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Development Technical
Consultants

ACOUSTIC AIR



Roundwood, Stevenage
Air Quality Assessment
October 2023

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Roundwood, Stevenage

Air Quality Assessment

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1.0 INTRODUCTION

- 1.1 MEC, has been commissioned by Croudace Homes (hereafter referred to as 'the Client') to undertake an Air Quality Assessment for a proposed residential development on Land at Roundwood, Stevenage (hereafter referred to as 'the Site').

Assessment Scope

- 1.2 The assessment has been undertaken with reference to the advice provided within the Land-Use Planning and Development Control: Planning for Air Quality, and 'Guidance from Environmental Protection UK, May 2017, and the Institute of Air Quality Management for the consideration of air quality within the land-use planning and development control processes'.
- 1.3 In addition, a Construction Dust Risk Assessment has been undertaken in accordance with the 'Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance' 2014.
- 1.4 A Site description is provided in Section 2.0 of this report. Air quality standards, including those applicable to the construction phase are summarised in Section 3.0, and a review of the Local Planning Authority's air quality review and assessments is presented in Section 4.0. The air quality assessment for the proposed development is presented in Section 5.0, and mitigation measures to offset developmental impacts are provided in Section 6.0. Our conclusions are presented in Section 7.0.

Disclaimer

- 1.5 MEC has completed this report for the benefit of the individuals referred to in Paragraph 1.1 and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this report unless explicit written approval has been gained from MEC.
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2.0 SITE DESCRIPTION

Existing Site

- 2.1 The Site is bound by arable land to the north; Back Lane to the east and south, with existing residential located on the opposite side of the road; and a small wooded area to the west, with open green field beyond.
- 2.2 An approximate redline boundary is presented in Figure 2.1.

Figure 2.1: Approximate Redline Boundary



Development Proposals

- 2.3 Development proposals comprise the erection of 292 residential dwellings, with associated infrastructure and access via Back Lane and Haybluff Drive.
- 2.4 The proposed site layout is presented in **Appendix A**.

3.0 AIR QUALITY STANDARDS

- 3.1 The principal air quality standards applied within the UK are the standards and objectives that were initially formulated within the Air Quality (England) Regulations 2000 (AQR) as amended in 2002. These were enacted as part of the UK National Air Quality Strategy (AQS) under Section 80 of the Environment Act 1995, and implement relevant directives of the European Union (EU). The latest version of the UK AQS was published in 2007.
- 3.2 It is important to note the distinction between air quality standards and objectives. Although the AQ Standards (AQS) define concentration levels that will avoid or minimise risks to health, they do not necessarily reflect levels that are presently technically feasible or economically efficient. In contrast, the AQ Objectives (AQO) have been set with regard to what is realistically achievable within a specified timetable. The approach adopted by the Strategy is to apply the objectives, where members of the public, in a non-occupational capacity and at locations close to ground level, are likely to be exposed over the averaging time of the objective, for example, over 1-hour, 24-hour or annual periods as appropriate.
- 3.3 Under the Environment Act 1995, Local Authorities must review and document local air quality within their areas by way of a staged appraisal and respond accordingly, with the aim of meeting the air quality objectives by the years defined in the Regulations. Where the objectives of the Regulations are not likely to be achieved by the objective year, an authority is required to designate an Air Quality Management Area (AQMA). For each AQMA the local authority is required to draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality and show how it will try to meet air quality standards in future.
- 3.4 The Strategy's current air quality objectives, for NO₂, PM₁₀ and PM_{2.5}, for the protection of human health are summarised in Table 3.1 below. Definitions of units and terms used to quantify air pollutant concentrations are provided in **Appendix B**.

Table 3.1: UK Air Quality Objectives for Protection of Human Health

Pollutant	Concentration	Measured as *
Nitrogen dioxide	200 µg/m ³	1 hour mean not to be exceeded more than 18 times per year
	40 µg/m ³	Annual mean
Particles (PM ₁₀ gravimetric)		
All authorities	50 µg/m ³	Daily mean not to be exceeded more than 35 times a year
	40 µg/m ³	Annual mean
Particles (PM _{2.5} gravimetric)	25 µg/m ³ (target)	Annual mean
England only	Work towards reducing emissions/concentrations of fine particulate matter (PM _{2.5})	Annual mean

- 3.5 The UK Government has also set NO₂ objectives for 2010 that must be met by all member states, although these 2010 EU NO₂ objectives are equal to the UK Air Quality Strategy NO₂ 2005 objectives.

- 3.6 The pollutants of most concern to planning authorities in urban areas, due to the high concentrations presently encountered (of which local road traffic makes a large contribution) are NO₂ and PM₁₀.

National Planning Policy Framework

- 3.7 The latest National Planning Policy Framework (NPPF), issued by the Ministry of Housing, Communities and Local Government, sets out the Government's planning policies for England and how these are to be expected to be applied. The NPPF must be taken into account in the preparation of local and neighbourhood plans, and is to be a material consideration in planning decisions.
- 3.8 Paragraph 174 of the NPPF advises 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"*.
- 3.9 Further, paragraph 186 advises 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."*

Planning Practice Guidance

- 3.10 In 2019, the Department for Communities & Local Government updated its on-line planning guidance to assist with interpretation of the NPPF. The guidance covers general matters such as relevance of air quality issues, role of the Local Plan, information sources, assessment approaches and mitigation. How considerations about air quality fit into the development management process is summarised by the guidance in a flowchart, which is included here in **Appendix C**.

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) – Land-Use Planning & Development Control: Planning for Air Quality 2017

- 3.11 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have produced this guidance to ensure that air quality is adequately considered in the land-use planning and development control processes.
- 3.12 The guidance clarifies when an air quality assessment is required and what it should contain. It sets out how impacts should be described and assessed. Importantly it sets out a recommended approach that can be used to assess the significance of the air quality impacts, taking account of the advice issued by IAQM. An

important focus of this guidance is on minimising the air quality impacts of all developments for which air quality assessments have been requested by the planning authority; this will be through good design and application of appropriate mitigation measures.

- 3.13 Stage 1 of the assessment in the local area seeks to screen out smaller development and/or developments where impacts can be considered to have insignificant effects. The Stage 1 criteria are set out in Table 3.2 and require any of the criteria in row A, coupled with any of the criteria in row B, to apply before an assessment proceeds to Stage 2. If none of the criteria are met then the impacts can be considered to be insignificant and there is no requirement to carry out an air quality assessment.

Table 3.2: Stage 1 Criteria

Criteria to Proceed to Stage 2
If any of the following apply:
10 or more residential units or a site of more than 0.5 ha - more than 1,000 m² of floor space for all other uses or a site area greater than 1 ha
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
Note: Consideration should still be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out.

- 3.14 The criteria in Table 3.3 provide more specific guidance as to when an air quality assessment is likely to be required to assess the impacts of the proposed development on the local area.

Table 3.3: Indicative Criteria for Requiring an Air Quality Assessment

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans < 3.5t gross vehicle weight)	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. (HDV = goods vehicles + buses > 3.5t gross vehicle weight)	A change of HDV flows of: more than 25 AADT within or adjacent to an AQMA more than 100 AADT elsewhere
Realign roads, i.e. 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, e.g. 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 more than 100 AADT 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 > 300kW

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
	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 of their size and/or height.

- 3.15 Where an air quality assessment is identified as being required, this may be either a Simple or a Detailed Assessment. A Simple Assessment is one relying on already published information and without quantification of impacts, in contrast to a Detailed Assessment that is completed with the aid of a predictive technique, such as a dispersion model. Passing a criterion in Table 3.3 does not automatically lead to the requirement for a Detailed Assessment. Once again, where none of the criteria are met the impacts can be considered to be insignificant and there is no requirement to carry out an air quality assessment.
- 3.16 The purpose of the air quality assessment is to define the likely quantitative or qualitative changes in air quality or exposure to air pollution as a result of the proposed development.
- 3.17 The suggested framework for describing the impacts on the basis set out above is set out in Table 3.4. The term Air Quality Assessment Level (AQAL) is used to include air quality objectives or limit values, where these exist. The Table is only intended to be used with annual mean concentrations, and all % changes are rounded up or down to whole numbers. At exposures less than 75% of the AQAL, the degree of harm is described as likely to be small. As the exposure encroaches and exceeds the AQAL the degree of harm increases, and the change becomes more important when the result is an exposure that is approximately equal to or greater than the AQAL.

Table 3.4: Impact Descriptors for Individual Receptors

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

- 3.18 A judgement of the significance of the impacts is to be made by a competent professional who is suitably qualified, and the reasons for reaching the conclusions should be transparent and set out logically. Whilst the starting point for the assessment of significance is the degree of impact, as defined by Table 3.4, this should be seen as only one of the factors for consideration, not least because the outcome of this assessment procedure applies to a receptor and not the overall impact of the scheme on the locality.

- 3.19 The guidance also makes it clear that the presence of an AQMA should not halt all development, but where development is permitted, the planning system should ensure that any impacts are minimised as far as is practicable. Even where developments are proposed outside of AQMAs, and where pollutant concentrations are predicted to be below the objectives/limit values, it remains important that the proposed development incorporates good design principles and best practice measures and that emissions are fully minimised.

Construction Dust Nuisance

- 3.20 There is no specific guidance relating to the assessment of construction dust nuisance within Government documents such as the DMRB. Consequently, guidance from relevant national bodies provides the best advice for establishing the potential impacts from dust. Research carried out by the Buildings Research Establishment (BRE) indicates that the likelihood of complaints concerning dust nuisance is related to the distance of receptors from a construction site and the duration of dust raising activities. This relationship is shown in Table 3.5.

Table 3.5: Likelihood of Dust Complaints by Distance

Duration of dust raising activity onsite	Distance from site			
	< 20 m	20 – 50 m	50 – 100 m	100 – 150 m
	Likelihood of complaint			
> 12 months	Very Likely	Very Likely	Likely	Potential Likelihood
6 – 12 months	Very Likely	Likely	Likely	Potential Likelihood
< 6 months	Very Likely	Likely	Potential Likelihood	Not Likely

Note: Beyond 150 m dust nuisance is considered largely unlikely (Upton & Kukadia, 2002, Measurements of PM₁₀ from a Construction Site: A Case Study, prepared by BRE Environment for National Society for Clean Air).

- 3.21 Further empirically derived measures of the maximum distance from a source of airborne dust within which significant adverse effects are likely to be observed, are presented in Table 3.6. These values reflect qualitative estimates derived from historical data presented within environmental assessment reports and expert evidence.

Table 3.6: Qualitative Construction Dust Assessment Criteria

Source Descriptors		Zone for Potentially Significant Effects (Distance from Source)	
Source	Duration	Soiling	PM ₁₀ *
Large construction sites	1 year or more	100 m	25-50 m
Moderate sized construction sites	Months	50 m	15-30 m
Minor construction sites	Weeks	25 m	10-20 m

*Based on 35 permitted exceedances of 50 µg/m³ in a year, as defined in The Air Quality (England) Regulations. Source: Adapted from Thames Gateway Bridge – Environmental Statement (Laxen, 2004)

Dust Risk Assessment

- 3.22 The Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction, February 2014, provides a framework for the assessment of risk.

- 3.23 The guidance divides activities on construction sites into four types to reflect their different potential impacts. These are:
- Demolition;
 - Earthworks;
 - Construction; and
 - Trackout.
- 3.24 The assessment methodology considers the following three separate dust effects, with account being taken of the distance of the receptors that may experience these effects.
- Annoyance due to dust soiling;
 - Harm to ecological receptors; and
 - The risk of health effects due to a significant increase in exposure to PM₁₀.
- 3.25 The assessment procedures and risk categories for each of the four phases of construction where the potential for dust is high, i.e., those listed above, are summarised in **Appendix D**.
- 3.26 Step 1 establishes that an assessment will normally be required where there are dwellings within 350m of the site boundary.

4.0 LOCAL AUTHORITY AIR QUALITY REVIEW AND ASSESSMENTS

North Hertfordshire District Council

4.1 North Hertfordshire District Council's (NHDC) most recently published 2022 Annual Statute Report (ASR) states that *"Air Quality data for 2021 has again been influenced by the effects of the Covid-19 pandemic, as reported in the ASR for 2020 data. Road traffic levels as the prime contributor to roadside air quality have not returned to pre-pandemic levels in 2019. Therefore, this year, along with 2020 cannot be considered typical for the purposes of long-term comparisons, in relation to achievement of air quality objectives"*.

4.2 Therefore, a closer review of the previous 2019 ASR has been undertaken, which stated that *"Across the majority of North Hertfordshire, air quality is good, being below the Government's Air Quality Objectives (AQO). There is also evidence of a continuing improvement in air quality."*

"There are no locations within the district where concentrations of particulate matter, whether PM₁₀, or the smaller PM_{2.5} fractions exceed the relevant AQO. Furthermore, the real-time automatic monitoring equipment located at one of the busiest roads in North Hertfordshire that has residential receptors alongside it, has not measured particulate matter of either fraction size at concentrations above the relevant limits."

"The situation is a little different for nitrogen dioxide (NO₂) because in two residential areas of the district the annual average AQO for NO₂ has been marginally, but regularly, exceeded. These two areas, Stevenage Road and the Payne's Park roundabout at Park Way, in the town of Hitchin are located alongside the same road; the A602. The main source of the pollution there is from the exhaust emissions of the diesel and petrol engine road vehicles travelling on the A602 through the area."

"Both of the areas are designated as Air Quality Management Areas (AQMAs) because of the elevated nitrogen dioxide. The Stevenage Road AQMA was designated in 2012 and the Payne's Park AQMA was designated in 2017".

4.3 The ASR went on to state that *"Where comparable monitoring locations have been available since 2012 or 2013, which was twenty-nine monitoring locations, an overall reduction in nitrogen dioxide concentrations has been observed in all of them"*

"Importantly this observed trend has been seen within the two designated AQMAs. Within the Stevenage Road AQMA, for the second time since its designation, none of the annual average concentrations of nitrogen dioxide measured were high enough to represent a breach of the AQO at a residential dwelling. Therefore, it is hoped that it will be possible to make a case to revoke the Stevenage Road AQMA if this trend can be maintained over a number of years."

4.4 The Air Quality Management Areas located in Hitchin are approximately 6km or more from the proposed development at Roundwood and will therefore, have no effect on, nor be affected by, the proposed development.

Stevenage Borough Council

- 4.5 The neighbouring Stevenage Borough Council's (SBC) most recently published combined 2022 – 2023 ASR states that *"Monitored annual mean NO₂ concentrations across Stevenage Bough Council have largely shown an increase in 2021 and 2022 when compared to 2020. However, there is an overall decrease in annual mean NO₂ concentrations since 2018; if 2020 and 2021 are discounted due to COVID-19. The increase in concentrations may indicate an increase in traffic activities in 2021 and 2022, 2022 was the first year without any COVID-19 lockdown restrictions. Nevertheless, all monitoring locations recorded annual mean NO₂ concentrations below the annual mean NO₂ air quality objective in 2022. There are no declared Air Quality Management Areas (AQMA) in Stevenage Borough Council authority area."*
- 4.6 In conclusion, air quality within both Local Authorities is generally good, and with the exception of the Air Quality Management Areas located in Hitchin, the objectives are met at all other locations of relevant exposure. Since 'relevant exposure' is already present adjacent to the Site, i.e., existing residential dwellings are present adjacent to the site and local road network, and these have already been considered within both NHDC and SBC's reviews and assessments, the same conclusions for these will equally apply for new dwellings at the Site. Namely, at the locations of proposed new dwellings, air quality objectives will be satisfied and the Site is acceptable for residential development.
- 4.7 Nevertheless, it will be important that the air quality assessment for the Site looks at the potential effects of traffic generated by development upon existing dwellings adjacent to local roads to establish that there will be no adverse effects upon their existing standards of air quality. This matter is covered in the following section.

5.0 AIR QUALITY ASSESSMENT

Traffic Data

- 5.1 Baseline and ‘with development’ Annual Average Daytime Traffic (AADT) flows and % heavy goods vehicles for local roads have been prepared by the scheme’s traffic engineers (Transport Planning Associates). This information is presented in Table 5.1 for a baseline scenario in 2022, and a baseline scenario without and with committed development, and without and with both committed and proposed development in 2031.

Table 5.1: Annual Average Daily Traffic Flows

Situation	Year	AADT	%HGV	kph	Distance (m)
Great Ashby Way Baseline	2022	10980	0.5	48	7
Great Ashby Way Baseline	2031	11718	0.5		
Great Ashby Way Base+Com	2031	13739	0.4		
Great Ashby Way Base+Com+Dev	2031	14517	0.4		
Mendip Way Baseline	2022	1788	0	48	7
Mendip Way Baseline	2031	1909	0		
Mendip Way Base+Com	2031	1909	0		
Mendip Way Base+Com+Dev	2031	2767	0		
Haybluff Drive Baseline	2022	692	0	40	8
Haybluff Drive Baseline	2031	737	0		
Haybluff Drive Base+Com	2031	737	0		
Haybluff Drive Base+Com+Dev	2031	2090	0		
Back Lane Baseline	2022	806	0.6	40	3
Back Lane Baseline	2031	860	0.5		
Back Lane Base+Com	2031	860	0.5		
Back Lane Base+Com+Dev	2031	910	0		
A1072 Martins Way Baseline	2022	26179	2.2	64	17
A1072 Martins Way Baseline	2031	27940	2.2		
A1072 Martins Way Base+Com	2031	29241	2.1		
A1072 Martins Way Base+Com+Dev	2031	29738	2.1		
A602 East of A1 Baseline	2022	44133	2.7	64	10
A602 East of A1 Baseline	2031	47100	2.7		
A602 East of A1 Base+Com	2031	48408	2.6		
A602 East of A1 Base+Com+Dev	2031	48898	2.6		
A602 West of A1 Baseline	2022	32027	2.2	64	20
A602 West of A1 Baseline	2031	34180	2.2		
A602 West of A1 Base+Com	2031	35488	2.1		
A602 West of A1 Base+Com+Dev	2031	35984	2.1		

Methodology

- 5.2 An air quality screening assessment has been undertaken using the methodology defined by the Government’s Design Manual for Road and Bridge (DMRB), which is also an approved screening model (version 2007) under the LAQM guidance. The need for any detailed dispersion modelling is determined from the results of the DMRB screening.

- 5.3 The traffic flow data has been used to calculate ambient concentrations of air pollution at selected receptors representing existing dwellings adjacent to the roads, i.e., at the distances referenced in Table 5.1, from the respective road centrelines.
- 5.4 For determining compliance with air quality objectives, it is important that the contribution of emissions from baseline traffic is added to background concentrations already present in the area; as defined below.

Background Concentrations

- 5.5 Suitable estimates of background air quality have been derived in accordance with LAQM.TG(22) using the air pollution background concentration maps published by Defra. The maps are updated by Defra periodically to reflect changes to underlying data including emissions factors. In recent years there have been annual updates due to new information on NO_x emissions from diesel vehicles, and fleet and vehicle activity data have also been updated. The projections in the LAQM background maps are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence, these maps do not reflect short or longer term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.
- 5.6 Average background pollutant concentrations for local 1 x 1 km grid squares are available for all future years, and Table 5.2 shows the background concentrations that were used in this assessment. Background values for NO_x are presented, as they are required in the conversion of modelled NO_x concentrations to total NO₂. Only those pollutants of real concern to the local authority, namely NO₂ and PM₁₀, are considered.

Table 5.2: Background Concentrations, Annual Mean (µg/m³)

OS Co-ordinates	Year	NO _x	NO ₂	PM ₁₀
524500,227500	2022	13.03	9.93	14.7
	2031	10.45	8.04	14.19
525500,227500	2022	13.02	9.92	14.47
	2031	10.35	8.07	14.16

- 5.7 To provide a robust scenario, the assessment utilises future year traffic flow data, together with 2022 background and emissions data. Background concentrations and vehicle emission factors are projected to decrease year on year due to fleet composition and technological changes. Using 2022 data therefore provides a conservative case for the future year scenarios.

Impact assessment

- 5.8 The information relating to traffic flows and background concentrations has been input to the DMRB screening model along with the distance representing the shortest distance between the centreline of the roads and existing dwellings adjacent to the road. The results of the DMRB assessment are presented in **Appendix E**.
- 5.9 The results indicate that for a baseline situation in 2031, receptors adjacent to all roads have values below the current annual mean air quality objectives for NO₂ and PM₁₀, which is consistent with NHDC and SBC's air quality review and assessments.

- 5.10 With traffic generated by development in 2031, the absolute concentrations remain below the current air quality objectives and the level of change due to traffic generated by development is small ($0.2 \mu\text{g}/\text{m}^3$ or less to annual mean concentrations of NO_2 and PM_{10}), which would not have a significant impact upon local air quality.
- 5.11 The ambient concentrations of local traffic emissions are predicted to be less than 75% of the Air Quality Assessment Level (AQAL) (see Table 3.4), and the % change in concentration relative to the AQAL is calculated to be less than 1% for all roads. On this basis, the development's impact on local air quality will be negligible.
- 5.12 Using the significance flowchart in **Appendix C**, the Site would not contribute to air quality exceedances or lead to the designation of a new AQMA, nor would it significantly increase emissions or lead to new exposure to emissions considered to be significant. Therefore, the air quality issues for the Site are not deemed to be a significant consideration.
- 5.13 In addition, it should be noted that the future design scenarios have been undertaken using future year traffic flow data, together with 2022 background and emissions data, to account for current uncertainty in future year projections. Background concentrations and vehicle emission factors are projected to decrease year on year due to fleet composition and technological changes. Using 2022 data therefore provides a conservative case for the future scenario, thereby representing a robust scenario.
- 5.14 Therefore, since the air quality assessment indicates that annual mean air quality objectives will be met at the most exposed receptor locations, and since the actual changes due to traffic generated by development are small and not significant, it can be concluded that the air quality over the Site is acceptable for residential development and that baseline plus both committed and proposed development traffic will not have any adverse impacts on ambient air quality for existing dwellings. The results do not indicate a requirement for more detailed dispersion modelling.

Construction Dust Risk Assessment

- 5.15 Nuisance dust impacts are likely to be temporary and episodic (most noticeable during dry windy conditions) and would not persist beyond completion of construction.
- 5.16 Where dust raising activities are present for 12 months or more, dust complaints are considered to be very likely for those closest receptors to the Site that lie between 10-30m from the Site boundary. Therefore, appropriate dust mitigation measures will be required to minimise dust emissions from the Site, most particularly for the residential areas located to the east and south.
- 5.17 In addition, the qualitative dust assessment criteria in Table 3.5 indicates that existing premises adjacent to the Site will lie within the zone for potentially significant effects for soiling and ambient concentrations of PM_{10} .
- 5.18 Applying IAQM risk assessment procedures as set out in **Appendix D** requires an assessment where there are sensitive receptors within 350m of the Site boundary of the works and/or within 100m of the routes used

by construction vehicles on the public highway up to 500m from the Site entrance. Existing premises fall within 350m zone which triggers the initial screening criterion.

- 5.19 The stages considered by the dust risk assessment are presented in Table 5.3. The assessments and conclusions are based upon the classifications for a 'medium' construction site for 'construction', because the total working volume for the relevant activities will likely lie within 25,000 to 100,000m³ and a 'large' construction site for 'earthworks', because the total working area for the relevant activities lies above 10,000m². However, not all of the Site would require intensive earthworks, nor would it require large numbers of plant or significant amounts of spoil removal, nor are the types of construction work or soil conditions likely to lead to anything more than being 'moderately dusty'. There are no demolition requirements on the Site, and no known ecological areas within 50m of the works.
- 5.20 Due to the overall size of the Site, it is possible that the number of heavy duty vehicles visiting the Site/day may exceed 25, and the distances of unpaved roads on the Site are likely to be greater than 100m, therefore, the Site is classified as 'medium' in relation to the risk of dust being tracked out of the Site.

Table 5.3: Dust Risk Assessment

Step	Consideration	Demolition	Earthworks	Construction	Track-out
2a	Scale/nature of works	-	Large	Medium	Medium
2b	Sensitivity of area:				
	To dust soiling	-	Medium	Medium	Medium
	To PM ₁₀ health effects	-	Low	Low	Low
	To ecological effects	-	-	-	-
2c	Risk of impacts	-	Medium Risk	Medium Risk	Low Risk

- 5.21 The assessments in Table 5.3 and the IAQM matrices have been used to define the Site-specific mitigation requirements for the construction phases and the overall risk assessment for dust from the construction works is summarised in Table 5.4.

Table 5.4: Summary Dust Risk Table to define Site-Specific Mitigation

Source	Dust Soiling Effects	PM10 Effects	Ecological Effects
Demolition	-	-	-
Earthworks	Medium Risk	Low Risk	-
Construction	Medium Risk	Low Risk	-
Track-out	Low Risk	Low Risk	-

- 5.22 With regard to dust soiling, the risk assessment indicates that on the basis of no mitigation being present, the earthworks and construction phases would present a 'Medium Risk', whereas the track-out phase would present a 'Low Risk'.
- 5.23 With regard to PM₁₀ effects, the risk assessment indicates that on the basis of no mitigation being present, all phases would present a 'Low Risk' to health.

- 5.24 The IAQM guidance on the mitigation measures needed to deal with low, medium or high risk effects is set out in **Appendix F**.



6.0 MITIGATION

6.1 Assessment has shown that the annual mean air quality objectives will be met at the most exposed receptor locations, and the Site is acceptable for residential development. It is therefore considered that development-specific mitigation will not be required.

6.2 Nevertheless, to assist in offsetting incremental creep in pollutant emissions, a number of sustainable measures have been considered within the Travel Plan (TP) prepared for the Site, these include, but are not limited to:

- Supporting measures and incentives to encourage sustainable travel, such as travel vouchers, public transport discounts etc (to be agreed as part of the planning application); and
- Measures to support cycling and walking infrastructure such as provision of new footways, crossing points and links to existing infrastructure.

6.3 In addition to the measures contained within the Travel Plan, the following measures should be included:

- Electric vehicle charging – in accordance with Approved Document S; and
- Low NO_x heating and boilers.

Construction Dust

6.4 It is recommended that the relevant mitigation presented in **Appendix F**, appropriate for a 'Medium Risk' site, should be routinely included in the site's dust management plan for the relevant phase of construction. Key measures known to minimize dust emissions and represent good practice guidance are summarised in Table 6.1.

Table 6.1: Key Dust Mitigation Measures

Aspect	Mitigation Measures
Site Planning	No bonfires
	Plan site layout - machinery and dust causing activities should be located away from sensitive receptors
Construction Traffic	All vehicles should switch off engines when not in active use – no idling vehicles
	Wash or clean all vehicles effectively before leaving the site if close to sensitive receptors
	All loads entering and leaving site to be covered
	No site runoff of water or mud
	All non-road mobile machinery (NRMM) to use ultra low sulphur tax-exempt diesel (ULSD) where available
Demolition Works	Use water as dust suppressant
	Cutting equipment to use water as suppressant or suitable local exhaust ventilation systems
	Securely cover skips and minimize drop heights
Site Activities	To employ best practicable means in the control of dust
	Minimise dust generation activities
	Use water as dust suppressant where possible
	Keep stockpiles for the shortest possible times

Aspect	Mitigation Measures
Site Management	Appointment of a site agent whose contact details are provided to the LPA's Environmental Health Department and local residents prior to construction works starting.
	Agent to provide immediate response to any complaints by logging details of complaint and investigating source of complaint to establish whether routine mitigation measures have been properly implemented. If necessary, appropriate steps to be taken to mitigate against any adverse effects, and details of actions to be logged.

7.0 CONCLUSIONS

- 7.1 MEC, has been commissioned by Croudace Homes to undertake an Air Quality Assessment for a proposed residential development on Land at Roundwood, Stevenage.
- 7.2 Air quality within both the North Hertfordshire District Council (NHDC) area and Stevenage Borough Council (SBC) area is generally good, and with the exception of the Air Quality Management Areas (AQMA) located in Hitchin, the objectives are met at all other locations of relevant exposure. Since 'relevant exposure' is already present adjacent to the Site, i.e., existing residential dwellings are present adjacent to the site and local road network, and these have already been considered within both NHDC and SBC's reviews and assessments, the same conclusions for these will equally apply for new dwellings at the Site. Namely, at the locations of proposed new dwellings, air quality objectives will be satisfied and the Site is acceptable for residential development.
- 7.3 Assessments in accordance with Local Air Quality Management guidance indicate that for a baseline situation in 2031, receptors adjacent to all roads have values below the current annual mean air quality objectives for NO₂ and PM₁₀, which is consistent with NHDC and SBC's air quality review and assessments.
- 7.4 With traffic generated by both development in 2031, the absolute concentrations remain below the current air quality objectives and the level of change due to traffic generated by development is small (0.2 µg/m³ or less to annual mean concentrations of NO₂ and PM₁₀), which would not have a significant impact upon local air quality.
- 7.5 The ambient concentrations of local traffic emissions from both committed and proposed development are predicted to be less than 75% of the Air Quality Assessment Level (AQAL), and the % change in concentration relative to the AQAL is calculated to be less than 1% for all roads. On this basis, the development's impact on local air quality will be negligible.
- 7.6 The future year scenarios have been undertaken using future year traffic flow data, together with 2022 background and emissions data, to account for current uncertainty in future year predictions.
- 7.7 Since the air quality assessment indicates that annual mean air quality objectives will be met at the most exposed receptor locations, and since the actual changes due to traffic generated by development are small and not significant, it can be concluded that the air quality over the Site is acceptable for residential development and that baseline plus development traffic will not have any adverse impacts on ambient air quality for existing dwellings. The results do not indicate a requirement for more detailed dispersion modelling.
- 7.8 Mitigation measures have been proposed to minimise the potential effects associated with increased air pollutant concentrations.

- 7.9 With regard to dust soiling, the risk assessment indicates that on the basis of no mitigation being present, the earthworks and construction phases would present a 'Medium Risk', whereas the track-out phase would present a 'Low Risk'.
- 7.10 With regard to PM₁₀ effects, the risk assessment indicates that on the basis of no mitigation being present, all phases would present a 'Low Risk' to health.
- 7.11 The relevant mitigation measures presented in the IAQM guidance for a 'Medium Risk' site should be routinely included in the Site's dust management plan for the relevant earthworks and construction phases.



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APPENDIX A



KEY

Site Boundary

A	29.09.23	Planning Submission	JW	PA
Rev	Date	Revision Details	Dr	Ch

London: 76 Great Suffolk Street
London, SE1 0BL
Sussex:

Bristol:

ECE Architecture
www.ecearchitecture.com

Client's Name
Croudace Homes

Job Title
**Roundwood, Stevenage
DES - 946**

Drawing Title
Proposed Site Layout

Scale
1:1000 @ A1 / 1:2000 @ A3

metres

20406080100

Drawn	Checked	Date
JW	PA	July '23

Job No	Drawing No	Rev
7303	PL-01	A

Status

APPROVAL

CAD Plot date: 2/10/2023 - 16:31:21

7303 - site layout.dwg



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APPENDIX B

DEFINITION OF AIR QUALITY TERMS AND UNITS

ppm	parts per million - defines the units of pollution in every million (10^6) units of air.
ppb	parts per billion - defines the units of pollution in every billion (10^9) units of air.
$\mu\text{g}/\text{m}^3$	microgrammes per cubic metre - one microgramme is one millionth of a gram.
ng/m^3	nanogrammes per cubic metre – one nanogramme is one milliardth (i.e. one thousand millionth of a gram (10^{-9}))
Annual mean	the average of the concentrations measured for one year.
1-hour mean	the average of the concentrations measured for one hour.
24-hour mean	the average of the concentrations measured for twenty four hours.
Running mean	the mean or series of means calculated for overlapping time periods. For example, an 8-hour running mean is calculated every hour and averages the values for eight hours. The period of averaging is stepped forward by one hour for each subsequent value so that a degree of overlap exists between successive values. Non-running means are calculated for consecutive time periods so that there is no overlap.
Percentile	a value that establishes a particular threshold in a collection of data. For example, the 90 th percentile of yearly values is the value that 90% of all the data in the year fall below or equal.
Exceedance	a period of time when the concentration of a pollutant is greater than, or equal to, the relevant air quality standard.



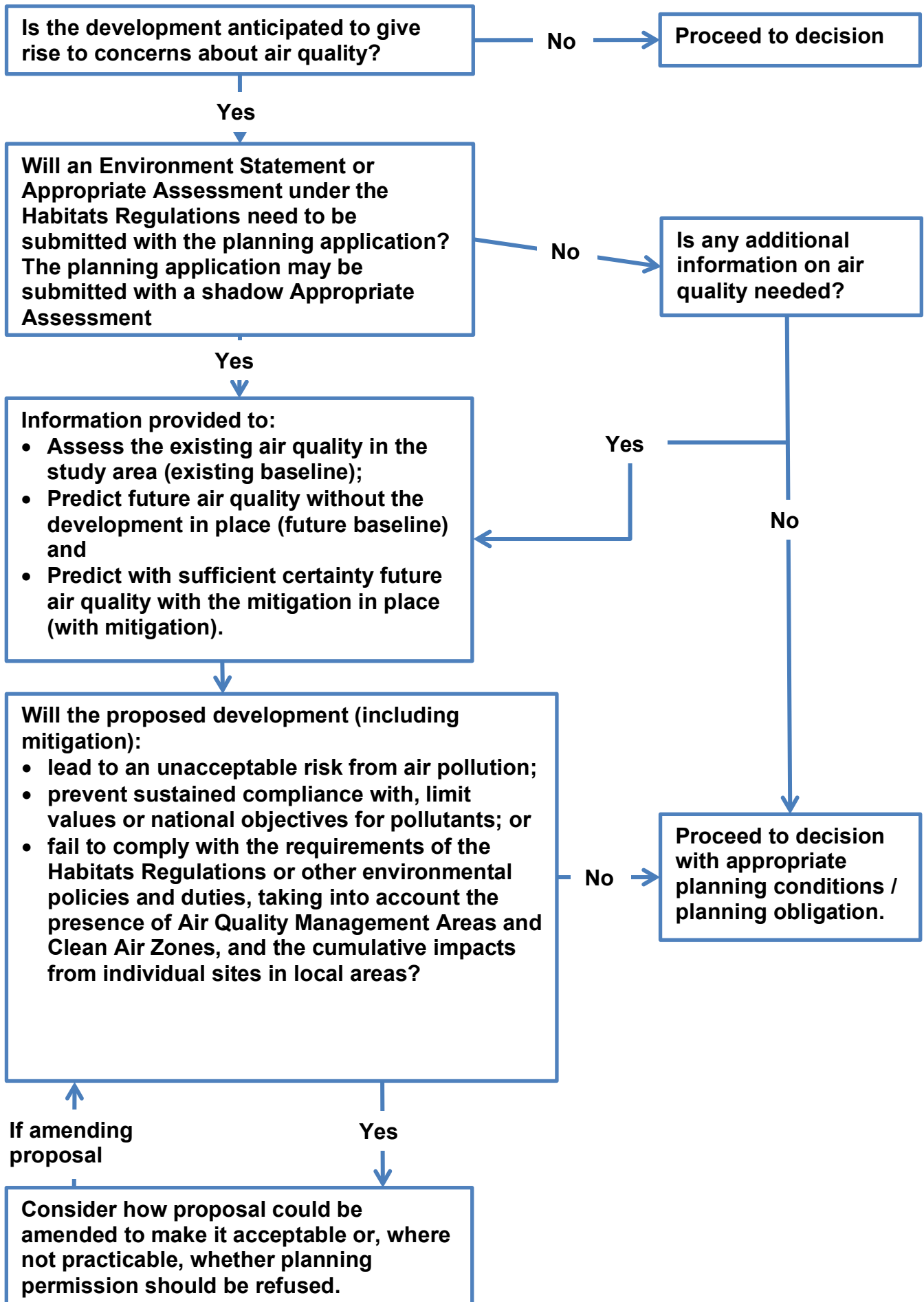
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APPENDIX C





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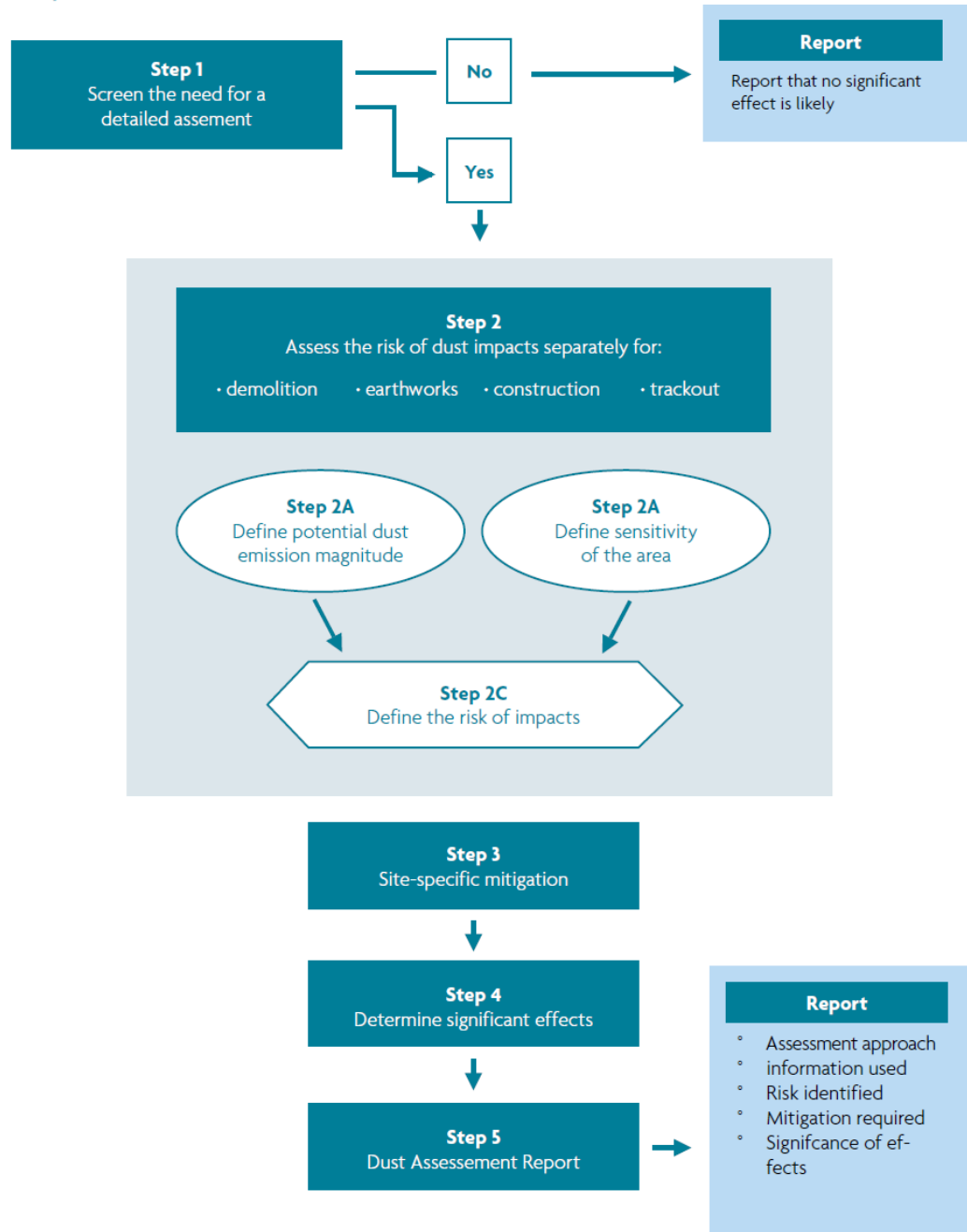
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APPENDIX D

Figure 1: Steps to Perform a Dust Assessment



Demolition

Examples:

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

Earthworks

Examples:

- **Large:** Total site area $>10\,000\text{ m}^2$, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds $>8\text{ m}$ in height, total material moved $>100\,000$ tonnes;
- **Medium:** Total site area $2\,500\text{ m}^2 - 10\,000\text{ m}^2$, moderately dusty soil type (e.g. silt), $5\text{-}10$ heavy earth moving vehicles active at any one time, formation of bunds $4\text{ m} - 8\text{ m}$ in height, total material moved $20\,000$ tonnes – $100\,000$ tonnes; and
- **Small:** Total site area $<2\,500\text{ m}^2$, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds $<4\text{ m}$ in height, total material moved $<10\,000$ tonnes, earthworks during wetter months.

Construction

Examples:

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

Trackout

Examples:

- **Large:** >50 HDV ($>3.5\text{ t}$) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length $>100\text{ m}$;
- **Medium:** $10\text{-}50$ HDV ($>3.5\text{ t}$) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road lengths $50\text{ m}\text{-}100\text{ m}$;
- **Small:** <10 HDV ($>3.5\text{ t}$) outward movements in any one day, surface material with low potential for dust release, unpaved road length $<50\text{ m}$.

These numbers are for vehicles that leave the site after moving over unpaved ground, where they will accumulate mud and dirt that can be tracked out onto the public highway.

Table 2: Sensitivity of the Area to Dust Soiling Effects on People and Property ^{a b}

Receptor Sensitivity	Number of Receptors	Distance from the Source (m) ^c			
		<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

^a The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout. See **STEP 2B, Box 6** and **Box 9**.

^b Estimate the total number of receptors within the stated distance. Only the *highest level* of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors < 50 m is 102. The sensitivity of the area in this case would be high.

^c For trackout, the distances should be measured from the side of the roads used by construction traffic. Without site-specific mitigation, trackout may occur from roads up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50m from the edge of the road.

Table 3: Sensitivity of the Area to Human Health Impacts ^{a b}

Receptor Sensitivity	Annual Mean PM ₁₀ concentration ^c	Number of Receptors ^d	Distance from the Source (m) ^e				
			<20	<50	<100	<200	<350
High	>32 µg/m ³ (>18 µg/m ³ in Scotland)	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m ³ (16-18 µg/m ³ in Scotland)	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m ³ (14-16 µg/m ³ in Scotland)	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m ³ (<14 µg/m ³ in Scotland)	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

^a The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout. See **STEP 2B, Box 7** and **Box 9**.

^b Estimate the total within the stated distance (e.g. the total within 350m and not the number between 200 and 350m), noting that only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20m of the source and 95 high sensitivity receptors between 20 and 50m, then the total of number of receptors < 50 m is 102. If the annual mean PM₁₀ concentration is 29µg/m³, the sensitivity of the area would be high.

^c Most straightforwardly taken from the national background maps, but should also take account of local sources. The values are based on 32µg/m³ being the annual mean concentration at which an exceedence of the 24-hour objective is likely in England, Wales and Northern Ireland. In Scotland there is an annual mean objective of 18µg/m³.

^d In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties

^e For trackout, the distances should be measured from the side of the roads used by construction traffic. Without site-specific mitigation, trackout may occur from roads up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

Table 4: Sensitivity of the Area to Ecological Impacts ^{a b}

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

^a The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site. See **STEP 2B, Box 8** and **Box 9**.

^b Only the highest level of area sensitivity from the table needs to be considered.

^c For trackout, the distances should be measured from the side of the roads used by construction traffic. Without site-specific mitigation, trackout may occur from roads up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as measured from the site exit. The impact declines with distance from the site.



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APPENDIX E

PREDICTED CONCENTRATIONS OF AIR POLLUTION

Name	Year	NO _x	NO ₂ *	PM ₁₀	
		Annual mean µg/m ³	Annual mean µg/m ³	Annual mean µg/m ³	Days >50µg/m ³
Great Ashby Way B	2022	18.36	11.69	15.44	0.18
Great Ashby Way B	2031	18.73	11.81	15.50	0.19
Great Ashby Way B+C	2031	19.64	12.08	15.64	0.22
Great Ashby Way B+C+D	2031	20.01	12.20	15.69	0.23
Change		0.37	0.11	0.05	0.01
Mendip Way B	2022	13.85	10.22	14.82	0.00
Mendip Way B	2031	13.91	10.24	14.83	0.00
Mendip Way B+C	2031	13.91	10.24	14.83	0.00
Mendip Way B+C+D	2031	14.30	10.37	14.89	0.00
Change		0.39	0.14	0.06	0.00
Haybluff Drive B	2022	13.34	10.04	14.75	0.00
Haybluff Drive B	2031	13.37	10.05	14.75	0.00
Haybluff Drive B+C	2031	13.37	10.05	14.75	0.00
Haybluff Drive B+C+D	2031	13.98	10.26	14.85	0.00
Change		0.62	0.21	0.10	0.00
Back Lane B	2022	13.44	10.08	14.76	0.00
Back Lane B	2031	13.47	10.08	14.77	0.00
Back Lane B+C	2031	13.47	10.08	14.77	0.00
Back Lane B+C+D	2031	13.47	10.08	14.77	0.00
Change		0.00	0.00	0.00	0.00
A1072 Martins Way B	2022	21.62	12.68	15.64	0.22
A1072 Martins Way B	2031	21.86	12.74	15.68	0.23
A1072 Martins Way B+C	2031	21.93	12.77	15.70	0.23
A1072 Martins Way B+C+D	2031	21.99	12.78	15.71	0.23
Change		0.06	0.02	0.01	0.00
A602 East of A1 B	2022	26.53	14.05	16.13	0.36
A602 East of A1 B	2031	26.89	14.15	16.20	0.38
A602 East of A1 B+C	2031	26.91	14.16	16.21	0.38
A602 East of A1 B+C+D	2031	26.97	14.17	16.22	0.39
Change		0.06	0.02	0.01	0.00
A602 West of A1 B	2022	21.60	12.67	15.64	0.22
A602 West of A1 B	2031	21.83	12.74	15.68	0.23
A602 West of A1 B+C	2031	21.88	12.75	15.69	0.23
A602 West of A1 B+C+D	2031	21.92	12.76	15.70	0.23
Change		0.05	0.01	0.01	0.00

Note: The NO₂ criteria are defined in terms of both the annual mean of 40 µg/m³, and the number of exceedances of a 1-hour mean of 200 µg/m³. Whilst the annual mean NO₂ value is calculated, the number of exceedances of the hourly standard cannot be calculated from the annual mean with a high degree of confidence. Therefore, only the annual mean NO₂ value is reported.



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APPENDIX F

Mitigation for all sites: Communications

Mitigation measure	Low Risk	Medium Risk	High Risk
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
2. 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.	H	H	H
3. Display the head or regional office contact information	H	H	H

Mitigation for all sites: Dust Management

Mitigation measure	Low Risk	Medium Risk	High Risk
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/or visual inspections.	D	H	H
Site Management			
5. 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.	H	H	H
6. Make the complaints log available to the local authority when asked.	H	H	H
7. 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.	H	H	H
8. Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	N	N	H
Monitoring			
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.	D	D	H
10. 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	H	H	H
11. 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.	H	H	H
12. Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	N	H	H
Preparing and maintaining the site			
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period	D	H	H
16. Avoid site runoff of water or mud.	H	H	H
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H

Mitigation measure	Low Risk	Medium Risk	High Risk
18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	D	H	H
19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H
Operating vehicle/machinery and sustainable travel			
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable	H	H	H
21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H
23. 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 appropriate)	D	D	H
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	H	H
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)	N	D	H
Operations			
26. 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.	H	H	H
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H	H	H
28. Use enclosed chutes and conveyors and covered skips.	H	H	H
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
30. 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.	D	H	H
Waste management			
31. Avoid bonfires and burning of waste materials.	H	H	H

Measures specific to demolition

Mitigation measure	Low Risk	Medium Risk	High Risk
32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D	D	H
33. 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.	H	H	H
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H
35. Bag and remove any biological debris or damp down such material before demolition.	H	H	H

Measures specific to earthworks

Mitigation measure	Low Risk	Medium Risk	High Risk
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable..	N	D	H
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable	N	D	H
38. Only remove the cover in small areas during work and not all at once	N	D	H

Measures specific to construction

Mitigation measure	Low Risk	Medium Risk	High Risk
39. Avoid scabbling (roughening of concrete surfaces) if possible	D	D	H
40. 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.	D	H	H
41. 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.	N	D	H
42. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D

Measures specific to trackout

Mitigation measure	Low Risk	Medium Risk	High Risk
43. 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.	D	H	H
44. Avoid dry sweeping of large areas.	D	H	H
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
47. Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H
48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
50. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	N	H	H
51. Access gates to be located at least 10m from receptors where possible.	N	H	H

Key to Tables:

H	Highly recommended
D	Desirable
N	Not required



CIVIL ENGINEERING



TRANSPORT



FLOOD RISK & DRAINAGE



STRUCTURES



GEO-ENVIRONMENTAL



ACOUSTIC AIR



UTILITIES



GEOMATICS



LIGHTING



EXPERT WITNESS



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