



Air Quality Baseline and Emission Mitigation Assessment

Marsden Island, Huddersfield

CITU Group Developments Limited

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Non-Technical Summary

- i. This report details a baseline review of air quality, considers potential impacts, and recommends necessary mitigation measures relating to a proposed residential development located at Marsden Island, Huddersfield.
- ii. The development has potential to cause impacts at nearby sensitive locations during the construction and operational phases. Impacts could arise due to fugitive dust emissions generated by construction phase activities and road traffic emissions generated during the operational phase. Local emission sources also have potential to expose future site occupiers to poor air quality.
- iii. Construction phase impacts were assessed in accordance with the Institute of Air Quality Management methodology to determine risk and identify necessary dust control measures. Assuming the implementation of good practice dust control measures during construction, residual impacts relating to fugitive dust emissions were predicted to be not significant.
- iv. Operational impacts associated with vehicles travelling to and from the site were compared against local authority screening criteria. Based on the anticipated traffic generation, impacts were predicted to be not significant. Additionally, the proposed development is not located close to an area identified by the local authority as experiencing elevated pollutant concentrations. As such, onsite exposure impacts were screened as not significant.
- v. Impacts on ecological designations were also screened against Natural England's criteria. This indicated that development impacts, including those in-combination with other developments are considered not significant at all sensitive locations.
- vi. Notwithstanding this a best practice mitigation strategy was prepared in accordance with the requirements of local authority air quality guidance. The implementation of such measures would ensure that the development is future proof.
- vii. In summary, it is predicted that air quality impacts associated with the proposed development are deemed not significant and should not form a constraint to planning consent.

1.0 Introduction

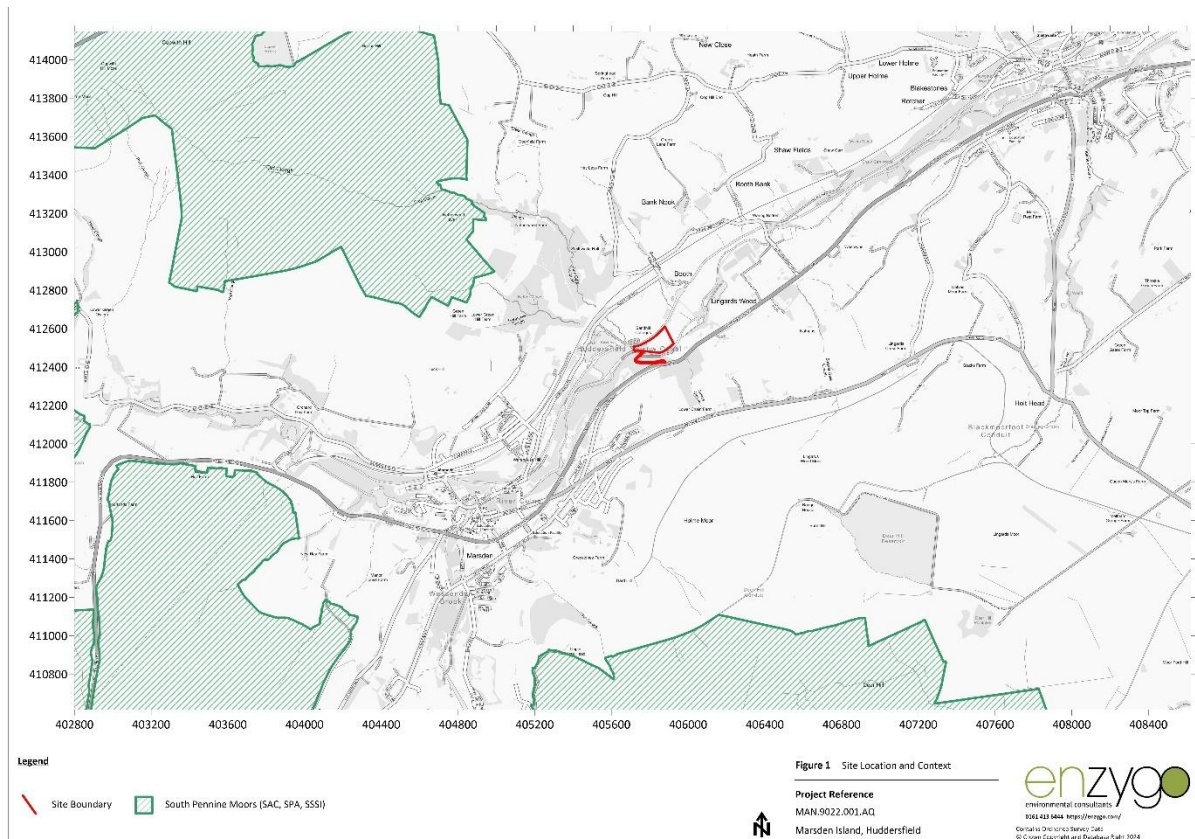
1.1 Background

- 1.1.1 Enzygo Limited (Ltd) was commissioned by CITU Group Developments Ltd to produce an Air Quality Assessment (AQA) in support of a planning application for a residential development at Marsden Island, Huddersfield, herein referred to as the 'Proposed Development'.
- 1.1.2 Enzygo understands that the Proposed Development seeks planning approval for the redevelopment of the derelict site, to provide 75 homes with associated car parking, landscaping and access off Manchester Road (A62).
- 1.1.3 The application site is located in Kirklees Council (KC) area of administration and an Air Quality Assessment is required in accordance with the West Yorkshire Air Quality and Emissions Technical Planning Guidance (WY Guidance). The assessment considers fugitive dust emissions generated by construction processes and road traffic emissions generated during the operation phase. It also determines site suitability with relation to pollutant concentrations from local emission sources and details recommended best practice mitigation measures.
- 1.1.4 Details of the assessment methodology, assessment inputs, results and conclusions are detailed within this report.

1.2 Site Location and Context

- 1.2.1 The application site is located at land off Manchester Road (A62) at the approximate National Grid Reference (NGR): 405845, 412520, on the site of the former Cellars Clough Mill, which has since been demolished.
- 1.2.2 The site is set within a well-established residential area and lies on the outskirts on the village of Marsden and approximate 9 km west of Huddersfield Town Centre. The site is bounded to the north by the Huddersfield Narrow Canal and both Manchester Road (A62) and River Colne to the south. To the east and west lies woodland areas and various waterbodies including Cellars Clough Mill Pond and Sparth Reservoir. The closest highly sensitive receptors are Sandhill Cottages situated 20 m north of the site. Further residential properties in the area are located off the A62 and Park Gate Road.
- 1.2.3 A desktop review did not identify any Air Quality Management Areas (AQMA) within the assessment extents, with the closest designation located approximately 5 km north east of the site along sections of the M62 motorway at Outlane. The South Pennine Moors (SSSI, SPA and SAC) ecological designation is located within 1 km of the site and has potential to be affected by traffic generated by the Proposed Development.
- 1.2.4 Figure 1 below provides a map of the site boundary and local surroundings.

Figure 1: Site Boundary and Surrounding Context



2.0 Legislation, Guidance and Policy

The following legislation, guidance and policy was considered during the preparation of the Air Quality Assessment:

- European Union (EU) Directive 2008/50/EC;
- The National Planning Policy Framework (NPPF), updated on 7th February 2025;
- The National Planning Practice Guidance (NPPG), relevant chapters produced on 1st November 2019;
- Section 82 of the Environment Act (1995) (Part IV);
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Department for Environment, Food and Rural Affairs (DEFRA)¹;
- The Air Quality Standards (Amendment) Regulations (2016);
- Local Air Quality Management Technical Guidance 2022, DEFRA²
- Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management (IAQM)³;
- Land-Use Planning and Development Control: Planning for Air Quality, Environmental Protection UK (EPUK) and IAQM⁴;
- Natural England's (NE) approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations ⁵; and
- West Yorkshire Air Quality and Emissions Technical Planning Guidance⁶.

2.1 UK Legislation and National Strategy

2.1.1 Government policy requires the Secretary of State to publish a national Air Quality Strategy (AQS). The national AQS¹ produced by the Department for Environment, Food and Rural Affairs (DEFRA) sets out the framework to reducing adverse impacts of air pollution upon human health, vegetation, and ecosystems. To achieve this the AQS defines air quality objectives (AQOs) for 10 key pollutant species, including nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}).

2.1.2 In accordance with the Environment Act (1995), Local Authorities (LAs) have an obligation to periodically review and assess air quality within their administration to determine if specified pollutants are exceeding relevant objectives. This review involves the assessment of present and likely future air quality and is termed Local Air Quality Management (LAQM).

2.1.3 Should the LAQM process identify areas which are predicted to or currently exceeding relevant AQOs the LA is required to designate an Air Quality Management Area (AQMA). The AQMA is then accompanied by an Air Quality Action Plan (AQAP) which sets various measures and polices

¹ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, DEFRA, 2007

² Local Air Quality Management Technical Guidance 2022 LAQM.(TG22), DEFRA, August 2022.

³ Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management, 2016.

⁴ Land-Use Planning and Development Control: Planning for Air Quality, EPUK and IAQM, January 2017.

⁵ Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations Natural England, June 2018

⁶ Air Quality & Emissions Technical Planning Guidance, West Yorkshire Low Emissions Group, November 2014.

to improve air quality with the goal of restoring compliance with the AQOs. The process of LAQM is informed by DEFRA's Technical Guidance LAQM (TG22)².

2.1.4 European Directive 2008/50/EC also sets out a similar approach to the AQS and defines limit values for the protection of human health and ecosystems. The Environmental Permitting (England and Wales) (Amendment) (EU Exit) Regulations 2019 ensures that the Environmental Permitting (EP) regime can continue following the UK's exit from the European Union (EU).

2.1.5 The regulations state also that exceedances of the objectives should be assessed in relation to air quality at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present"

2.1.6 The AQO applicable to this assessment are summarised in Table 1 with relation to human health receptors. Site suitability was determined using these objectives.

Table 1: Air Quality Objectives

Pollutant	Air Quality Objectives	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Periods
NO ₂	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year
PM ₁₀	40	Annual mean
	50	24-hour mean; not to be exceeded more than 35 times a year
PM _{2.5}	20	Annual mean

2.1.7 LAQM (TG16)² specifies locations where the AQOs should be applied as detailed in Table 2.

Table 2: Where Air Quality Objectives Apply

Averaging Period	Objectives Should Apply At	Objectives Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed, including building façades of residential properties, schools, hospitals, care homes etc.	Building facades of offices and 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	As above, together with hotels and 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
1-hour mean	As above and Kerbside sites such as pavements of busy shopping streets, 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, and any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.1.8 Based on the proposed C3 use the Proposed Development would be sensitive to all averaging periods detailed in Table 2.

2.2 Local Planning Policy

Kirklees Local Plan Strategy and Policies

2.2.1 The Kirklees Local⁷ was adopted in February 2019 and sets out the council's vision and strategy across the borough. Policies contained within this document provide the current basis for planning determination of within KC area of administration from 2013 to 2031. Policies relevant to the assessment are detailed below.

Policy LP47 – Healthy, Active and Safe Lifestyles

“The council will, with its partners, create an environment which supports healthy, active, and safe communities and reduces inequality. Healthy, active, and safe lifestyles will be enabled by:

- g) ensuring that the current air quality in the district is monitored and maintained and, where required, appropriate mitigation measures included as part of new development proposals;*

Policy LP51 – Protection and Improvement of Local Air Quality

“The council will, with its partners, create an environment which supports healthy, active, and safe communities and reduces inequality. Healthy, active, and safe lifestyles will be enabled by:

- 1. Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air pollution which would have an unacceptable impact on the natural and built environment or to people.*
- 2. Proposals that have the potential to increase local air pollution either individually or cumulatively must be accompanied by evidence to show that the impact of the development has been assessed in accordance with the relevant guidance. Development which has the potential to cause levels of local air pollution to increase must incorporate sustainable mitigation measures that reduce the level of this impact. If sustainable measures cannot be introduced the development will not be permitted.*
- 3. Where the development introduces new receptors into Air Quality Management Areas or Areas of Concern or near other areas of relatively poor air quality, for example near roads or junctions, the development must incorporate sustainable mitigation measures that protect the new receptors from unacceptable levels of air pollution. Where sustainable mitigation measures cannot be introduced which prevent receptors from being exposed to unsafe levels of air pollution, development will not be permitted; and*

Policy LP52 - Protection and improvement of environmental Quality

Proposals which have the potential to increase pollution from noise, vibration, light, dust, odour, shadow flicker, chemicals and other forms of pollution or to increase pollution to soil or where environmentally sensitive development would be subject to significant levels of pollution, must be accompanied by evidence to show that the impacts have been evaluated and measures have been incorporated to prevent or reduce the pollution, so as to ensure it does not reduce the quality of life and well-being of people to an unacceptable level or have unacceptable impacts on the environment.

⁷ Kirklees Local Plan Strategy and Policies, Kirklees Council, February 2019 (<https://www.kirklees.gov.uk/beta/planning-policy/local-plan.aspx>)

Such developments which cannot incorporate suitable and sustainable mitigation measures which reduce pollution levels to an acceptable level to protect the quality of life and well-being of people or protect the environment will not be permitted.

Where possible, all new development should improve the existing environment.

- 2.2.2 These policies have been considered throughout the undertaking of this Air Quality Assessment.
- 2.2.3 Kirklees Council is in the process of preparing a new Emerging Local Plan, which will set the development strategy for the district covering the period 2024–2043. The draft Plan is currently subject to consultation and is not yet available for detailed review. Once formally adopted, it will replace the existing adopted policy documents, providing the updated statutory planning framework for Kirklees.

3.0 Methodology

3.1 Scope

3.1.1 Emissions generated by the Proposed Development during the construction and operational phases have potential to cause impacts at existing sensitive locations. Additionally, NO₂ and fine PM emissions associated with the local road network have potential to introduce future site occupiers to an area of existing poor air quality. These have been assessed in accordance with the following assessment stages:

- Construction Phase Fugitive Dust Impact Assessment;
- Operation Phase Impact Screening Assessment; and
- Operation Phase Exposure Screening Assessment.

3.2 Construction Phase Impacts

3.2.1 There is potential for fugitive dust impacts to occur at existing sensitive locations as a result of demolition, earthworks, construction and trackout activities during the construction phase of the Proposed Development. A qualitative assessment was undertaken in accordance with the methodology outlined within the IAQM document 'Guidance on the Assessment of Dust from Demolition and Construction'³.

3.2.2 The assessment identified specific control measures to be implemented on site which aim to reduce residual fugitive dust impacts. Appendix A details the IAQM methodology.

3.3 Air Quality & Emissions Technical Planning Guidance

3.3.1 The WY guidance outlines an assessment approach with the overall aim of sustaining and further promoting healthy and sustainable communities and encouraging emissions reductions associated with proposed developments.

3.3.2 The approach provides criteria for when a detailed impact or exposure assessment is necessary and compares the scale and location of the Proposed Development against specific screening criteria. The assessment process follows three key stages:

1. Determining the classification of the development proposal;
2. Assessing and quantifying the impact on local air quality; and
3. Determining the level of a mitigation required by the proposal to meet Local Development Plan requirements.

3.3.3 The results of the WY assessment process are detailed in Section 5.0. Appendix A details the methodology, including relevant assessment stages and screening criteria.

3.3.4 As part of the pre-application provided by the Environmental Health department at KC the development was reviewed in accordance WY guidance. Based on the footprint of the site, KC determined the application will likely be classified as medium and requested the production of a screening note to consider development impacts.

4.0 Baseline Conditions

4.1 Scope

4.1.1 Available air quality data and the surrounding context was reviewed to provide a baseline for assessment. The following sources were used in the assessment of baseline conditions:

- DEFRA's LAQM Background Mapping Data⁸ and AQMA Database⁹;
- KC 2024 Air Quality Annual Status Report (ASR)¹⁰; and
- The WY Air Quality and Emissions Technical Planning Guidance⁶.

4.2 Air Quality Management Areas

4.2.1 As required by the Environment Act (1995), KC has undertaken review and assessment of air quality across the borough. This indicated that annual mean concentrations of NO₂ are currently above the Air Quality Objective (AQO) of 40 µg/m³ at eight specific locations within Calderdale. The closest AQMA to the Proposed Development is No. 8 New Bank, which relates to NO₂ exceedances associated with the A58 at New Bank and Godley Road, Halifax.

4.2.2 The AQMA is 850 m southeast of the Proposed Development and similar concentrations are not expected on the site. Additionally, the AQMA is separated from the Proposed Development by a complex road network and it is likely that vehicle movements associated with the Proposed Development would be sparsely distributed at such distances and are unlikely to significantly impact the AQMA. Figure 1 provides a map of the AQMA.

4.3 Air Quality Monitoring

4.3.1 The 2024 KC ASR was reviewed to identify representative monitoring locations which could inform on-site concentrations. The review indicated the closest automatic station is the CM1 Dewsbury Ashworth Grange analyser located over 20 km from the Proposed Development at the NGR: 417255, 420760. Due to the distance between the development site and automatic analyser, similar pollutant concentrations would not be expected and as such, this monitoring station has not been considered further within this assessment.

4.3.2 KC also monitor annual mean NO₂ concentrations using passive diffusion tubes across their district. A review of their recent air quality monitoring data did not indicate any monitoring location close to the Proposed Development, however several location are within 5 km of the site and considered representative of worse case across the study area and adjacent to the A62.

4.3.3 Monitoring data from the closest and most representative monitoring locations is presented in Table 3 with exceedances of the AQO highlighted in **bold**.

Table 3: Diffusion Tube Monitoring Results

ID	Site Name	Type	Distance to Site (m)	Annual Mean Concentration (µg/m ³)			
				2020	2021	2022	2023
K14	Oastler Avenue, Huddersfield	Background	8,749	13.9	14.5	13.0	12.1
K15	Manor Road, Golcar	Roadside	5,147	-	-	-	9.9
K49	Manchester Road, Thornton Lodge 2	Roadside	8,617	33.1	36.4	33.6	32.4

⁸ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

⁹ https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=43

¹⁰ 2024 Air Quality Annual Status Report, Kirklees Council, June 2024

ID	Site Name	Type	Distance to Site (m)	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)			
				2020	2021	2022	2023
K50	Manchester Road, Thornton Lodge 1	Roadside	8,331	33.1	39.8	40.6	37.4
K53	Yates Lane, Milnsbridge	Roadside	6,631	24.6	30.6	28.0	23.7
K67	Longroyd Bridge, Market Street	Roadside	8,395	-	-	-	-
K75	Blackmoorfoot Road, Thornton Lodge	Roadside	8,037	25.5	28.9	27.1	26.1
K76	Manchester Road, Thornton Lodge 3	Roadside	8,104	25.4	28.9	27.1	25.9
K77	Manchester Road, Thornton Lodge 4	Roadside	8,361	33.2	42.6	41.9	38.2
K78	Thornton Lodge Road, Thornton Lodge	Roadside	8,357	18.4	21.3	21.1	22.6

4.3.4 Recent NO₂ diffusion tube monitoring indicates historical exceedances of the annual mean AQO at two locations during 2021 and 2022. The recorded exceedances are isolated to locations adjacent to the A62 Manchester Road at the junction with Thornton Lodge Road. Recorded concentrations at all other monitoring locations across the assessment extents indicate annual mean NO₂ concentrations are below the AQO. It is also observed that historical exceedances at K50 and K77 were below the AQO in 2024.

4.3.5 2020 and 2021 monitoring data will be affected by the impact of restrictions during COVID lockdowns and the data should be reviewed with a degree of caution as results may not reflect typical conditions.

4.3.6 Figure 2 provides a location map of the diffusion tube monitoring locations.

Figure 2: Diffusion Tube Monitoring Locations



4.4 DEFRA Background Concentrations

4.4.1 To assist LAs in their air quality Review and Assessments, DEFRA have produced background concentration maps for NO₂, PM₁₀ and PM_{2.5}. Predictions are based on a 1 km by 1 km grid basis across the entire UK with the Proposed Development located in NGR: 405500, 412500.

4.4.2 Data for this grid square was downloaded for the most recent baseline year (2025). Table 4 presents the data with comparisons against the relevant AQO.

Table 4: DEFRA Background Pollutant Concentrations

Pollutant	2025 Concentration (µg/m ³)
NO ₂	6.95
PM ₁₀	9.33
PM _{2.5}	5.82

4.4.3 DEFRA background predictions concentrations of NO₂ and PM are not predicted to exceed the relevant AQOs during the current baseline year of 2025.

5.0 Assessment

There is the potential for air quality impacts as a result of the construction and operation phases of the Proposed Development. These are assessed in the following Sections.

5.1 Construction Phase Impact Assessment

5.1.1 A desk top screening assessment (Step 1) identified sensitive receptors within 350m of the site boundary, and within 50 m of the anticipated trackout. These are summarised in Table 5.

5.1.2 There are no designated ecological receptors within 50m of the Site boundary, or within 50m of anticipated trackout routes. Therefore, construction impacts on ecological designations have been screened out of the assessment.

Table 5: Sensitive Receptor Counts

Distance from Site or Trackout Routes (m)	Approximate Number of Receptors
Earthworks and Construction	
Less than 20	1-10
20 – 50	10 - 100
50 – 100	10 – 100
100 – 350	10 – 100
Trackout	
Less than 20	1 - 10
20 – 50	10 - 100

5.1.3 Figure 3 and Figure 4 provide a map of the construction and trackout buffer distances.

Figure 3: Earthworks and Construction Buffer Distances

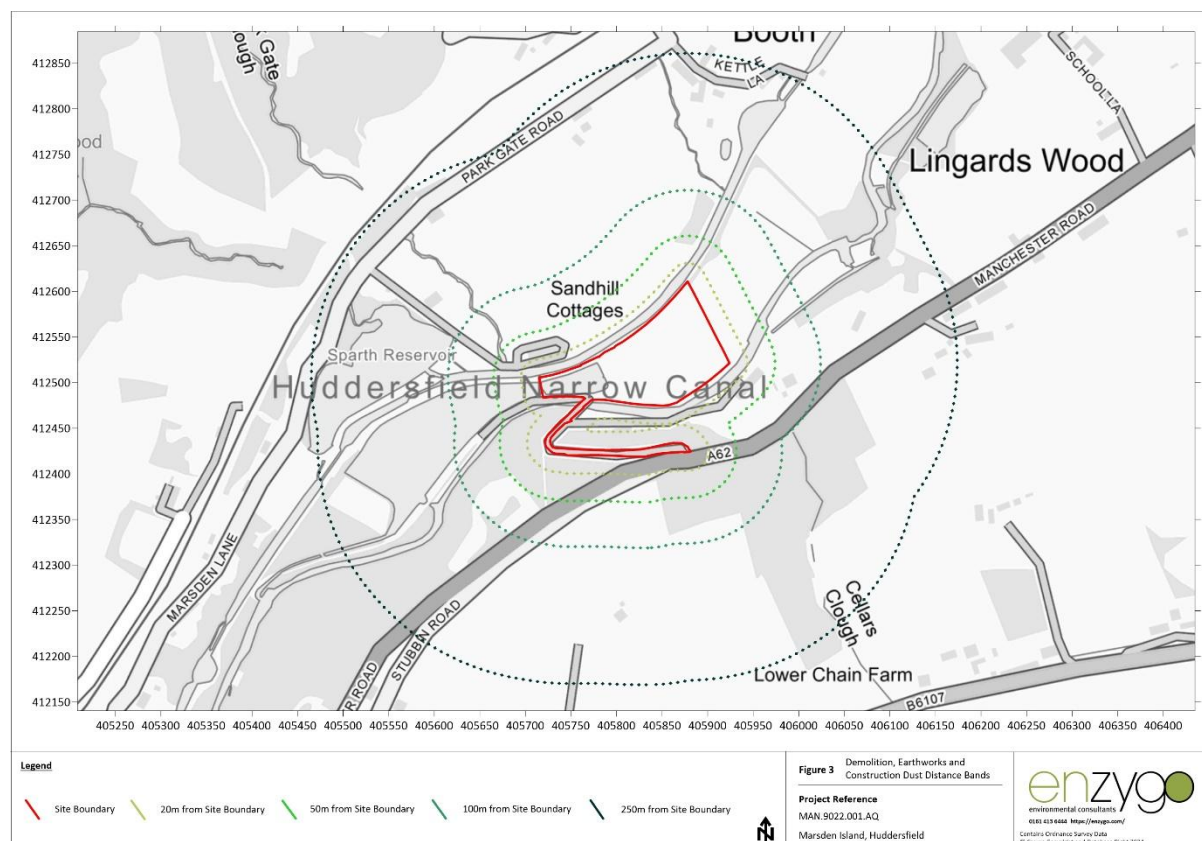
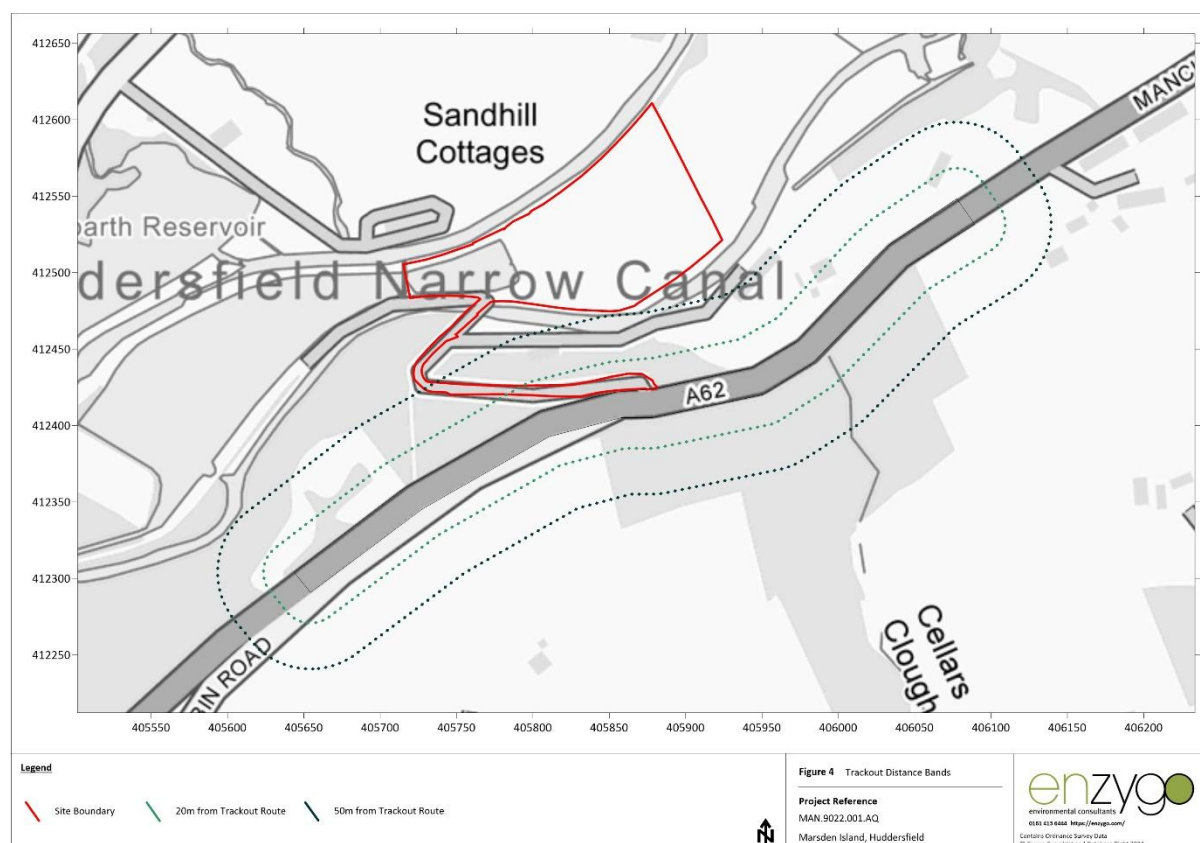


Figure 4: Trackout Buffer Distances



5.1.4 A detailed assessment of potential dust impacts was therefore required. This is detailed in the following sections as informed by the IAQM guidance³.

Magnitude

5.1.5 The scale and nature of the works was determined to assess the magnitude (Step 2A) of fugitive dust emissions arising from each construction phase activity. The determination of magnitude was based upon the criteria detailed in Appendix A.

Demolition

5.1.6 The site is currently vacant of existing buildings and there is no requirement to remove existing building structures to prepare for construction. Subsequently, this aspect of the construction phase dust risk assessment has not been considered further.

Earthworks

5.1.7 The Proposed Development site will require imports of material to provide a 1m increase to base level to provide necessary flood defences. Based on the estimated site area of 15,000 m² combined with potentially dusty soil type (e.g. clay) the magnitude of potential dust emissions associated with earthwork activities is considered **medium**.

Construction

5.1.8 The Proposed Development comprises the construction of 75 units with associated car parking, landscaping, and access. The total building volume is estimated to between 12,000 m³ to 75,000 m³ the magnitude of potential dust emissions associated with construction activities is considered **medium**.

Trackout

5.1.9 Information on the number of HDV trips generated during the construction phase was not available at the time of assessment. Similarly, the surface material and unpaved road length was not known. Based on site, the unpaved road length is likely to be greater than 100 m and the magnitude of potential dust emissions associated with trackout activities is considered **large**.

5.1.10 A summary of the construction phase magnitudes is detailed in Table 6.

Table 6: Dust Emission Magnitude

Demolition	Earthworks	Construction	Trackout
-	Medium	Medium	Large

Sensitivity

5.1.11 The next step (Step 2B) determined the sensitivity of the surrounding area, based on the number, proximity, and type of receptors. To ensure a worse case assessment all receptors were assumed to be highly sensitive (e.g. residential).

Dust Soiling

5.1.12 Residential premises are located directly adjacent to the northern boundary which presents a high receptor sensitivity. When combined with receptor counts provided in Table 5 the sensitivity of the surrounding area is medium for all construction activities.

Human Health

5.1.13 Predicted annual mean background concentrations of PM₁₀ within the vicinity of the proposed site, as predicted by DEFRA, are 15.75 µg/m³ (Table 4). Based on the receptor counts provided in Table 5, the sensitivity of the surrounding area is low for all construction phase activities.

Table 7: Summary of Area Sensitivity to Dust Impacts

Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	-	Medium	Medium	Medium
Human Health	-	Low	Low	Low

5.1.14 Reference should be made to Figure 3 and Figure 4 for receptor buffer zones.

Risk

5.1.15 The next stage of the assessment (Step 2C) combined the dust magnitude and receptor sensitivity defined above to determine the overall risk with no mitigation applied. This is summarised in Table 8.

Table 8: Summary of Unmitigated Dust Risk

Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	-	Medium	Medium	Medium
Human Health	-	Low	Low	Low

5.1.16 Following the determination of risk for each activity, the final step (Step 3) detailed necessary mitigation measures to reduce impacts during the construction phase. These measures have been adapted for the Proposed Development and summarised in Table 10 within Section 6.1.

5.2 Operation Phase Impacts

West Yorkshire Air Quality and Emission Technical Guidance

5.2.1 An assessment was undertaken using the WY guidance to inform the level of assessment required to determine impacts associated with the Proposed Development. The air quality assessment followed the process detailed in Section 3.3.2. Table 9 provides a summary of the assessment process and relevant assessment criteria. Full details of the WY guidance are provided in Appendix B

Table 9: Air Quality and Emissions Mitigation Assessment Process

Screening Checklist	Appropriate Criteria
Stage 1 - Development Type Classification	- The Proposed Development meets two criteria set out in Table 1 of the WY guidance. These are: - Dwelling Houses (C3) > 50 units; and - Any developments generating 100 or more two-way vehicle movements per day". - Any development proposing 100 or more parking spaces - The Proposed Development does not meet any additional trigger criteria for major developments listed in Table B2 of Appendix B including - Where the proposed development falls within the Town and Country Planning Regulations 2011; - Proposals located within an AQMA; - Proposals that could increase the existing traffic flow on roads of > 10,000 Annual Average Daily Traffic (AADT) by 5% or more; - Proposals that increase traffic 5% on road canyons with > 5,000 AADT; - Proposals that could introduce or significantly alter congestion and includes the introduction of substantial road infrastructure changes; - Proposals that reduce average speeds by more than 10kph; and - Proposals that include additional HDV movements by more than 10% of total trips.
Stage 2 – Air Quality Impact Assessment	- Whilst the Proposed Development proposes C3 land use, it is not: - Adjacent to or within an AQMA - Within 20m of roads at or above the relevant national objective highlighted on the DEFRA GIS modelled maps; or - Within 20m of roads with >10,000 24-AADT
Stage 3 - Mitigation	In accordance with the WY guidance the Proposed Development will include Type 1 (Minor) and Type 2 (Medium) mitigation measures. Details of the recommended mitigation is detailed in Section 6.0

5.2.2 As detailed in Table 9 the Stage 1 assessment determined the scale of the Proposed Development as medium.

5.2.3 The Proposed Development does not meet the exposure criteria in Stage 2, and an on-site exposure assessment can be screened out. Additionally, the Proposed Development does not exceed the requirements for a detailed impact assessment.

5.2.4 As agreed with the Environmental Health Officer at KC, a screening assessment was produced in accordance with the WY guidance⁶ with justifications provided to support the chosen approach.

Off-site Road Traffic Exhaust Impacts

- 5.2.5 The appointed transport consultant calculated development traffic flows. Based on the 75 unit scheme the operational phase is predicted to generate 300 AADT flows on the local network with no HGV traffic generation.
- 5.2.6 The anticipated traffic generation would not increase existing traffic on roads with > 10,000 AADT by 5% (i.e, 500 AADT). For context the DfT database¹¹ provides a 24-hour AADT flow of 5,871 for sections of A62 (Manchester Road) directly adjacent to the site access. As such, the Proposed Development does not meet the WY threshold for a major development (Table B2). Furthermore, the anticipated traffic flows fall well below the EPUK and IAQM assessment criteria of 500 AADT at locations outside of an AQMA.
- 5.2.7 The Proposed Development has potential to cause impacts at the South Pennine Moors designation which runs parallel to the A62 (Manchester Road), along which traffic generated by the scheme is expected to travel. An assessment was therefore undertaken in accordance with NE advice⁵ to determine whether a detailed air quality assessment was required. The guidance sets out a screening criteria for European sites located within 200 m of an affected road of a change in AADT flows on a given road of 1,000 LDVs or 200 HDVs.
- 5.2.8 During operation, the Proposed Development is anticipated to generate 300 AADT flows on the local network, with no HDV traffic generation. Based on Section 5.5 of the Transport Assessment, 19% of development traffic is expected to travel west, resulting in 78 vehicles passing within 200 m of the South Pennine Moors designation. As the predicted traffic change falls well below the NE screening threshold, road traffic impacts on the South Pennine Moors designation can be screened out and are considered not significant.
- 5.2.9 In-combination impacts were also considered as part of the screening assessment. A review of the Kirklees planning portal did not identify any consented or forthcoming applications within the past three years that are expected to generate significant traffic flows towards the designation.
- 5.2.10 The Proposed Development will not result in significant impacts upon existing human and ecological receptors and based on the WY, EPUK/IAQM and NE guidance detailed assessment work is not deemed necessary.

On-site Exposure

- 5.2.11 KC air quality monitoring data, DEFRA background pollutant concentrations, and the location of AQMAs were reviewed to assess future pollutant exposure across the Proposed Development.
- 5.2.12 A review of worse case local monitoring locations within Huddersfield Town Centre suggests that on site annual mean NO₂ concentrations are likely to be below the national AQOs. It is considered that comparisons can be drawn between monitoring sites K75 (Blackmoorfoot Road), K78 (Thorton Lodge Road) and the positioning of the Proposed Development in context of the A62 carriageway.
- 5.2.13 Both K75 and K78 are situated approximately 50 m from the A629 and are likely to provide a good representation of onsite concentrations when compared to the setting of the Proposed Development which is 40 m from the A629 roadside. As such, it is reasonable to assume that concentrations at proposed residential properties will be at worse equivalent to concentrations recorded by K75 and K78. Recent records show concentrations are well below the annual mean AQO with a maximum of 28.9 µg/m³ in recent years.

¹¹ <https://roadtraffic.dft.gov.uk/manualcountpoints/77649>

- 5.2.14 1-hour NO₂ concentrations are also unlikely to be exceeded at the Proposed Development site. Annual mean roadside monitoring results are well below 60 µg/m³ across the borough and as stated within LAQM (TG22) this annual mean threshold can be used as an indicator for hourly exceedances.
- 5.2.15 As there is no PM₁₀ monitoring available in the vicinity of the site, the estimate of on-site concentrations was informed by DEFRA background predictions. As presented in Table 5 predicted PM₁₀ background concentrations are well below the AQO (17.60 µg/m³). As the site is setback 40 m from the roadside onsite PM₁₀ concentrations are unlikely to exceed the annual mean AQO of 40 µg/m³.
- 5.2.16 Based on local authority monitoring data, DEFRA background concentrations and the distances to the closest A-roads and AQMAs, it is considered that acceptable pollutant concentrations would be present across the Proposed Development during occupation.

6.0 Mitigation

6.1 Construction Phase

6.1.1 The IAQM guidance³ provides several control measures to reduce fugitive dust impacts during the construction phase. These measures have been adapted based on professional judgment for the Proposed Development site and summarised in Table 10.

Table 10: Fugitive Dust Mitigation Measures

Impact	Control Measure and Requirement		
Communications	1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	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
	3	Display the head or regional office contact information	H
	4	Develop and implement a Dust Management Plan, which may include measures to control other emissions, approved by the Local Authority.	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
	6	Make the complaints log available to the local authority when asked	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
Monitoring	10	Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log available to the local authority when asked	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
Preparing & Maintaining Site	13	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	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
	15	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive time period	H
	16	Avoid site runoff of water or mud	H
	17	Keep site fencing, barriers and scaffolding clean using wet methods	H
	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.	H

Impact	Control Measure and Requirement		
	19	Cover, seed or fence stockpiles to prevent wind whipping	H
Operating Vehicle/Machinery & Sustainable Travel	21	Ensure all vehicles switch off engines when stationary - no idling vehicles	H
	22	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H
	23	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un- surfaced 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
	24	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials	H
	25	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)	D
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
	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
	28	Use enclosed chutes and conveyors and covered skips.	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
	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.	H
Waste Management	31	Avoid bonfires and burning of waste materials	H
Earthworks & Construction	36	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	D
	37	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable	D
	38	Only remove the cover in small areas during work and not all at once	D
	39	Avoid scabbling (roughening of concrete surfaces) if possible	D
	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.	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.	D
	42	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	D
Trackout	44	Avoid dry sweeping of large areas.	H
	45	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	H
	46	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	H

Impact	Control Measure and Requirement		
	47	Record all inspections of haul routes and any subsequent action in a site log book.	H
	48	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowzers and regularly cleaned.	H
	49	Implement a wheel washing system	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.	H
	51	Access gates to be located at least 10 m from receptors where possible.	H

*D – desired

*H – highly recommended

6.1.2 Assuming the relevant mitigation measures outlined in Table 10 are implemented, the residual effect from all dust generating activities (Step 4) is predicted to be negligible and therefore not significant in accordance with the IAQM guidance³.

6.2 Operational Phase

6.2.1 The results of operational phase assessment concluded that exposure and operation phase traffic impacts are predicted to be not significant. This is based on onsite pollutant concentrations complying with the national AQO and development traffic generation falling below relevant assessment thresholds.

6.2.2 However, in accordance with the WY guidance there are a number of good practice mitigation options that are expected to be considered to off-set road vehicle emission impacts. Default mitigation measures are presented in Table 11 for a medium scale development.

Table 11: Operation Phase Mitigation Measures

Type 1 – Minor Proposal Default Mitigation
1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking)
Type 2 – Medium Proposal Default Mitigation
Travel Plan including agreed mechanisms for discouraging high emission vehicle use and encouraging modal shift (i.e. public transport, cycling and walking) as well as the uptake of low emission fuels and technologies.
Improved pedestrian links to public transport stops.
Provision of new bus stops infrastructure including shelters, raised kerbing, information displays.
Provision of subsidised or free ticketing (Corporate and residential Metrocards, Student Metrocards).
Site layout to include improved pedestrian pathways to encourage walking
Improved convenient and segregated cycle paths to link to local cycle network.

7.0 Conclusions

- 7.1.1 A qualitative dust risk assessment was undertaken in accordance with the IAQM methodology to assess impacts and define a mitigation strategy. Assuming good practice and the implementation of suggested dust control measures, detailed in Table 10, residual impacts are predicted to be not significant.
- 7.1.2 The WY air quality assessment process determined that the proposals are classified as a type 2 medium development as per Table 9.
- 7.1.3 A review of representative KC monitoring data indicated that NO₂ and PM concentrations are expected to be below the relevant AQOs at all locations across the site. As such, on-site concentrations were screened as not significant.
- 7.1.4 To consider operation phase impacts, a screening assessment in line with the IAQM and WY guidance was undertaken to determine potential impacts upon human and ecological receptors. The Proposed Development is anticipated to generate a maximum of 300 AADT during operation which does not trigger relevant WY guidance or NE and IAQM assessment criteria. Road traffic impacts on all sensitive locations from the local road network were therefore screened as not significant.
- 7.1.5 In accordance with the WY guidance type 1 (minor) and type 2 (medium) default mitigation has been presented. The purpose of the default mitigation is to offset additional road vehicle emissions. The level of measures required within the Proposed Development will be discussed with KC and agreed prior to implementation.
- 7.1.6 Based on the assessment results, air quality is not considered a constraint to planning consent and the Proposed Development complies with the NPPF and KC planning policies.

8.0 Abbreviations

AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
ASR	Annual Status Report
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EPUK	Environmental Protection UK
EU	European Union
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
KC	Kirklees Council
LA	Local Authority
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
NE	Natural England
NGR	National Grid Reference
NO ₂	Nitrogen Dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
PM ₁₀	Particulate Matter with an aerodynamic diameter less than 10µm
PM _{2.5}	Particulate Matter with an aerodynamic diameter less than 2.5µm
WY	West Yorkshire
WYLES	West Yorkshire Low Emission Strategy

Appendix A – IAQM Construction Phase Methodology

Construction Phase Methodology

There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the IAQM guidance³. Activities are divided into four types to reflect their different potential impacts. These are:

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

The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust 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 and PM_{2.5}.

The assessment steps are detailed below.

Step 1

Step 1 screened the requirement for a more detailed assessment. Should human receptors be identified within 350m from the site boundary or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment should proceed to Step 2. Additionally, should ecological receptors be identified within 50m of the boundary site or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment should also proceed to Step 2.

Should sensitive receptors not be present within the relevant distances then negligible impacts would be expected and further assessment is not necessary.

Step 2

Step 2 assessed the risk of potential dust impacts. A site is allocated to a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

The two factors were combined in Step 2C to determine the risk of dust impacts without mitigation applied. Step 2A defined the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table A1.

Table A1: Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	- Total building volume greater than 50,000 m³ - Potentially dusty construction material (e.g. concrete) - On-site crushing and screening - Demolition activities greater than 20m above ground level
	Earthworks	- Total site area greater than 10,000 m² - Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) - More than 10 heavy earth moving vehicles active at any one time - Formation of bunds greater than 8m in height - More than 100,000 tonnes of material moved
	Construction	- Total building volume greater than 100,000 m³ - On site concrete batching - Sandblasting
	Trackout	- More than 50 Heavy Duty Vehicle (HDV) trips per day - Potentially dusty surface material (e.g. high clay content) - Unpaved road length greater than 100m
Medium	Demolition	- Total building volume 20,000m³ to 50,000m³ - Potentially dusty construction material - Demolition activities 10m to 20m above ground level
	Earthworks	- Total site area 2,500 m² to 10,000 m² - Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time - Formation of bunds 4m to 8m in height - Total material moved 20,000 tonnes to 100,000 tonnes
	Construction	- Total building volume 25,000 m³ to 100,000 m³ - Potentially dusty construction material (e.g. concrete) - On site concrete batching
	Trackout	10 to 50 HDV trips per day - Moderately dusty surface material (e.g. high clay content) - Unpaved road length 50 m to 100 m
Small	Demolition	- Total building volume under 20,000 m³ - Construction material with low potential for dust release (e.g. metal cladding or timber) - Demolition activities less than 10m above ground level - Demolition during wetter months
	Earthworks	- Total site area less than 2,500 m² - Soil type with large grain size (e.g. sand) - Less than 5 heavy earth moving vehicles active at any one time - Formation of bunds less than 4 m in height - Total material moved less than 20,000 tonnes - Earthworks during wetter months
	Construction	- Total building volume less than 25,000 m³ - Construction material with low potential for dust release (e.g. metal cladding or timber)

Magnitude	Activity	Criteria
	Trackout	<10 HDV (3.5t) outward movements in any one day - Surface material with low potential for dust release - Unpaved road length <50 m

Step 2B defines the sensitivity of the area around the development site for construction, earthworks and trackout. The factors influencing the sensitivity of the area are shown in Table A2.

Table A2: Examples of Factors Defining Sensitivity of an Area

Sensitivity	Receptors	
	Human	Ecological
High	- Users expect of high levels of amenity - High aesthetic or value property - People expected to be present continuously for extended periods of time - Locations where members of the public are exposed over a time period relevant to the AQO for PM₁₀ e.g. residential properties, hospitals, schools and residential care homes	Internationally or nationally designated site e.g. Special Area of Conservation
Medium	- Users would expect to enjoy a reasonable level of amenity - Aesthetics or value of their property could be diminished by soiling - People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	Nationally designated site e.g. Sites of Special Scientific Interest
Low	- Enjoyment of amenity would not reasonably be expected - Property would not be expected to be diminished in appearance - Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, playing fields, farmland, footpaths, short term car park and roads	Locally designated site e.g. Local Nature Reserve

The sensitivity of the area to dust soiling effects on people and property is shown in Table A3.

Table A3: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 350
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

Table A4 outlines the sensitivity of the area to human health impacts.

Table A4: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium	Low
		10 - 100	High	High	Medium	Low	Low

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

Table A5 outlines the sensitivity of the area to ecological impacts.

Table A5: Sensitivity of the Area to Ecological Impacts

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

Step 2C combined the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts.

Table A6 outlines the risk category from demolition activities.

Table A6: Dust Risk Category from Demolition

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Medium
Medium	High	Medium	Low
Low	Medium	Low	Negligible

Table A7 outlines the risk category from earthworks and construction activities.

Table A7: Dust Risk Category from Earthworks and Construction

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

Table A8 outlines the risk category from trackout.

Table A8: Dust Risk Category from Trackout

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Low	Negligible
Low	Low	Low	Negligible

Step 3

Step 3 required the identification of site-specific mitigation measures within the IAQM guidance to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with negligible risk mitigation measures beyond those required by legislation were not required. However, additional controls may be applied as part of good practice.

Step 4

Once the risk of dust impacts had been determined and the appropriate mitigation measures identified, the final step was to determine the significance of any residual impacts. For almost all construction activity, the aim was to control effects using effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be not significant.

Appendix B - WYLES Air Quality and Emissions Technical Planning Guidance

The WY guidance outlines an assessment approach with the overall aim of sustaining and further promoting healthy and sustainable communities and encouraging emissions reductions associated with proposed developments.

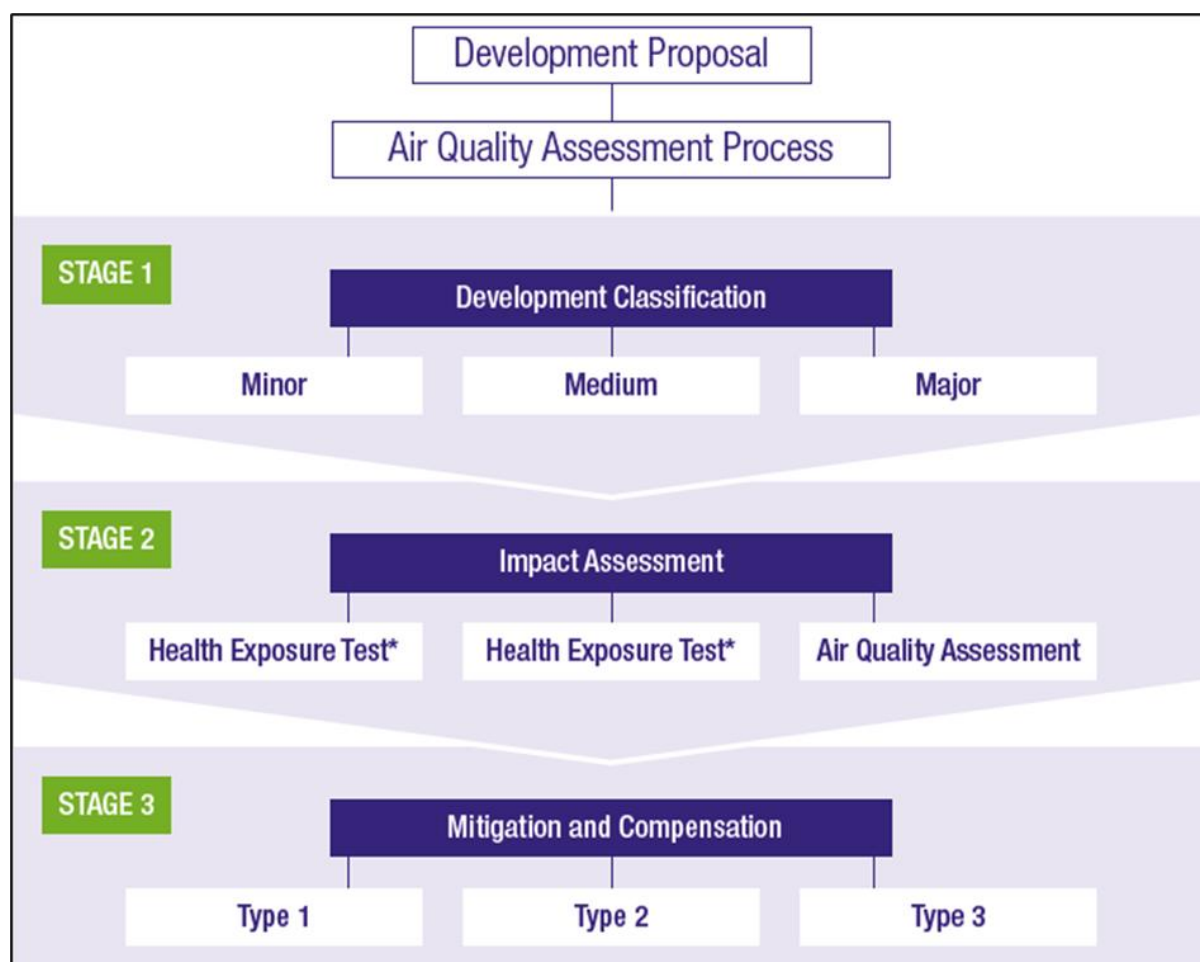
The approach uses specific screening criteria to determine the scale and location of the Proposed Development, which is compared against the details of a Proposed Development. The process identifies the level of assessment required to consider on-site exposure and off-site impacts. The process also defines best practice mitigation measures to offset associated impacts.

The assessment process follows a three stage process:

- Stage 1: Determining the classification of the development proposal;
- Stage 2: Assessing and quantifying the impact on local air quality; and
- Stage 3: Determining the level of mitigation required by the proposal to meet Local Development Plan requirements.

The assessment process is also summarised in the flow chart presented in Figure B1.

Figure B1. - The Air Quality Assessment and Mitigation Flow Chart



** There is no safe level for exposure to particulate pollution, however all applications must ensure as a minimum a proposal does not expose existing or future residents to levels of pollutants above the AQOs.*

Air Quality and Emissions Mitigation Assessment Process

The process shown in Figure 1 involves a staged process:

Stage 1 - Development Type Classification

The three levels of development classification were determined using the Department for Transport (DfT) criteria¹². These are outlined in Table B1.

Table B1: Criteria for Development Classification

Land Use	Description	Criteria
Food Retail (A1)	Retail sale of food goods to the public - supermarkets, superstore, convenience food store	> 800m ² Gross Floor Area (GFA)
Non-Food Retail (A1)	Retail sale of non-food goods to the public; but includes sandwich bars or other cold food purchased and consumed off site	> 1,500m ² (GFA)
Financial and professional services (A2)	Banks, building societies and bureaux de change, professional services, estate agents, employment agencies, betting shops	> 2,500m ² (GFA)
Restaurants and Cafes (A3)	Use for the sale of food for consumption on the premises	> 2,500m ² (GFA)
Drinking Establishments (A4)	Use as a public house, wine-bar for consumption on or off the premises	> 600m ² (GFA)
Hot Food Takeaway (A5)	Use for the sale of hot food for consumption on or off the premises	> 500m ² (GFA)
Business (B1)	(a) Offices other than in use within Class A2 (financial & professional) (b) Research & development – laboratories, studios (c) Light industry	> 2,500m ² (GFA)
General industrial (B2)	General industry (other than B1).	> 4,000m ² (GFA)
Storage or Distribution (B8)	Storage or distribution centres - wholesale warehouses, distribution centres & repositories	> 5,000m ² (GFA)
Hotels (C1)	Hotels, boarding houses & guest houses	> 100 bedrooms
Residential Institutions (C2)	Hospitals, nursing homes used for residential accommodation and care	> 50 beds
Residential Institutions (C2)	Boarding schools and training centres	> 150 students
Residential Institutions (C2)	Institutional hostels, homeless centres	> 400 residents
Dwelling Houses (C3)	Dwellings for individuals, families or not more than six people in a single household	> 50 units
Non-Residential Institutions (D1)	Medical & health services, museums, public libraries, art galleries, non-residential education, places of worship and church halls	> 1,000m ² (GFA)

¹² <http://webarchive.nationalarchives.gov.uk/20100409053417/http://www.dft.gov.uk/adobepdf/165237/202657/guidanceontaappendixb>.

Land Use	Description	Criteria
Assembly and Leisure (D2)	Cinemas, dance & concert halls, sports halls, swimming, skating, gym, bingo, and other facilities not involving motorised vehicles or firearms	> 1,500m ² (GFA)
Other: 1. Any development generating 30 or more two-way vehicle movements in any hour 2. Any developments generating 100 or more two-way vehicle movements per day 3. Any development proposing 100 or more parking spaces 4. Any relevant development proposed in a location where the local transport infrastructure is inadequate 5. Any relevant development proposed in a location adjacent to an AQMA		

The development classification is defined in accordance with the following principles:

1. **MINOR:** Development proposals that fall below the criteria in Table B1.
2. **MEDIUM:** Development proposals that meet the requirements in Table B1.
3. **MAJOR:** Development proposals that meet the requirements in Table B1 and the additional criteria set out in Table B2.

Additional Trigger Criteria for Major Developments

Table B2: Additional Trigger Criteria for Major Developments

Description
Where the proposed development falls within the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 and includes air quality and/or transport as a specific likely impact;
Proposals located within an AQMA;
Proposals that could increase the existing traffic flow on roads of > 10,000 Annual Average Daily Traffic (AADT) by 5% or more;
Proposals that increase traffic 5% on road canyons with > 5,000 AADT;
Proposals that could introduce or significantly alter congestion (DfT Congestion) and includes the introduction of substantial road infrastructure changes;
Proposals that reduce average speeds by more than 10kph;
Proposals that include additional HDV movements by more than 10% of total trips; and
Where significant demolition and construction works are proposed.

Stage 2 - Air Quality Impact Assessment

Minor and Medium Developments

Smaller development proposals may not in themselves create an additional air quality problem but will add to local air pollution and potentially introduce more people likely to be exposed to existing levels of poor air quality. An assessment of the likelihood of introducing additional exposure will be determined using the following criteria:

- The proposal is adjacent to or within an AQMA;
- The proposal is in a location 20m from roads at or above the relevant national objective highlighted on the DEFRA GIS modelled maps;

- The proposal is one of the Land Use types:
 - C1 to C3 in Table B1;
 - C4 (Homes of Multiple Occupation); and
 - D1 in Table B1
- The proposal is within 20m of roads with > 10,000 AADT.

The outcome of the exposure assessment will determine the level of mitigation required make the development acceptable. Should there be no acceptable mitigation the recommendation to the planning officer will be to consider refusing the proposal on air quality grounds.

Major Developments

The scale and nature of this type of proposal is such that a detailed air quality assessment will be required to determine the impact on public health and the local environment. The assessment requires the identification of the level of exposure through the change in pollutant concentrations including cumulative impacts arising from the proposal, during both demolition/construction operations and operational phases. Mitigation measures should be identified and modelled where practicable.

The calculation of pollutant emissions costs from the development.

- A. The methodology to be used for the determination of pollutant concentration change should meet the requirements of the LAQM TG(22)².
- B. The pollutant emissions costs calculation will identify the environmental damage costs associated with the proposal and determine the amount (value) of mitigation that is expected to be spent on measures to mitigate the impacts. The calculation utilises the most recent DEFRA Emissions Factor Toolkit ⁴ to estimate the additional pollutant emissions from a proposed development and the latest DEFRA IGCB Air Quality Damage Costs for the specific pollutant of interest, to calculate the resultant damage costs⁵. The calculation process includes:
 - Identifying the additional trip rates generated by the proposal (from the Transport Assessment);
 - The emissions calculated for the pollutants of concern (NO_x and PM₁₀)
 - The air quality damage costs calculation for the specific pollutant emissions
 - The result is totalled for a five year period to enable mitigation implementation.

The calculation is summarised in the DEFRA guidance¹³ which provides further details on the damage cost process.

Stage 3 – Mitigation

The outcome of Stage 2 (Assessment) identifies the level of air quality impact and is then used to determine the level of mitigation required to negate the potential effects upon health and the local environment.

¹³ <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance>

The scale of damage cost will determine the level of appropriate mitigation required for specific proposals. Measure identification will be assisted by:

- Outcomes from the Transport Statement/Assessment;
- Specific needs identified in site specific spatial policy allocations;
- Travel Awareness/Planning and/or Highway Development where these are required;
- DEFRA's air quality guidance (Defra Measures Guidance)

Default mitigation measures are presented for each type of proposal that demonstrate a minimum requirement.

TYPE 1 (Minor) Proposal Mitigation:

If the proposal meets the exposure criteria in Stage 2, further mitigation is required to reduce the level of exposure. This will be in the form of:

- Possible short term screening monitoring or utilising the distance calculation provided by Defra (DEFRA Distance) at the proposed location to identify the level of exposure;
- Redesigning the proposal to reduce the ingress of pollution;
- Including a stand-off distance and/or vegetation boundary from the development.

Table B3 provides the minor default mitigation.

TYPE 1 (Minor) Proposal Default Mitigation

Table B3: Type 1 - Minor Proposal Default Mitigation

Development	Mitigation
Residential	1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking)
Commercial/Retail:	10% of parking spaces which may be phased with 5% initial provision and the remainder at an agreed trigger level.
Industrial:	10% of parking spaces which may be phased with 5% initial provision and the remainder at an agreed trigger level.
Demolition/Construction	Adherence to the IAQM Best Practice Guidance ³ for all demolition and construction works

TYPE 2 (Medium) Proposal Mitigation:

Proposals meeting the Type 2 criteria in table 1 will require a detailed Travel Plan. In respect of the Travel Plan it is essential that:

- The content of the travel plan is fully assessed prior to its approval in conjunction with local authority travel plan and highway development control officers. Pre-application advice will be essential.
- The agreed targets and objectives included in the travel plan are secured for implementation by mutual agreement of the local authority and the developer/applicant (normally by means of a Section 106 agreement).
- The outputs of the travel plan (typically trip levels and mode split) are annually monitored

against the agreed targets and objectives.

- Should the travel plan not deliver the anticipated outputs or meet the targets and objectives further mitigation/alternative/compensation measures need to be identified and implemented.
- A named co-ordinator is essential to the success of the travel plan. For larger schemes a commitment in terms of staff resource allocation will be expected.

Table B4 provides the medium default mitigation.

TYPE 2 (Medium) Proposal Default Mitigation

Table B4: Type 2 – Medium Proposal Default Mitigation

Development	Mitigation
Residential	Travel Plan including agreed mechanisms for discouraging high emission vehicle use and encouraging modal shift (i.e. public transport, cycling and walking) as well as the uptake of low emission fuels and technologies.
	Improved pedestrian links to public transport stops.
	Provision of new bus stops infrastructure including shelters, raised kerbing, information displays.
	Provision of subsidised or free ticketing (Corporate and residential Metrocards, Student Metrocards).
	Site layout to include improved pedestrian pathways to encourage walking.
	Improved convenient and segregated cycle paths to link to local cycle network.
Commercial Specific:	All commercial vehicles should comply with current or the most recent European Emission Standards from scheme opening, to be progressively maintained for the lifetime of the development.
	Fleet operations should provide a strategy for reducing emissions, including the uptake of low emission fuels and technologies such as ultra-low emission service vehicles.

TYPE 3 (Major) Proposal Mitigation:

The pollution damage costs attributed to the proposal emission changes will determine the level of mitigation compensation required to offset impacts. A list of measures beyond the proposal scheme design are listed below. The type, scale of measures will be agreed with the planning authority.

Table B5 provides the medium default mitigation.

Table B5: Type 3 – Major Proposal Default Mitigation

Support measures to reduce the need to travel:
Alternative working practices – flexitime, teleworking, homeworking, videoconferencing, compressed work periods.
Local sourcing of staff, products and raw materials.
Development and use of hub distribution centres employing low emission deliveries.
Provision of discounted on-site shopping, eating, child-care, banking facilities.
Support measures to reduce polluting motorised vehicle use:
Development of car clubs and car sharing with financial incentives and promotion.
Use of pooled low emission vehicles – cars, vans, taxis, bicycles.
Support smart driving training schemes.

Provision of dedicated low emission shuttle bus including managed pick-up and drop-off.
Contribution to the emerging low emission vehicle refuelling infrastructure.
Contribution to site low emission waste collection services.
Incentives for the take-up of low emission vehicle technologies and fuels.
Measures to support improved public transport:
Provision of new or enhanced public transport services to the site.
Shuttle services to public transport interchange, rail station or park and ride facilities.
Support improving information systems for public transport.
Supporting city free bus expansion schemes.
Promoting low emission bus service provision.
Support air quality monitoring programmes
Further measures to promote walking and cycling:
Improvements to district walking and cycling networks including lighting, shelters, and information points and timetables.
Support cycle training and awareness schemes.
Bike/e-bike hiring schemes.
Guaranteed ride home in emergencies.
Support secure and safe cycle parking facilities.
Measures to promote sustainable travel plans:
Support local travel to school and school travel plans initiatives.
Marketing aimed at persuading a switch to sustainable modes with incentives;
Promotion of subsidised/sponsored travel plan measures through social and other media.
Supporting community/ local organisation groups to promote sustainable travel.

Such agreed measures will be taken forward by condition where possible, or through the use of Section 106 agreements.

Mitigation Statements

Each development will require a brief mitigation statement which must include:

- The calculated damage cost (Major proposals).
- Proposed mitigation/compensation measures.
- Estimated mitigation cost (Major proposals) that is equivalent to the value of the emissions calculation (appropriate to the type and size of development and local policy requirements);

A proposed demolition/construction management plan that includes:

- A brief project description and likely sources of dust emissions;
- Measures to be adopted to minimise dust emissions;
- Emergency measures to be adopted in the event of unforeseen circumstances;
- Incident logging and reporting procedures.

Validation checklist

A completed checklist is required for each of the proposals.



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