Lovell Partnership Ltd
One Town Centre

Air Quality Assessment – Residential Application for One Town Centre

MLM. Group
Part of Sweco

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Contents

Figures

1 Executive Summary

MLM Consulting Engineers Ltd (MLM) was commissioned by Lovell Partnership Ltd to undertake an Air Quality Assessment (AQA) to support the planning application (ref: 6/2019/2430/MAJ) in relation to a mixed-use development located at 1 and 1A Town Centre And 3-9 Town Centre, Hatfield, AL10 0JZ ('Site').

The 'One Town Centre' proposal has received conditional planning permission for the demolition of existing buildings and the erection 3 buildings comprising of 71 flats and 1,110sqm of flexible commercial uses (use class: A1, A2, A3, A4, D1 & D2) (including a small office element (B1a)) and associated works to include car and bicycle parking, plant and refuse storage and public realm works ('Proposed Development'). Condition 3 states:

> *"Prior to the commencement of the development hereby approved, an air quality impact assessment shall be submitted to and approved in writing by the Local Planning Authority. The Assessment shall include a baseline air quality assessment undertaken prior to the commencement of the development, a scheme for the monitoring of air quality during the construction of the development and details of the impact of air quality on future occupiers of the development and the identification of any necessary mitigation measures. The assessment should consider pollutants Nitrogen Dioxide, PM_{10} and $PM_{2.5}$. Thereafter the development shall accord with the approved details.*
>
> *REASON: To mitigate the impact of the development on air quality in accordance with Policy R18 of the Welwyn Hatfield District Plan 2005."*

In regards to impacts during the construction phase of the Proposed Development, a qualitative assessment of the construction phase activities has been carried out following the relevant guidance. This identified that there is a 'Low to Medium Risk' of dust soiling impacts and 'Low Risk' of increases in particulate matter concentrations that could affect human health due to construction activities. However, through good site practices and the implementation of suitable mitigation measures, the effect of dust and particulate matter releases would be significantly reduced. The residual effects of the construction phase on air quality are considered to be 'Negligible'. The air quality impacts from the Proposed Development during the construction phase would be '**Not Significant'**.

With regards to site suitability, it has been determined that the future users of the Proposed Development would not be exposed to unacceptable air quality, based upon a review of existing air quality in the vicinity of the Site. In addition, Furthermore, residential units would be on the first floor and above, thereby limiting exposure to ground level road traffic emissions. Therefore, future residents of the Proposed Development would not be exposed to unacceptable air quality and the Site is deemed suitable for its proposed future use in this respect. No additional mitigation measures are considered necessary.

With regards to the impact of the Proposed Development on surrounding air quality, a screening assessment of the operational phase has been undertaken in accordance with the EPUK/IAQM guidance document 'Land-Use Planning & Development Control: Planning for Air Quality'. Regarding parking, the current site is occupied by a short stay public car park containing 74 spaces. The proposal includes some reconfiguration of the car park and the provision of a car park (providing 12 spaces) in the northern part of the site. Based on the scale of the Proposed Development, it is not anticipated that development would cause a change of 500 LDVs which requires detailed assessment. It is understood that electrical heat pumps will be used for heating. It is therefore considered that the quality impacts from the Proposed Development during the operational phase would be '**Not Significant'**.

Based on the results of the AQA, it is considered that the Proposed Development complies with national and local planning policy for air quality. On this basis, it is considered that Condition 3 may be discharged.

2 Limitations and Exceptions

This report and its findings should be considered in relation to the terms and conditions proposed and scope of works agreed between MLM and the Client.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only, and should not be specifically relied upon until considered in the context of the whole report.

This report provides available factual data for the site and the surrounding area at the time of the study and as obtained by the means described in the text. The data is related to the site on the basis of the site location information provided by the Client.

It should be appreciated that the information that has been made available to date, is not necessarily exhaustive and that further information relevant to the proposed site usage may be provided which could change the overall findings.

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This report is prepared and written in the context of the proposals stated in the introduction to this report and should not be used in a differing context. Furthermore, new information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to us for re-assessment and, if necessary, re-appraisal.

3 Introduction

MLM Consulting Engineers Ltd (MLM) was commissioned by Lovell Partnership Ltd to undertake an Air Quality Assessment (AQA) to support the planning application (ref: 6/2019/2430/MAJ) in relation to a mixed-use development located at 1 and 1A Town Centre and 3-9 Town Centre, Hatfield, AL10 0JZ ('Site').

The local authority responsible for determining the planning application is Welwyn Hatfield Borough Council (WHBC).

The 'One Town Centre' proposal has received conditional planning permission for the demolition of existing buildings and the erection three buildings comprising of 71 flats and 1,110 sqm of flexible commercial uses (use class: A1, A2, A3, A4, D1 & D2) (including a small office element (B1a)) and associated works to include car and bicycle parking, plant and refuse storage and public realm works ('Proposed Development'). Condition 3 states:

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>
> *REASON: To mitigate the impact of the development on air quality in accordance with Policy R18 of the Welwyn Hatfield District Plan 2005."*

The current site has a short stay public car park containing 74 spaces. The proposal includes some reconfiguration of the car park and the provision of a car park (providing 12 spaces) in the northern part of the site.

The approximate central grid reference for the Site is 522616 (Easting) and 208712 (Northing). The location of the Site is shown within Figure 1, with the proposed site layout shown in Figure 2.

3.1 Report Structure

The structure of the report is summarised below:

- A brief description of the Site and the Proposed Development;
- A brief description of the legislation governing air quality in England and WHBC;
- Details of the method and the input data used for the following assessments;
- Demolition/construction dust impact assessment;
- Operation phase impact assessment;
- Results of each assessment; and
- Conclusions.

3.2 Objectives

The Proposed Development is not in an area where the existing air quality currently exceeds, or is at risk of exceeding, the relevant AQOs. The main objectives of the AQA are to:

- Assess the suitability of the Site for the Proposed Development in terms of potential exposure of future users; and
- Assess the impact on the local air quality and existing sensitive receptors during the construction and operational phases of the Proposed Development.

4 Legislation, Policy & Guidance

4.1 International Legislation and Policy

The European Directive (2008/50/EC)[1] sets legally binding limits for concentrations of outdoor air of major air pollutants that impact public health such as particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2). The European Directive is implemented in the UK under the Air Quality Standards Regulations 2010[2]. The obligations under the Air Quality Standards Regulations 2010 are separate from those of the 2000[3] and 2002[4] UK Regulations because local authorities in the UK will only have powers to manage some of the pollutants in the Air Quality Standards Regulations 2010, as most of the source pollutants will be managed by the Environment Agency under the IPPC Regime. Therefore, the obligation to meet the Air Quality Standards Regulations 2010 rests with the Secretary of State for Environment.

4.2 National Legislation and Policy

4.2.1 Local Air Quality Management

Part IV of the Environment Act 1995[5], requires the UK Government to publish an Air Quality Strategy and local authorities to review, assess and manage air quality within their areas. This is known as Local Air Quality Management (LAQM)[6]. The 2007 Air Quality Strategy[7] establishes the policy for ambient air quality in the UK. It includes the National Air Quality Objectives (AQOs) for the protection of human health and vegetation for 11 pollutants. Those AQOs included as part of LAQM are prescribed in the Air Quality (England) Regulations 2000 and the Air Quality (Amendment) (England) Regulations 2002. Table 4.1 presents the AQOs for Nitrogen dioxide (NO_2) and particulate matter with an aerodynamic diameter of 10µg or less (PM_{10}), the key pollutants of concern in relation to vehicle emissions.

Table 4.1 Relevant Objectives set out in the Air Quality Strategy

Pollutant	Concentrations	Measured As
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times per year	One hour mean
	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3 not to be exceeded more than 35 times per year	24 hour mean
	40µg/m^3	Annual mean
Particulate Matter ($PM_{2.5}$)	25µg/m^3	Annual Mean

The Air Quality Strategy also introduced a new policy framework for tackling fine particles ($PM_{2.5}$) including an exposure reduction target. However, although EU Directive 2008/50/EC includes a new regulatory framework for $PM_{2.5}$ this pollutant is not included within LAQM, therefore, there is no requirement to assess this pollutant unless as part of an Environmental Impact Assessment (EIA). However, to ensure a robust assessment $PM_{2.5}$ has been considered in this assessment. The objective for this pollutant has been included in Table 4.1.

[1] Directive 2008/50/EC of the European Parliament and of the Council. May 2008. Official Journal of the European Union.
[2] Air Quality Regulations 2010 – Statutory Instrument 2010 No. 1001
[3] The Air Quality (England) Regulations 2000 no. 928. Stationary Office.
[4] The Air Quality (England) (Amendment) Regulations 2002 No. 4034. Stationary Office.
[5] Environment Act 1995.
[6] Local Air Quality Management Technical Guidance LAQM.TG (16). April 2016. Department for Environment, Food and Rural Affairs
[7] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. 2007. Department for Environment, Food and Rural Affairs

The AQOs apply to external air where there is relevant exposure to the public over the associated averaging periods within each objective. Guidance is provided within the Local Air Quality Management Technical Guidance 2016 (LAQM.TG (16)) issued for Local Authorities, on where the AQOs apply as detailed in Table 4.2. The objectives do not apply in workplace locations, to internal air or where people are unlikely to be regularly exposed (ie centre of roadways).

Table 4.2 Locations Where Air Quality Objectives Apply

Averaging Period	Objectives Should Apply at:	Objectives Should Generally Not Apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-hour mean and eight-hour mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties*	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
One-hour mean	All locations where the annual mean and: 24 and eight-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-min mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes.	

* – Such locations should represent parts of the garden where relevant public exposure to pollutants is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied.

4.2.2 National Planning Policy Framework

The latest guidance published in February 2019, the National Planning Policy Framework (NPPF)[8] sets out the Government's planning policies for England and how these are expected to be applied. It replaces Planning Policy Statement 23: Planning and Pollution Control and NPPF 2012[9] which provided planning guidance for local authorities with regards to air quality.

At the heart of the NPPF is a presumption in favour of sustainable development.

It provides a framework within which locally-prepared plans for housing and other development can be produced. It requires Local Plans to be consistent with the principles and policies set out in the Framework with the objective of contributing to the achievement of sustainable development.

Current planning law requires that application for planning permissions must be determined in accordance with the relevant development plan (ie Local Plan or Neighbourhood Plan). The NPPF should be taken into account in the preparation of development plans and therefore the policies set out within the Framework are a material consideration in planning decisions.

Under paragraph 103, it states that:

> *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

Under paragraph 170(e), it states that:

> *"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, taking into account relevant information such as river basin management plans."*

Under paragraph 181, it states that:

> *"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."*

[8] National Planning Policy Framework. February 2019. Ministry of Housing, Communities and Local Government
[9] Planning Policy Statement 23 (PPS 23): Planning and Pollution Control (ODPM).

4.2.3 Control of Dust and Particulates Associated with Construction

Section 79 of the Environmental Protection Act (1990)[10] states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Statutory nuisance is defined as:

> *'Any dust or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance'*
>
> *'Any accumulation or deposit which is prejudicial to health or a nuisance'*

Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

In the context of the Proposed Development, the main potential for nuisance of this nature will arise during the construction phase - potential sources being the clearance, earthworks, construction and landscaping processes.

There are no statutory limit values for dust deposition above which 'nuisance' is deemed to exist - 'nuisance' is a subjective concept and its perception is highly dependent upon the existing conditions and the change which has occurred. However, research has been undertaken by a number of parties to determine community responses to such impacts and correlate these to dust deposition rates. However, impacts remain subjective and statutory limits have yet to be derived.

4.2.4 Clean Air Strategy 2019

UK's Clean Air Strategy 2019[11] shows how we will tackle all sources of air pollution, making our air healthier to breathe, protecting nature and boosting the economy.

This document builds on an extensive consultation process which indicated broad-based support for many of the actions Defra are proposing. There was also a range of constructive feedback and challenge that has enabled Defra to improve and extend its ambition even further in certain key areas. A document summarising the responses to the consultation is published alongside the strategy.

The final strategy sets out these proposals in detail and also indicates how devolved administrations intend to make their share of emissions reductions. This strategy complements three other UK government strategies, the:

- Industrial Strategy;
- Clean Growth Strategy; and
- 25 Year Environment Plan.

4.3 Local Planning Policy

4.3.1 Welwyn Hatfield District Plan

The Welwyn Hatfield District Plan[12] is the current adopted Local Plan and provides a framework for planning decisions in the borough.

The Welwyn Hatfield District Plan was adopted in 2005. A number of policies have been 'saved' including the following relevant to this assessment.

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[10] Available at https://www.legislation.gov.uk/ukpga/1990/43/pdfs/ukpga_19900043_en.pdf
[11] Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf
[12] Available at https://www.welhat.gov.uk/media/869/District-Plan-District-wide-Policies/pdf/WrittenStatement2DWP.pdf?m=633925147440000000

Policy R18 – Air Quality states:

> *"The Council will have regard to the potential effects of a development on local air quality when determining planning applications. Consideration will be given to both the operational characteristics of the development and to the traffic generated by it. Any development within areas designated as Air Quality Management Areas must have regard to guidelines for ensuring air quality is maintained at acceptable levels as set out in the Air Quality Strategy."*

4.3.2 Draft Local Plan Proposed Submission (August 2016)

When formally adopted, the new Local Plan[13] will replace the 2005 Local Plan. It will cover the period until 2032 and will set targets for new homes, employment and retail development, and identify areas of land where these developments should be built. It will also consider what infrastructure is needed to support development. The Local Plan's policies will be used for making decisions on planning applications.

A Schedule of Minor Modifications[14] was included in the submission documents in May 2017, the text of which is included in underline below. The submission documents are currently being examined.

Policy SADM 11 (Amenity and Layout) states:

> *"i. All proposals will be required to create and protect a good standard of amenity for buildings and external open space in line with the Council's Supplementary Design Guidance, and in particular should ensure:*
>
> *…*
>
> *b. Dwellings are dual aspect, wherever feasible, to enable passive ventilation and avoid the need for mechanical ventilation, subject to any noise and air pollution mitigation measures that are required to make the proposal acceptable.*
>
> *…"*

Policy SADM 18 (Environmental Pollution) states:

> *"Environmental Pollution*
>
> *When considering development proposals, the Council will adopt the approach set out below to ensure that pollution will not have an unacceptable impact on human health, general amenity, critical environmental assets or the wider natural environment.*
>
> *…*
>
> *Air Quality*
>
> *Prevailing air quality and potential impacts upon air quality arising from airborne emissions, dust and odour associated with the construction and operation of a proposal (including vehicular traffic) will be considered when determining planning applications. Proposals that would result in or be subject to unacceptable risk to human health and the natural environment from air pollution, or would prejudice compliance with national air quality objectives, will be refused.*
>
> *An Air Quality Assessment that demonstrates how prevailing air quality and potential impacts upon air quality have been considered and how air quality will be kept to an acceptable standard through avoidance and mitigation will be required for major and minor development proposals that are:*

[13] Available at https://www.welhat.gov.uk/media/14557/Draft-Local-Plan-Submission-Document-August-2016/pdf/Draft_Local_Plan_Submission_Document_August_2016_opt.pdf?m=636866922998770000
[14] Available at https://www.welhat.gov.uk/media/12330/Schedule-of-minor-modifications-2017/pdf/SUB_8_Schedule_of_minor_modifications_-_Final_May_2017.pdf?m=636306246612200000

i. Likely, due to the nature of the proposal, to give rise to significant air pollution;
ii. Within an Air Quality Management Area;
iii. Within 50 metres of a major road (71) or heavily trafficked route (72);
iv. Within proximity to a source of air pollution which could present a significant risk to human health; and/or
v. Particularly sensitive to air pollution due to their nature, such as schools, health care establishments or housing for older people.

The potential impact of proposals upon odour levels, or their sensitivity to prevailing sources and levels of odour, should be considered and addressed. Where appropriate, the Council will require an Odour Impact Assessment to be provided, including an Odour Management Plan where necessary.

…

(71) - As defined under the Environmental Noise (England) Regulations 2006 Regulation 3(8) – trunk roads, motorways and principal or classified roads with more than three million vehicle passages a year; and considered by the Secretary of State to be regional, national or international. In 2016, the A1(M), A414, A1(M), A1001, A1057 and A6129 met this definition.

(72) - Heavily trafficked routes in the borough are defined as the B156, B197, B656, B1000 and Coopers Green Lane"

4.4 Guidance

A summary of the publications referred to in the undertaking of this AQA is provided below.

4.4.1 Local Air Quality Management Review and Assessment Technical Guidance

The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance[15] for use by local authorities in their review and assessment work. This guidance, referred to in this document as LAQM.TG (16), has been used where appropriate in the assessment presented herein.

4.4.2 Guidance on the Assessment of Dust from Demolition and Construction

This document[16] published by the IAQM was produced to provide guidance to developers, consultants and environmental health officers on how to assess the impacts arising from construction activities. The emphasis of the methodology is on classifying sites according to the risk of impacts (in terms of dust nuisance, PM_{10} impacts on public exposure and impact upon sensitive ecological receptors) and to identify mitigation measures appropriate to the level of risk identified. Further information provided in Section 5 and in Appendix A.

4.4.3 Land-Use Planning & Development Control: Planning for Air Quality

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance[17] that offers comprehensive advice on: when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and, the possible mitigation measures that may be implemented to minimise these impacts. Further information provided in Section 5 and in Appendix B.

[15] Defra (2016) Part IV The Environment Act 1995 and Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance LAQM.TG16
[16] Institute of Air Quality Management (Version 1.1 Updated June 2016). Guidance on the Assessment of Dust from Demolition and Construction
[17] Environmental Protection UK and Institute of Air Quality Management (Version 1.2 Updated January 2017). Land Use Planning & Development Control: Planning for Air Quality

4.4.4 National Planning Practice Guidance – Air Quality National Planning Practice Guidance – Air Quality

This guidance[18] provides a number of guiding principles on how the planning process can take into account the impact of new development on air quality, and explains how much detail air quality assessments need to include for proposed developments, and how impacts on air quality can be mitigated. It also provides information on how air quality is taken into account by Local Authorities in both the wider planning context of Local Plans and neighbourhood planning, and in individual cases where air quality is a consideration in a planning decision.

[18] Department of Communities and Local Government (DCLG) (March 2014). National Planning Practice Guidance

5 Scope & Methodology

5.1 Scope

The scope of the AQA has been determined in the following way:

- Review of WHBC's latest review and assessment reports and air quality data for the area surrounding the Site, including data from WHBC and Defra;
- Consideration of the potential impacts on local air quality resulting from dust and particulate matter generated by on-site activities during the construction phase;
- Review of the traffic data associated with the Proposed Development; and
- Desk study to confirm the locations of nearby existing receptors that may be sensitive to changes in local air quality.

5.2 Methodology

5.2.1 Construction Phase

Dust comprises particles typically in the size range 1-75 micrometres (µm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials. The larger dust particles fall out of the atmosphere quickly after initial release and therefore tend to be deposited in close proximity to the source of emission. Dust therefore, is unlikely to cause long-term or widespread changes to local air quality; however, its deposition on property and cars can cause 'soiling' and discolouration. This may result in complaints of nuisance through amenity loss or perceived damage caused, which is usually temporary.

The smaller particles of dust (less than 10µm in aerodynamic diameter) are known as particulate matter (PM_{10}) and represent only a small proportion of total dust released; this includes a finer fraction, known as $PM_{2.5}$ (with an aerodynamic diameter less than 2.5µm). As these particles are at the smaller end of the size range of dust particles they remain suspended in the atmosphere for a longer period of time than the larger dust particles, and can therefore be transported by wind over a wider area. PM_{10} and $PM_{2.5}$ are small enough to be drawn into the lungs during breathing, which in sensitive members of the public could have a potential impact on health.

An assessment of the likely significant impacts on local air quality due to the generation and dispersion of dust and PM_{10} during the construction phase has been undertaken using the relevant assessment methodology published by the IAQM, the available information for this phase of the Proposed Development provided by the Client and Project Team and professional judgement.

The IAQM methodology assesses the risk of potential dust and PM_{10} impacts from the following four sources: demolition; earthworks; general construction activities and trackout. It takes into account the nature and scale of the activities undertaken for each source and the sensitivity of the area to increases in dust deposition and PM_{10} concentrations to assign a level of risk. Risks are described in terms of there being a low, medium or high risk of dust impacts. Once the level of risk has been ascertained, then site specific mitigation proportionate to the level of risk is identified, and the significance of residual effects determined. A summary of the IAQM assessment methodology is provided in Appendix A.

In addition to impacts on local air quality due to on-site construction activities, exhaust emissions from construction vehicles and plant may have an impact on local air quality adjacent to the routes used by these vehicles to access the Site and in the vicinity of the Site itself. As information on the number of vehicles and plant associated with the construction phase was not available at the time of writing, a qualitative assessment of their impact on local air quality has been undertaken using professional judgement and by considering the following:

- The number and type of construction traffic and plant likely to be generated by this phase of the Development;
- The number and proximity of sensitive receptors to the Site and along the likely routes to be used by construction vehicles; and
- The likely duration of the construction phase and the nature of the construction activities undertaken.

5.2.2 Operational Phase

An air quality screening assessment has been undertaken following the EPUK/IAQM Guidance screening criteria to establish whether the proposals warrant the need for a detailed air quality assessment.

EPUK/IAQM Guidance Screening Criteria

The EPUK/IAQM guidance provides a decision making process which assists with the understanding of air quality impacts and implications as a result of development proposals. It provides a framework for air quality considerations within local development control processes, promoting a consistent approach to the treatment of air quality issues within development control decisions.

The guidance includes a method for screening the requirement for an AQA, the undertaking of an AQA, the determination of the air quality impact associated with a development proposal and whether this impact is significant.

The EPUK/IAQM guidance also provides some clarification as to when air quality constitutes a material consideration and highlights the linkage with other relevant issues (for example traffic speed reduction measure and the use of alternative technology to provide energy) and the importance of the understanding of these with the input from other discipline specialists. The 'creeping baseline' is another issue raised with regard to cumulative impacts.

This guidance is widely accepted as the most appropriate reference method for this purpose. This guidance makes reference to the Town and Country Planning (Development Management Procedure) Order (England) 2010 [(Wales) 2012] definition of a 'major' development when scoping assessments required for the planning process.

A 'major' development includes developments where:

- The number of dwellings is ten or above;
- The residential development is carried out of a site of more than 0.5ha where the number of dwellings is unknown;
- The provision of more than 1,000m^2 commercial floor space; or
- Development carried out on land of 1ha or more.

There are two types of air quality impacts to be considered:

- The impact of existing sources in the local area on the Proposed Development (governed by background pollutant levels and proximity to sources of air pollution); and
- The impacts of the Proposed Development on the local area.

With regard to the changes in air quality or exposure to air pollution, the guidance indicates that each local authority will be likely to have their own view on the significance of this; these are to be described in relation to whether an AQO is predicted to be met, or at risk of not being met. Exceedances of these objectives are considered as significant, if not mitigated.

As part of the impact of the Proposed Development on the local area, a two-staged assessment is recommended as per guidance:

Stage 1: Review of the development proposals, including number of residential units, floor space, car park spaces and the presence of an energy centre or other combustion processes on site, against the screening criteria. In the event that the Stage 1 criteria are exceeded we will proceed to Stage 2; and,

Stage 2: Review of the changes in Light Duty Vehicles (LDVs) and Heavy Duty Vehicles (HDVs), road alignment, and the introduction of new junctions and bus stops (if applicable) due to the Proposed Development. As part of Stage 2 a comparison of the AADT flows associated with the Proposed Development has been undertaken to assess if there is a potential for further air quality impacts.

A full list of the screening criteria are presented in Appendix B.

6 Baseline Conditions

6.1 Local Air Quality Management

WHBC has not declared any Air Quality Management Areas (AQMAs). The closest AQMA to the Site is St Albans AQMA No. 1, declared by the neighbouring St Albans City and District Council (SACDC). However, this AQMA is 8km away from the Site.

The latest air quality Annual Status Report[19] (ASR) available from WHBC confirms that the main sources of pollution in the district are traffic emissions from the local road network.

6.1.1 Local Authority Automatic Monitoring

As available from WHBC's 2019 ASR, WHBC operated one automatic monitoring station (AMS) within its administrative area. Monitor WHBAM (Great North Rd/A1000) has monitored $PM_{2.5}$ data since 2016. The data is shown in Table 6.1 and the location of the AMS in relation to the Site is shown in Figure 3 (referred to as 'WHBC AMS <2km').

Table 6.1 Annual Mean $PM_{2.5}$ Concentrations from WHBC AMS

Site ID	Site Name	Site Type	Distance from Site (km)	Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)		
				2016	2017	2018
WHBAM	Great North Rd/A1000	Roadside	0.8	9	13	11

Although the A1000 is a major road, the monitored $PM_{2.5}$ concentrations are well below the NAQO. $PM_{2.5}$ concentrations at the Site are therefore expected to be similar if not lower.

6.1.2 Local Authority Non-Automatic Monitoring

WHBC undertook non-automatic (passive) monitoring of NO_2 at 41 locations during 2018. Monitored data from 2016 to 2018 for the diffusion tubes located within 2km of the Site are shown in Table 6.2. The location of these diffusion tubes in relation to the Site is shown in Figure 3 (referred to as 'WHBC Diffusion Tubes <2km').

Table 6.2 Annual Mean NO_2 Concentrations from Diffusion Tube Sites within 2km of Site

Site ID	Site Name	Site Type	Distance from Site (km)	Annual Mean NO_2 Concentration ($\mu g/m^3$)		
				2016	2017	2018
WH20	Link Drive, Hatfield	Roadside	0.2	31	27	23
WH30	Woods Avenue, Hatfield	Roadside	0.5	-	-	23
WH29	Taxi Rank, Hatfield	Roadside	0.7	**44**	**40**	35
WH27	West View 3	Roadside	0.8	37	**40**	34
WH17	Great North Road. Hatfield (A1000)	Roadside	0.8	30	32	27
WH26	West View 2	Roadside	0.8	37	39	**45**
WH25	West View 1	Roadside	0.9	**44**	**46**	**40**

[19] Available at https://www.welhat.gov.uk/media/15870/Air-Quality-Annual-Status-Report-2019/pdf/Wel_Hat_ASR_2019.pdf?m=637135777346770000

Site ID	Site Name	Site Type	Distance from Site (km)	Annual Mean NO_2 Concentration ($\mu g/m^3$)		
				2016	2017	2018
WH19	Comet Way on A1001 & A1M	Roadside	0.9	**56**	**49**	**44**
WH7	Parkhouse Court, Hatfield	Roadside	1.0	31	30	28
WH22	Garden Village, Hatfield	Kerbside	1.1	37	**43**	35
WH14	Green Lanes, Hatfield	Kerbside	1.2	29	28	21
WH10	The Ryde, Hatfield	Urban Background	1.4	22	21	17
WH9	Mount Pleasant Close, Hatfield	Urban Background	1.5	22	21	19
WH16	The Runway, Hatfield	Urban Background	1.6	26	21	20
WH24	Ellenbrook Lane, A1001	Urban Centre	1.7	**44**	**40**	38

Note: Exceedance of the annual mean NAQO of 40 $\mu g/m^3$ for NO_2 are highlighted in **bold**. Monitoring locations that have the potential to exceed the hourly mean NAQO of 200 $\mu g/m^3$ for NO_2 are highlighted in **bold-underline**.

The monitored annual mean NO_2 concentrations are below the NAQO for the diffusion tube in the immediate vicinity of the Site (WH20). There are some exceedances of the NO_2 NAQO over the past three monitored years, however the locations are not considered to be representative of the Site. Diffusion tubes WH19, WH22 and WH24-27 are all located in close proximity to the A1(M), a major road. Meanwhile, diffusion tube WH29 is located at a taxi rank outside Hatfield Railway Station.

6.2 Defra Background Maps

Additional information on estimated background pollutant concentrations has been obtained from the DEFRA background maps provided on UK-AIR, the Air Quality Information Resource[20]. These maps are available in 1km x 1km grid squares and provide an estimate of concentrations between 2018 and 2030.

Concentrations have been taken from the grid square 522500, 208500; which includes the Proposed Development site. Estimated air pollution concentrations for NO_2, PM_{10} and $PM_{2.5}$ have been extracted from the 2018 background pollution maps for the years 2018 to 2022, and are set out in Table 6.3, below.

Table 6.3 Annual Mean Background Concentrations for Pollutants NO_2, PM_{10} and $PM_{2.5}$ from Defra, based on 2018 Background Maps

Pollutant	National Air Quality Objective (NAQO)	Background Concentrations ($\mu g/m^3$)				
		2018	2019	2020	2021	2022
NO_2	40	17.7	16.9	16.2	15.5	14.9
PM_{10}	40	16.0	15.6	15.3	15.1	14.9
$PM_{2.5}$	25	10.8	10.5	10.3	10.1	10.0

[20] Available at http://uk-air.defra.gov.uk

All of the annual mean background concentrations are well below the relevant NAQOs. NO_2 concentrations may be higher at the Site due to its proximity to nearby roads. This is supported by available diffusion tube data.

Defra estimated $PM_{2.5}$ concentrations within the development grid square are similar to the concentrations at automatic roadside monitor WHBAM. The concentration estimates of PM_{10} for the grid square are therefore anticipated to be broadly similar to roadside concentrations.

6.3 Summary

Monitored particulate matter ($PM_{2.5}$) concentrations are similar to the monitored annual mean Defra concentration estimates. The concentration estimates of PM_{10} for the grid square are therefore anticipated to be broadly similar to roadside concentrations. Concentrations of particulate matter ($PM_{2.5}$ and PM_{10}) are below the NAQOs.

Monitored roadside concentrations of NO_2 are more representative of the Site than Defra background concentration estimates. However, the monitored annual mean NO_2 concentrations are below the NAQO for the diffusion tube (WH20) in the immediate vicinity of the Site.

As such, future users of the Proposed Development would not be exposed to unacceptable air quality and the Site is deemed suitable for its proposed future use in this respect.

7 Construction Phase Impacts

7.1 Dust and PM_{10} from On-Site Activities

Construction activities that have the potential to generate and/or re-suspend dust and PM_{10} include:

- Site clearance and preparation;
- Demolition;
- Preparation of temporary access/egress to the Site and haulage routes;
- Earthworks;
- Materials handling, storage, stockpiling, spillage and disposal;
- Movement of vehicles and construction traffic within the Site (including excavators and dumper trucks);
- Use of crushing and screening equipment/plant;
- Exhaust emissions from site plant, especially when used at the extremes of their capacity and during mechanical breakdown;
- Construction of buildings, roads and areas of hard standing alongside fabrication processes;
- Internal and external finishing and refurbishment; and
- Site landscaping after completion.

The majority of the releases are likely to occur during the 'working week'. However, for some potential release sources (eg exposed soil produced from significant earthwork activities) in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place.

7.2 Assessment of Potential Dust Emission Magnitude

The IAQM Assessment Methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM_{10} sources: demolition; earthworks; construction; and, trackout. The findings of the assessment are presented below.

7.2.1 Demolition

The proposal includes the demolition of existing buildings on the Site. The total building volume earmarked for demolition is estimated to be less than 20,000 m^3 and demolition activities would be less than 10m above the ground. The potential dust emission magnitude is therefore considered to be '**Small**' for demolition activities.

7.2.2 Earthworks

The total site area where earthwork activity would take place may be above 2,500 m^2, while the soil type is potentially dusty. However, it is anticipated that less than five earthmoving equipment would be active on the Site at any one time, and any bunds on Site would be less than 4m in height. Nonetheless, the potential dust emission magnitude is conservatively considered to be **'Medium'** for earthwork activities.

7.2.3 Construction

The proposal includes the erection of three buildings comprising of 71 flats and 1,110 sqm of flexible commercial uses. The total volume of buildings to be built is therefore estimated to be between than 25,000 m^3 and 100,000 m^3. Potentially dusty construction materials would be used. Therefore, the potential dust emission magnitude is considered to be **'Medium'** for construction activities.

7.2.4 Trackout

It is anticipated that there would be less than 50m of unpaved road length within the Site and it is estimated that the maximum heavy duty vehicle (>3.5 tonnes) outward movements in any one day would be less than 10. It is therefore considered that the potential dust emission magnitude of is **'Small'** for trackout.

Table 7.1 provides a summary of the potential dust emission magnitude determined for each construction activity considered.

Table 7.1 Summary of Dust Emission Magnitude for Each Activity

Source	Magnitude
Demolition	Small
Earthworks	Medium
Construction	Medium
Trackout	Small

7.3 Sensitivity of the Surrounding Area

As shown in Figure 4, the predominant wind direction in the area, as derived from the Luton Airport meteorological station, is from the south west. Therefore, any receptors north east of the Proposed Development are more likely to be affected by dust and particular matter emitted and re-suspended during the construction phase. There are a small number of residential receptors located in the north east direction of the Proposed Development.

Based on the IAQM guidance, residential dwellings are considered to be 'High' sensitivity receptors in relation to both dust soiling and health effects of PM_{10}. Places of work are considered to be 'Medium' sensitivity in receptors. As seen in Figure 5, the Site is bordered by primarily commercial use with some residential units. For a worst case assessment, the sensitivity of the surrounding area is considered to be 'High' in relation to dust soiling effects on people and property from the demolition, earthworks and construction activities.

Without site specific mitigation, trackout may occur up to 50m from the edge of the roads route taken by construction traffic up to 50m from the Site exit for small construction sites. There are two potential access routes to the Site; Wellfield Road to the north of the Site, and Kennelwood Lane via Queensway (B6426) to the south. There are more than 10 residential receptors along the north route (Wellfield Road) and less than 10 commercial receptors along the south route (Kennelwood Lane via Queensway). As a result, the sensitivity of the surrounding area is conservatively considered to be 'High' in relation to dust soiling effects on people and property from construction vehicle trackout.

Defra background concentrations of PM_{10}, for the grid square in which the Site is located, is below 24 $\mu g/m^3$ for 2020 and future years. Therefore, the sensitivity of the area for impact upon human health from all activities is considered to be 'Low'.

As per the data available on Magic Maps[21], there are no relevant ecological receptors within 50m of the boundary of the Proposed Development, or 50m of the route(s) to be used by construction vehicles on the public highway (up to 50m from the site entrance).

Taking the above into account and following the IAQM assessment methodology, the sensitivity of the area to changes in dust and PM_{10} has been derived for each of the construction activities considered. The results are shown in Table 7.2.

[21] Available at https://magic.defra.gov.uk/magicmap.aspx

Table 7.2 Summary of Sensitivity of Surrounding Area

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

7.4 Defining the Risk of Impacts

The predicted dust emission magnitude has been combined with the defined sensitivity of the area to determine the risk of impacts during the construction phase, prior to mitigation. Table 7.3 below provides a summary of the risk of dust impacts for the Proposed Development. The risk category identified for each construction activity has been used to determine the level of mitigation required, which is presented in Appendix C.

Table.7.3 Summary of Risk Effects to Define Site Specific Mitigation

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

7.5 Construction Vehicles & Plant

The greatest impact on air quality due to emissions from vehicles and plant associated with the construction phase will be in the areas immediately adjacent to the Site access. It is considered likely that the construction traffic will be of low volume in comparison to the existing traffic flows on these roads.

Final details of the exact plant and equipment likely to be used on Site will be determined by the appointed contractor, it is considered likely to include dump trucks, tracked excavators, diesel generators, asphalt spreaders, rollers, compressors and trucks. The number of plant and their location within the Site are likely to be variable over the construction period.

Based on the current local air quality in the area, the proximity of sensitive receptors to the roads likely to be used by construction vehicles, and the likely numbers of construction vehicles and plant that will be used, the impacts are considered to be of negligible significance according to the assessment significance criteria.

8 Operational Phase Impacts

8.1 Impact of the Local Area on the Proposed Development

As shown in Section 6, monitored particulate matter ($PM_{2.5}$) concentrations are similar to the monitored annual mean Defra concentration estimates. The concentration estimates of PM_{10} for the grid square are therefore anticipated to be broadly similar to roadside concentrations. Concentrations of particulate matter ($PM_{2.5}$ and PM_{10}) are below the NAQOs.

Monitored roadside concentrations of NO_2 are more representative of the Site than Defra background concentration estimates. However, the monitored annual mean NO_2 concentrations are below the NAQO for the diffusion tube (WH20) in the immediate vicinity of the Site.

Furthermore, residential units would be on the first floor and above, thereby limiting exposure to ground level road emissions. Therefore, future residents of the Proposed Development would not be exposed to unacceptable air quality and the Site is deemed suitable for its proposed future use in this respect.

8.2 Impacts on Surrounding Air Quality

8.2.1 EPUK/IAQM Air Quality Screening for Impact on Surrounding Area

A qualitative assessment has been undertaken following the EPUK/IAQM screening criteria. The results of Stage 1 of the screening assessment is presented in Table 8.1. A full list of the screening criteria are presented in Appendix B.

Table 8.1 EPUK/IAQM Stage 1 Screening Assessment

Screening Criteria	Development Proposal
A: If any of the following apply > 10 residential units or a site area of > 10ha	Yes
> 1,000 m^2 of floor space for all other uses or a site area > 1 ha	Yes
B. Coupled with any of the following	
Development > 10 parking spaces	Yes, more than 10 car parking spaces.
Central energy facility or centralised combustion process	None proposed

Table 8.1 indicates that the Proposed Development exceed the Stage 1 criteria and the assessment needs to proceed to Stage 2 (see Table 8.2).

EPUK/IAQM guidance includes a number of indicative criteria that should be used to assess whether there is a need to proceed to a detailed air quality assessment. The criteria also states that exceeding the criteria does not automatically lead to a requirement to undertake a detailed assessment using air dispersion modelling. However, if a qualitative assessment is used it will need to provide a robust conclusion on whether the development is likely to significantly affect air quality.

Regarding parking, the current site is occupied by a short stay public car park containing 74 spaces. The proposal includes some reconfiguration of the car park and the provision of a car park (providing 12 spaces) in the northern part of the site. Based on the scale of the Proposed Development, it is not anticipated that development would cause a change of 500 LDVs which requires detailed assessment. It is understood that electrical heat pumps will be used for heating. It is therefore considered that the quality impacts from the Proposed Development during the operational phase would be '**Not Significant'**.

Table 8.2 EPUK/IAQM Stage 2 Screening Assessment

Screening Criteria	Development Proposal
1. Change of LDV[1] flows > 500 AADT outside AQMA Or > 100* AADT[2] within AQMA	The total two-way AADT LDVs that would be generated by the Proposed Development would be far below the criteria of 500 AADT for detailed assessment.
2. Change of HDV[3] flows > 100 AADT outside AQMA Or > 25 AADT within AQMA	The total two-way AADT LDVs that would be generated by the Proposed Development would be far below the criteria of 100 AADT for detailed assessment.
3. Change of 5m in road alignment	Not applicable
4. Introduce new junction or remove junction causing significant change in traffic speeds	Not applicable
5. Introduce/Change bus station causing bus flows to change by > 100 AADT	Not applicable
6. Underground car park with ventilation within 20m of receptor, with car park movements > 100 (in and out)	Not applicable
7. Substantial combustion process	None proposed
Notes: [1]Light Duty Vehicles (less than 3.5t gross vehicle weight); [2]Annual Average Daily Traffic; [3]Heavy Duty Vehicles (more than 3.5t gross vehicle weight)	

Based on the results of the Stage 2 Screening Assessment (Table 8.2), there should be no requirement to carry out additional air quality assessment for the impact of the proposed development on the local area, and the impacts can be considered to have insignificant effects.

9 Mitigation and Residual Impact

9.1 Construction Phase

Particle generation from construction activities can be substantially reduced through carefully selected mitigation techniques and effective management. The most effective technique is to control at source, as once particles are airborne, it is difficult to prevent them from dispersing into the surrounding area. However, once airborne, water sprays are probably the most effective method for suppression.

Pre-project planning, implementation and on-site management issues are an essential requirement for effective dust control. This includes, for example environmental risk assessments, method statements, training and satisfying planning requirements. Before the start of a project, it is also important to identify which construction activities are likely to generate dust and to draw up action plans to minimise emissions to the atmosphere. Dust emissions from construction sites will mainly be the sum of a large number of small activities. Therefore, attention to detail is a critical feature of effective management of the total site emissions.

Once granted approval, the appointed contractor should follow the best practice mitigation measures. This will ensure that the construction phase will cause minimal disruption to the surrounding area and neighbours.

Site specific mitigation measures should be set up based on the risk effects as outlined in Table 7.3. Examples of these measures are provided in the IAQM guidance document as 'highly recommended' or 'desirable' measures. Specific measures proposed for this development are presented in Appendix C. With mitigation measures applied to the construction phase, the risk of impacts will be reduced from 'Low to Medium Risk' to 'Negligible Risk'. The impact is predicted to be **'Not Significant'**.

Construction related transport, NRMM and construction plant have the potential to increase pollutant concentrations over the duration of the construction works at nearby sensitive receptors. NRMM and construction plant should meet the relevant emissions standards and a travel plan should be implemented for all construction workers accessing the site. A Construction Logistics Plan should be produced to manage the sustainable delivery of goods and materials.

9.2 Operational Phase

With regards to site suitability, it has been determined that the future users of the Proposed Development would not be exposed to unacceptable air quality, based upon a review of existing air quality in the vicinity of the Site. In addition, residential units would be on the first floor and above, thereby limiting exposure to ground level road emissions. Therefore, future residents of the Proposed Development would not be exposed to unacceptable air quality and the Site is deemed suitable for its proposed future use in this respect. No additional mitigation measures are considered necessary.

With regards to the impact of the Proposed Development on surrounding air quality, a screening assessment of the operational phase has been undertaken in accordance with the EPUK/IAQM guidance document 'Land-Use Planning & Development Control: Planning for Air Quality' The quality impacts from the Proposed Development during the operational phase would be '**Not Significant'**. No additional mitigation measures are considered necessary.

10 Conclusions

MLM was commissioned by Lovell Partnership Ltd to undertake an AQA to support the planning application (ref: 6/2019/2430/MAJ) in relation to a mixed-use development located at 1 and 1A Town Centre And 3-9 Town Centre, Hatfield, AL10 0JZ. The Proposed Development has received conditional planning permission, and this AQA is required to discharge Condition 3.

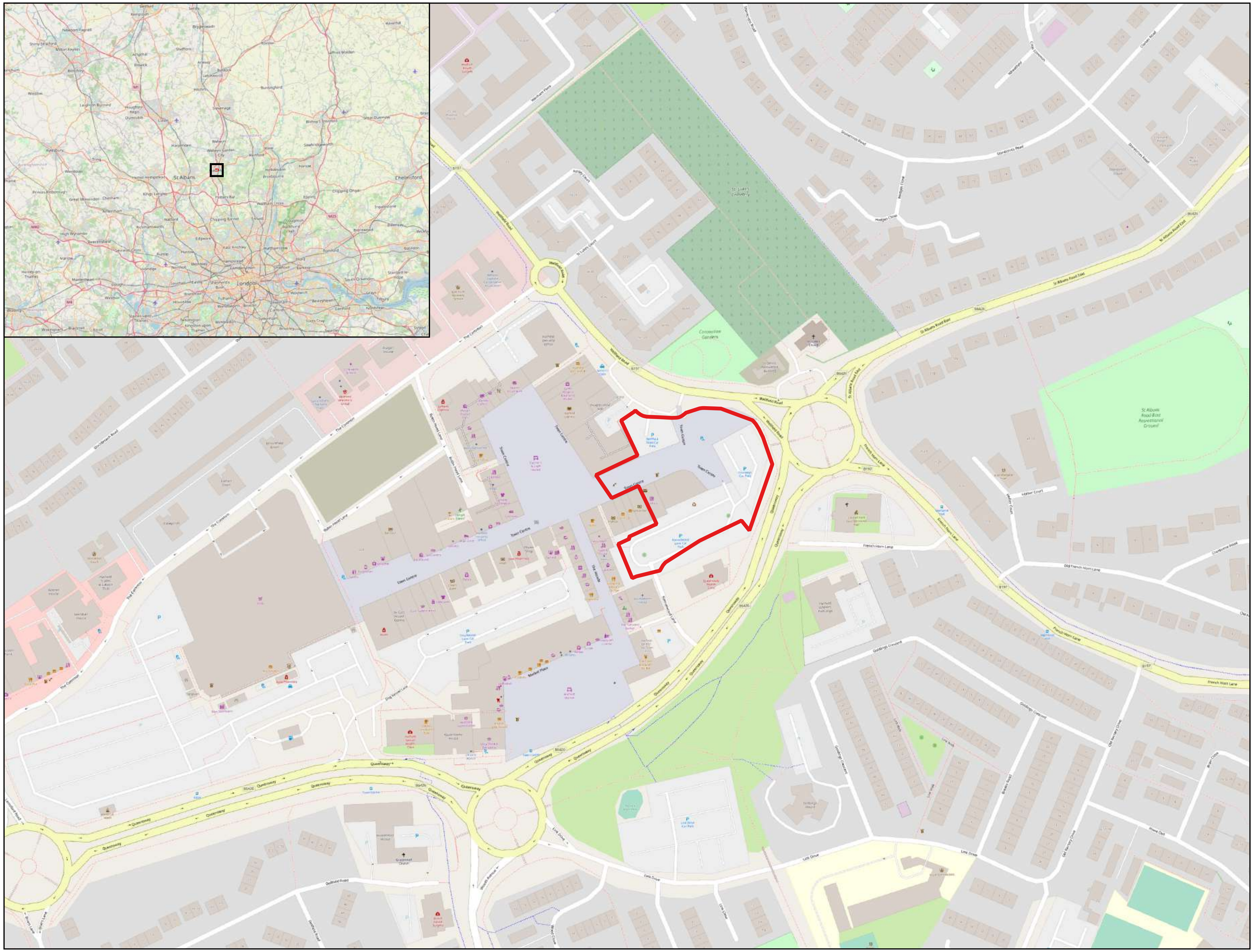
In regards to impacts during the construction phase of the Proposed Development, a qualitative assessment of the construction phase activities has been carried out following the relevant guidance. This identified that there is a 'Low to Medium Risk' of dust soiling impacts and 'Low Risk' of increases in particulate matter concentrations that could affect human health due to construction activities. However, through good site practices and the implementation of suitable mitigation measures, the effect of dust and particulate matter releases would be significantly reduced. The residual effects of the construction phase on air quality are considered to be 'Negligible'. The air quality impacts from the Proposed Development during the construction phase would be '**Not Significant'**.

With regards to site suitability, it has been determined that the future users of the Proposed Development would not be exposed to unacceptable air quality, based upon a review of existing air quality in the vicinity of the Site. In addition, residential units would be on the first floor and above, thereby limiting exposure to ground level road emissions. Therefore, future residents of the Proposed Development would not be exposed to unacceptable air quality and the Site is deemed suitable for its proposed future use in this respect. No additional mitigation measures are considered necessary.

With regards to the impact of the Proposed Development on surrounding air quality, a screening assessment of the operational phase has been undertaken in accordance with the EPUK/IAQM guidance document 'Land-Use Planning & Development Control: Planning for Air Quality'. Regarding parking, the current site is occupied by a short stay public car park containing 74 spaces. The proposal includes some reconfiguration of the car park and the provision of a car park (providing 12 spaces) in the northern part of the site. Based on the scale of the Proposed Development, it is not anticipated that development would cause a change of 500 LDVs which requires detailed assessment. It is understood that electrical heat pumps will be used for heating. It is therefore considered that the quality impacts from the Proposed Development during the operational phase would be '**Not Significant'**.

Based on the results of the AQA, it is considered that the Proposed Development complies with national and local planning policy for air quality. On this basis, it is considered that Condition 3 may be discharged.

Figures



LEGEND

SITE BOUNDARY

0 50 100 150 m

THIS DRAWING IS INDICATIVE ONLY

COORDINATE SYSTEM: BRITISH NATIONAL GRID
UNITS: METRE
SCALE: 1:2500
BASEMAP SOURCE: OPEN STREET MAP

REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group
Part of Sweco

DRAWING STATUS: FINAL		DRAWING TITLE: SITE LOCATION			
CLIENT: LOVELL PARTNERSHIP LTD		DRAWN/DESIGN: JJ	DATE: 11/11/2020	STATUS: S2	
		CHECKED: KN	APPROVED: KN	REVISION: C02	
PROJECT: ONE TOWN CENTRE, HATFIELD		DRAWING NO: L486320-MLM-00-00-DR-P-01-0001-FIGURE 1			

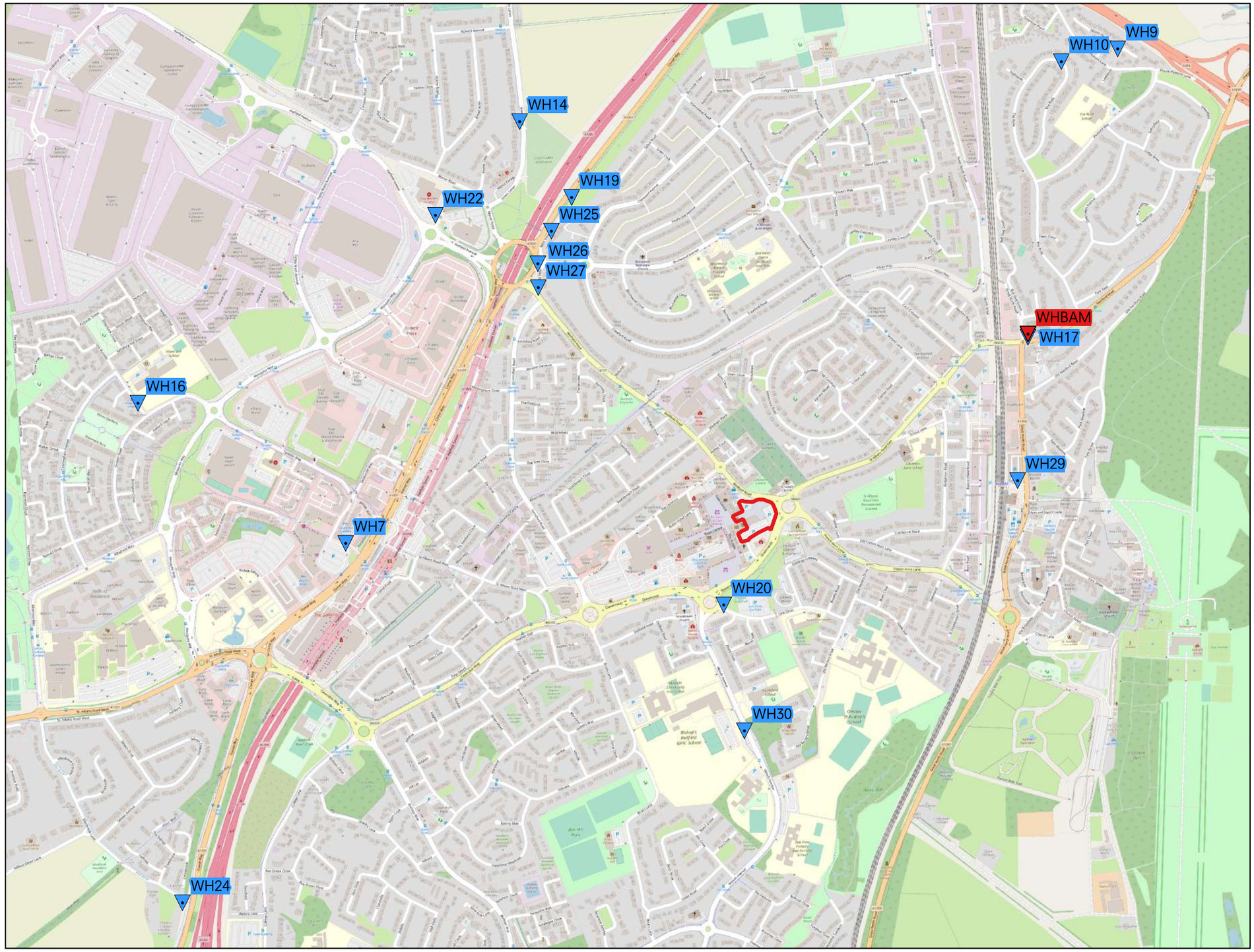
REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group
Part of Sweco

DRAWING STATUS: FINAL			DRAWING TITLE: PROPOSED SITE LAYOUT		
CLIENT: LOVELL PARTNERSHIP LTD	DRAWN/DESIGN: JJ	DATE: 11/11/2020	STATUS: S2		
	CHECKED: KN	APPROVED: KN	REVISION: C02		
PROJECT: ONE TOWN CENTRE, HATFIELD	DRAWING NO: L486320-MLM-00-GF-DR-P-03-0002-FIGURE 2				

LEGEND

- SITE BOUNDARY
- WHBC AMS <2KM
- WHBC DIFFUSION TUBES <2KM



0 200 400 600 m

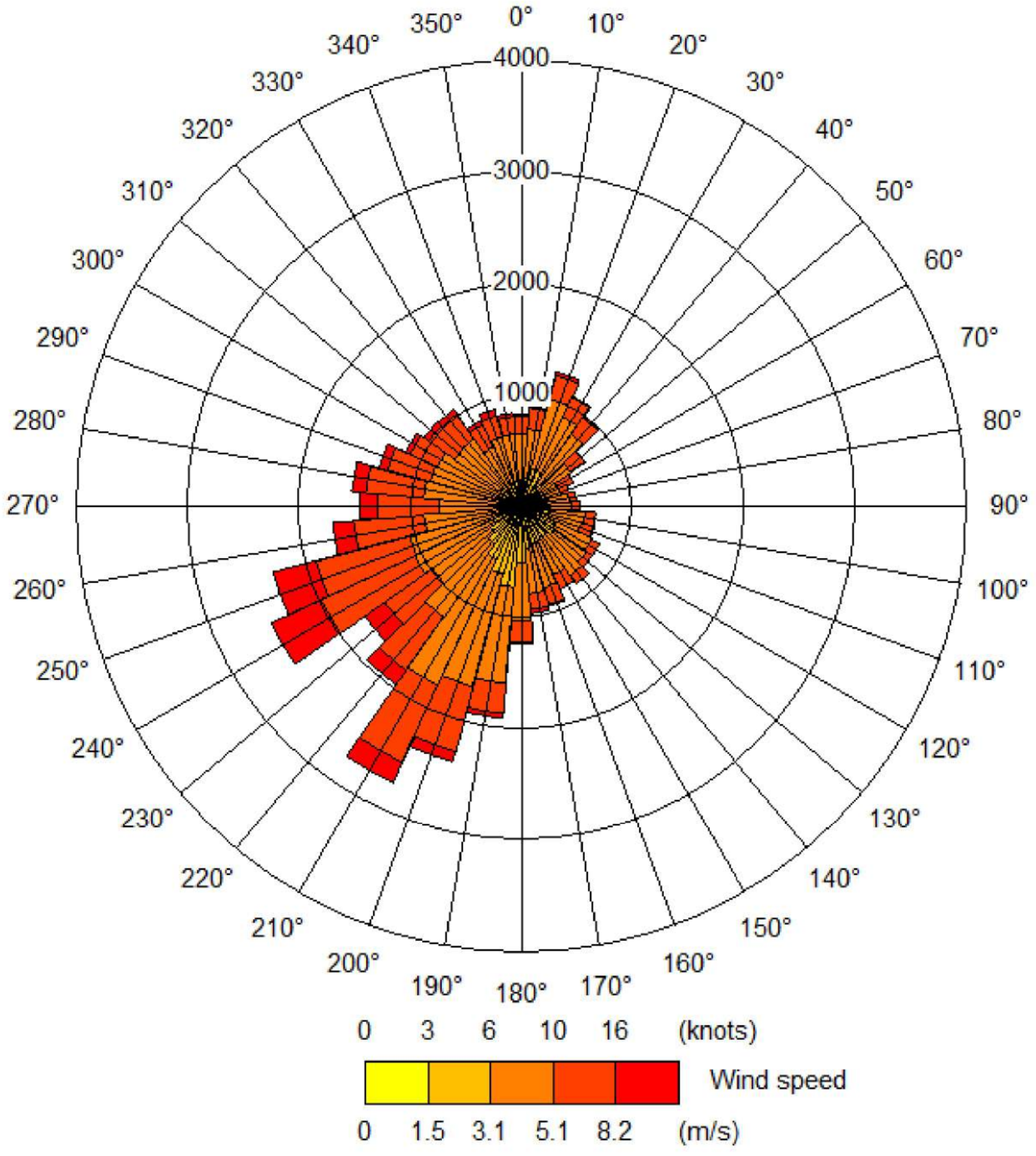
THIS DRAWING IS INDICATIVE ONLY

COORDINATE SYSTEM: BRITISH NATIONAL GRID
UNITS: METRE
SCALE: 1:10000
BASEMAP SOURCE: OPEN STREET MAP

REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group Part of Sweco

DRAWING STATUS: FINAL				DRAWING TITLE: WHBC MONITORING LOCATIONS WITHIN 2KM OF SITE	
CLIENT: LOVELL PARTNERSHIP LTD				DRAWN/DESIGN: JJ	DATE: 11/11/2020	STATUS: S2
				CHECKED: KN	APPROVED: KN	REVISION: C02
PROJECT: ONE TOWN CENTRE, HATFIELD				DRAWING NO: L486320-MLM-00-XX-DR-P-00-0003-FIGURE 3	



REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group Part of Sweco

DRAWING STATUS: FINAL			DRAWING TITLE: WIND ROSE AT LUTON AIRPORT METEOROLOGICAL STATION, 2013-2017		
CLIENT: LOVELL PARTNERSHIP LTD	DRAWN/DESIGN: JJ	DATE: 11/11/2020	STATUS: S2		
	CHECKED: KN	APPROVED: KN	REVISION: C02		
PROJECT: ONE TOWN CENTRE, HATFIELD	DRAWING NO: L486320-MLM-00-XX-DR-P-00-0004-FIGURE 4				

LEGEND

- SITE BOUNDARY

DUST BUFFER ZONES

- 20 M
- 50 M
- 100 M

0 20 40 60 80 100 m

THIS DRAWING IS INDICATIVE ONLY

COORDINATE SYSTEM: BRITISH NATIONAL GRID
UNITS: METRE
SCALE: 1:1500
BASEMAP SOURCE: GOOGLE SATELLITE IMAGERY

REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group Part of Sweco

DRAWING STATUS: FINAL				DRAWING TITLE: DUST BUFFER ZONES FOR DEMOLITION, EARTHWORKS AND CONSTRUCTION ACTIVITIES	
CLIENT: LOVELL PARTNERSHIP LTD	DRAWN/DESIGN:	JJ	DATE: 11/11/2020	STATUS:	S2
	CHECKED:	KN	APPROVED: KN	REVISION:	C02
PROJECT: ONE TOWN CENTRE, HATFIELD	DRAWING NO: L486320-MLM-00-XX-DR-P-00-0005-FIGURE 5				

Appendix A - IAQM Construction Assessment Methodology

It is inevitable that with any development, demolition and construction activities would cause some disturbance to those nearby. Dust arising from most construction activities tends to be of a coarse nature, which through dispersion by the wind, can lead to soiling of property including windows, cars, external paintwork and laundry.

The ability of dust particles to remain suspended in the air depends on its shape, size and density. Coarse particles (>30µm) tend to be deposited within 100m of source. Finer particles, between 10-30µm, are generally deposited within 200 to 500m of source, while very fine particles (<10 µm), which remain suspended for longer, can travel up to 1km from source. The greatest proportion of construction dust is made up of coarse particles, thus the majority of dust emissions are deposited within 100m of source.

However, as well as giving rise to annoyance due to soiling of surfaces from dust emissions, there is evidence of major construction activities causing increases in long term PM_{10} concentrations and in the number of days exceeding the short term PM_{10} objective of 50µg/m^3. The potential for impacts to occur during the construction of a proposed development must therefore be considered, to ensure appropriate mitigation measures are applied to reduce potential impacts at adjacent receptors. However, it should be noted that disruption due to demolition and construction is a localised phenomenon and is temporary in nature.

During the construction of the proposed development, Lorries would require access to the site to deliver and remove materials; earthmoving plant and other mobile machinery will work on site and generators and cranes will also be in operation. These machines produce exhaust emissions; of particular concern are emissions of NO_2 and PM_{10}.

The assessment of construction impacts has followed the methodology set out within guidance produced by Institute of Air Quality Management (IAQM) on assessing impacts from construction activities and is set out below.

Prediction Method and Approach

In order to assess the potential impacts, the activities on construction sites are divided into four categories. These are:

- Demolition (removal of existing structures);
- Earthworks (soil-stripping, ground-levelling, excavation and landscaping);
- Construction (activities involved in the provision of a new structure); and
- Trackout (the transport of dust and dirt from the construction site onto the public road network where it may be deposited and then re-suspended by vehicles using the network).

For each activity, the risk of dust annoyance, health and ecological impact is determined using three risk categories: low, medium and high risk. The risk category may be different for each of the four activities. The risk magnitude identified for each of the construction activities is then compared to the number of sensitive receptors in the near vicinity of the site in order to determine the risks posed by the construction activities to these receptors.

Step 1: Screen the Need for an Assessment

The first step is to screen the requirement for a more detailed assessment. An assessment is required where there is:

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

Step 2A: Define the Potential Dust Emission Magnitude

This is based on the scale of the anticipated works and the proximity of nearby receptors. The risk is classified as small, medium or large for each of the four categories.

Demolition: The potential dust emission classes for demolition are:

- Large: Total building volume >50,000m^3, potentially dusty construction material (eg Concrete), on site crushing and screening, demolition activities >20m above ground level;
- Medium: total building volume 20,000m^3 - 50,000m^3, potentially dusty construction material, demolition activities 10-20m above ground level; and
- Small: total building volume <20,000m^3, construction material with low potential for dust release (eg metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.

Earthworks: This involves excavating material, haulage, tipping and stockpiling. The potential dust emission classes for earthworks are:

- Large: Total site area >10,000m^2, potentially dusty soil type (eg clay, which would be prone to suspension when dry due to small particle size), >ten heavy earth moving vehicles active at any one time, formation of bunds >8m in height, total material moved >100,000 tonnes;
- Medium: Total site area 2,500m^2 - 10,000m^2, moderately dusty soil (eg silt), five - ten heavy earth moving vehicles active at any one time, formation of bunds 4m - 8m in height, total material moved 20,000 tonnes- 100,000 tonnes; and
- Small: Total site area <2,500m^2, soil type with large grain size (eg sand), <five heavy earth moving vehicles active at any one time, formation of bunds <4m in height, total material moved <20,000 tonnes, earthworks during wetter months.

Construction: The important issues when determining the potential dust emission magnitude include the size of the building(s)/infrastructure, method of construction, construction materials, and duration of build. The categories are:

- Large: Total building volume >100,000m^3, on site concrete batching, sandblasting;
- Medium: Total building volume 25,000m^3 - 100,000m^3, potentially dusty construction material (eg concrete), on site concrete batching; and
- Small: Total building volume <25,000m^3, construction material with low potential for dust release (eg metal cladding or timber).

Trackout: The risk of impacts occurring during trackout is predominantly dependent on the number of vehicles accessing the Site on a daily basis. However, vehicle size and speed, the duration of activities and local geology are also factors which are used to determine the emission class of the Site as a result of the trackout. The categories are:

- Large: >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (eg high clay content), unpaved road length > 100m;
- Medium: 10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (eg high clay content, unpaved road length 50-100m; and
- Small: <10 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length >50m.

Step 2B: Defining the Sensitivity of the Area

The sensitivity of the area is defined for dust soiling, human health (PM_{10}) and ecological receptors. The sensitivity of the area takes into account the following factors:

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

Table A1.1 is used to define the sensitivity of different types of receptors to dust soiling, health effects and ecological effects.

Table A1.1 Examples of Factors Defining Sensitivity of an Area

Sensitivity of Area	Dust Soiling	Human Receptors	Ecological Receptors
High	Users can reasonably expect enjoyment of a high level of amenity. The appearance, aesthetics or value of their property would be diminished by soiling. The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. eg dwellings, museums and other important collections, medium and long-term car parks and car showrooms.	10 – 100 dwellings within 20m of site. Local PM_{10} concentrations close to the objective (eg annual mean 36 -40µg/m^3), eg residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling. Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red List for Great Britain. eg A Special Area of Conservation (SAC).
Medium	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home. The appearance, aesthetics or value of their property could be diminished by soiling. The people or property wouldn't reasonably be expected to be present here continuously or	Less than 10 receptors within 20m. Local PM_{10} concentrations below the objective (eg annual mean 30-36µg/m^3). eg office and shop workers but would generally not include workers occupationally exposed to PM_{10} as protection is covered by	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. Locations with a national designation where the features may be affected by dust deposition eg A Site of Special Scientific Interest

Sensitivity of Area	Dust Soiling	Human Receptors	Ecological Receptors
	regularly for extended periods as part of the normal pattern of use of the land. eg parks and places of work.	the Health and Safety at Work legislation	(SSSI) with dust sensitive features.
Low	The enjoyment of amenity would not reasonably be expected. Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. eg playing fields, farmland unless commercially sensitive horticultural, footpaths, short lived car parks and roads.	Locations where human exposure is transient. No receptors within 20m. Local PM_{10} concentrations well below the objectives (less than 75%). eg public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. eg Local Nature Reserve with dust sensitive features.

Based on the sensitivities assigned to the different receptors surrounding the site and numbers of receptors within certain distances of the site, a sensitivity classification can be defined for each. Tables A1.2 to A1.4 indicate the criteria used to determine the sensitivity of the area to dust soiling, human health and ecological impacts.

Table A1.2 Sensitivity of the Area to Dust Soiling on People and Property

Pollutant	Concentrations	Distance from the 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 A1.3 Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32µg/m³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg/m³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg/m³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low		≥1	Low	Low	Low	Low	Low

Table A1.4 Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2C: Define the Risk of Impacts

The final step is to combine the dust emission magnitude determined in step 2A with the sensitivity of the area determined in step 2B to determine the risk of impacts with no mitigation applied. Tables A1.5 to A1.7 indicate the method used to assign the level of risk for each construction activity.

The identified risk of impact is then used to identify appropriate mitigation measures for inclusion with a Dust Management Plan (DMP) which is usually incorporated within the Site's Construction Environmental Management Plan (CEMP).

Table A1.5 Risk of Dust Impacts from Demolition

Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A1.6 Risk of Dust Impacts from Earthworks/Construction

Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A1.7 Risk of Dust Impacts from Trackout

Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Appendix B - IAQM Screening Criteria

Table B1.1 Stage 1 Criteria to proceed to Stage 2

Criteria to Proceed to Stage 2
A. If any of the following apply: • 10 or more residential units of a site area of more than 0.5ha; • More than 1,000m^2 of floor space for all other uses or a site area greater than 1ha.
B. Coupled with any of the following: • The development has more than 10 parking spaces; • The development will have a centralised energy facility or other centralised combustion process.

Table B1.2 Indicative Criteria at Stage 2 to determine if an Air Quality Assessment is required

The Development will	Indicative Criteria to Proceed to an Air Quality Assessment
• Cause a significant change in Light Duty Vehicle (LDV) traffic slows on local roads with relevant receptors.	A change of LDV flows of: • More than 100 AADT within or adjacent to an AQMA; • More than 500 AADT elsewhere.
• Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors.	A Change of HDV flows of: • More than 25 AADT within or adjacent to an AQMA; • More than 100AADT elsewhere.
• Realign roads, ie changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
• Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, egg traffic-lights, or roundabouts.
• Introduce or change a bus station.	Where bus flows will change by: • More than 25 AADT within or adjacent to an AQMA;

The Development will	Indicative Criteria to Proceed to an Air Quality Assessment
	• More than 100AADT elsewhere.
• Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).
• Have one or more substantial combustion processes.	Where the combustion unit is: • Any centralised plant using bio fuel; • Any combustion plant with single or combined thermal input >300kWh; • A standby emergency generator associated with a centralised energy centre (if likely to be tested/used >18 hours a year).
• Have a combustion process of any size.	Where the pollutants are exhausted from a vent or stack in a location and at a height that may give rise to impacts at receptors through insufficient dispersion. This criterion is intended to address those situations where a new development may be close to other buildings that could be residential and/or which could adversely affect the plume's dispersion by way or their size and/or height.

Appendix C - Construction Phase Dust Mitigation Measures

It is suggested that the 'highly recommended' measures set out in the IAQM's 'Guidance on the assessment of dust from demolition and construction 1.1' are incorporated into a Dust Management Plan (DMP) by the appointed contractor, which is approved by WHBC prior to the commencement of any work at the Site. The level of detail will depend on the risk and should include, as a minimum, the highly recommended measures in this document. 'Desirable' measures from the IAQM Guidance should be included as appropriate for the Site, and are shown below in italics.

General Measures – Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of the person(s) accountable for air quality and dust issues on the site boundary (ie the environment manager/engineer or site manager); and,
- Display the head or regional office contact information.

General Measures – Dust Management

Dust Management Plan

- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by WHBC. 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.

Site Management

- Record all dust and air quality complaints in a log, 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; and,
- 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 checks of surfaces such as street furniture, cars and window sills within 100 m of 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 WHBC when asked;
- Increase frequency of site inspection 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 periods of dry or windy conditions; and,
- Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority.

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;

- Fully enclose site or specific operations where there is a high potential for dust production and the activities are being undertaken 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 being re-used on site, cover; and,
- Cover, seed or fence stockpiles to prevent wind whipping.

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;
- *Impose and signpost a maximum speed limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas;*
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials; and,
- *Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).*

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction egg suitable local exhaust ventilation systems;
- Ensure an adequate water supply on site for effective dust and particulate matter suppression or 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; and,
- 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; and,
- Reuse and recycle waste to reduce dust from waste materials.

Measures specific to 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);*
- 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; and,
- Bag and remove any biological debris or damp down such material before demolition.

Measures specific to Earthworks

- *Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;*
- *Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and,*
- *Only remove the cover in small areas during work and not all at once.*

Measures specific to Construction

- *Avoid scabbling (roughening of concrete surfaces) if possible; and,*
- 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;
- *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; and,*
- *For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.*

Measures specific to 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; and,*
- *Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).*

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