharlotteSmith <CharlotteSmith@hoarelealea.com>
Sent: 27 January 2020 12:30
To: Jarvis, Ross <Ross.Jarvis@reading.gov.uk>
Subject: Air Quality Methodology - Hosier Street, Reading

This is an EXTERNAL EMAIL. STOP. THINK before you CLICK links or OPEN attachments.

Hi Ross,

I hope you don't mind me emailing you direct, I obtained your email address from the 2019 Air Quality Annual Status Report online after the Environmental Health email address I was provided on the phone was incorrect.

Hoare Lea have been instructed to undertake an air quality assessment to discharge planning condition 12 of the decision notice for the planning application number: 182054. The development is located at Hosier Street, Reading and the planning application comprises the demolition of the existing Eva's nightclub and the construction of a part 7, part 8 storey Premier Inn hotel with a bar/restaurant on the ground floor. We propose to undertake the assessment using the following methodology:

- A baseline assessment will be undertaken using Reading Borough Council's 2019 Annual Status Report and monitoring data from the Reading AURN, automatic monitoring stations and passive diffusion tube monitoring locations within 1 km of the Application Site to determine existing air quality in the locale.
- DEFRA's background pollution maps will be used to establish background concentrations in the area.
- Due to the nature of the consented development as a hotel, the annual mean objective does not apply. However, the 1-hour mean objective for NO₂ and the 24-hour mean objective for PM₁₀ will apply. Monitoring data from 2018, the most recent year in which data is available, will be used to determine whether exceedances of the relevant air quality objectives are predicted at sensitive receptor locations at the Application Site in line with the methodology detailed in LAQM.TG(16)
- There is no associated parking at the consented development and it is understood from the submitted transport assessment that hotel users travelling by car will utilise the adjacent car park at the Broad Street Mall. As such, the number of vehicles associated with the development is not expected to be above the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) threshold criteria of 100 AADT LDV and 25 AADT HDV in an AQMA and as such, a screening assessment on the potential impacts associated with road traffic emissions will be undertaken.
- Heating and hot water will be provided via Air Source Heat Pumps (ASHP) and three gas fired boilers however the emission rates are below the criteria detailed in the EPUK and IAQM guidance and therefore, a screening assessment of potential impacts associated with the combustion plant will be undertaken.
- The air quality assessment will also consider impacts during the demolition and construction phase of the development using the IAQM document 'Assessment of dust from demolition and construction' June 2016.
- Recommendations for mitigation measures will be provided if required.

In addition to the above, it is noted in the decision notice that the reasoning for the condition is so the development is "in accordance with Policy DM19 of the Reading Borough LDF Sites and Detailed Policies Document 2012 (Altered 2015)." From a review of the RBC website, it appears that this document is no longer available and therefore it has not been possible to review Policy DM19. I do however note Policy EN15 in the 2019 Local Plan. Could you please confirm whether Policy EN15 in the Local Plan has replaced Policy DM19?

I would be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have. However, if you would like to discuss further, please do not hesitate to contact me.

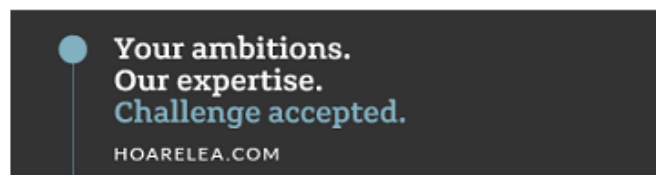
Kind Regards,

Charlotte

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Appendix 2 – IAQM Construction Phase Methodology.

The following tables have been taken from the IAQM guidance document ‘Guidance on the Assessment of Dust from Demolition and Construction’¹¹ and have been utilised to determine the sensitivity of the area and consider the risk of fugitive emissions as a result of construction activities.

Table All-1 to Table All-2 illustrate how the sensitivity of the area may be determined for dust soiling and human health, respectively. It should be noted that the highest level of sensitivity from each table should be considered, as recommended by the IAQM.

Table All-1: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20	<50	<100	<350
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 All-2: Sensitivity of the Area to Human Health Effects

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32µg/m ³	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 – 32µg/m ³	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 – 28µg/m ³	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	<24µg/m ³	>100	Medium	Low	Low	Low	Low
		10 – 100	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low

Medium	>32µg/m ³	>10	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	28 – 32µg/m ³	>10	Medium	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	24 – 28µg/m ³	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	<24µg/m ³	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Low	-	1	Low	Low	Low	Low	Low

Table All-3 to Table All-5 illustrate how the dust emission magnitude should be combined with the sensitivity of the area to determine the risk of impacts with no mitigation measures applied.

Table All-3: Risk of Dust Impacts – Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table All-3: Risk of Dust Impacts – Earthworks

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

Table All-4: Risk of Dust Impacts – Construction

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

Table All-4: Risk of Dust Impacts – Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High	High Risk	Low Risk
Medium	Medium	Low Risk	Negligible
Low	Low	Low Risk	Negligible

Appendix 3 - Professional Experience.

Chris Rush (Hoare Lea), BSc (Hons), MSc, PG Dip Acoustics, CEnv, MIOA, MIEMA, MIEEnvSc, MIAQM

Chris is a Senior Associate Air Quality Consultant with Hoare Lea. He is a Chartered Environmentalist, a Member of the Institute of Acoustics, a Full Member of the Institute of Environmental Management and Assessment, a Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management.

He has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Chris's expertise covers planning, noise and air quality, specifically in relation to residential developments, industrial fixed installations such as waste management centres and transportation environmental impact on developments including air traffic.

Kathryn Woolley (Hoare Lea), BSc (Hons), AMIEEnvSc, MIAQM

Kathryn is a Principal Air Quality Consultant with Hoare Lea. She's is an associate Member of the Institution of Environmental Sciences and a Full Member of the Institute of Air Quality Management.

She has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Kathryn's expertise covers planning, and air quality, specifically in relation to residential developments, industrial fixed installations such as district heating networks. Kathryn has completed over 30 EIA in the past 6 years throughout the UK and abroad including; St Johns Masterplan in Manchester (residential led), Leicester City Football club training facility north of Leister (sports use), 1-5 Grosvenor Place, Westminster (mixed use residential, retail and hotel site), and Chestnut Avenue in Eastleigh (residential and community use).

Charlotte Smith (Hoare Lea), BSc (Hons), AMIEEnvSc, AMIAQM

Charlotte is a Senior Air Quality Consultant at Hoare Lea with over five years' experience in air quality consultancy. She has worked on a range of projects across a number of industries including residential, educational, commercial and industrial for site feasibility studies, planning applications and Environmental Impact Assessments. She also has experience in air quality monitoring at sites ranging from residential and educational schemes to large road network schemes. Charlotte's interests lie in the effects that pollution has on human health and wellbeing.



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