Smith Grant
Environmental Consultancy

Town & Country Planning Act 1990
Section 78 Appeals

Proposed Sand and Gravel Quarry, Mytax Farm, 4 Bourbles Lane, Preesall

Evidence of:

Katrina Early Hawkins
Smith Grant LLP

DUST and AIR QUALITY

On behalf of: Baxter Group Ltd

Planning Inspectorate Reference: APP/6002168

Local Authority Reference: LCC/2023/0030

March 2026

MYTAX FARM, 4 BOURBLES LANE, PREESALL
PROOF OF EVIDENCE: DUST & AIR QUALITY

For: Baxter Group Ltd

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Appendices (APP/KEH/3) (Bound Separately)

1. Introduction

1.1. Experience and Qualifications

1.1.1. My name is Katrina Hawkins. I hold a First Class BSc (Hons) degree in Chemistry from the University of Nottingham and MSc degree in Environmental Pollution Control from the University of Leeds. I am a Chartered Environmentalist, a Member of the Institute of Air Quality Management, a Member of the Institute of Environmental Sciences and a Member of the Institute of Environmental Management and Auditing.

1.1.2. I have been in practice as an environmental consultant for over 30 years specialising in air, land, and water pollution. I was employed as a Consultant, and later a Technical Director, by RPS Consultants Ltd for eleven years. I am currently Chairman of Smith Grant LLP (SGP), an environmental consultancy based in Wrexham, North Wales, having been a Partner of SGP since 2005.

1.1.3. SGP specialises in air quality and contaminated land investigation and remediation. I have undertaken an extensive number of dust and air quality assessments on behalf of both the private and public sector for a wide range of developments across the UK. Of particular relevance to this Appeal, I have carried out numerous assessments of potential dust and other aerial emissions from mineral extraction facilities, along with other waste management and industrial activities.

1.1.4. I have acted as an Expert Witness at several public inquiries in relation to dust and air quality matters, including recently on behalf of Hanson UK in relation to a successful Appeal regarding a proposed physical extension and extension of time of sandstone quarry.

1.2. Instructions and Scope of Evidence

1.2.1. My evidence has been prepared in relation to the refusal of planning permission by Lancashire County Council (LCC) for the planning application submitted by Greenfield Environmental Ltd. on behalf of Baxter Construction Ltd. ('the Appellant') in 2023 for a sand and gravel quarry with phased extraction and restoration on Land off Bourbles Lane, Preesall ('the Site').

1.2.2. Baxter Group Ltd is appealing the refusal (Appeal ref: APP/6002168).

1.2.3. In preparing this evidence I have reviewed the relevant documentation and guidance as set out in the Core Documents and appendices to my Proof. As part of this preparation, I visited the site and surrounding area in January 2026.

1.2.4. My evidence briefly sets out the background information to the site and proposed operations. My Proof primarily addresses the 'dust' (particulate matter) related reason for refusal and potential impacts on local amenity and air quality in response to the comments set out in the LCC

Statement of Case (SoC). My Proof also deals with other air quality matters in response to comments raised in the Rule 6 Party SoC and other objectors.

1.2.5. My evidence is structured in the following sections:

- Section 2: outline of relevant legislation, planning policy and guidance;
- Section 3: review of relevant submitted application information, consultee responses, reason for refusal, statement of case and third party objections;
- Section 4: summary description of the current site setting, nearby development and Proposed Development;
- Section 5: appraisal of potential dust impacts on local amenity associated with the Proposed Development;
- Section 6: appraisal of potential dust impacts on local air quality associated with the Proposed Development;
- Section 7: appraisal of other potential impacts associated with aerial emissions;
- Section 8: summary and conclusions.

1.2.6. My evidence should be read in conjunction with the other evidence provided as part of the Appeal, including the Appellant's Statement of Case and in particular the evidence on planning matters prepared by Mr Liam Toland of Kedd Ltd, and the proposed quarry operations and mineral working scheme prepared by Mr Simon Rees, Greenfield Environmental.

1.2.7. A topic-specific Statement of Common Ground (SoCG) has been agreed on dust and air quality related matters. Common ground has been reached on factual circumstances of the site; points of disagreement are discussed further in Section 3.

1.3. Declaration

1.3.1. I am aware that my professional responsibility is to assist the inquiry to present my untrammelled evidence, irrespective of by whom I am instructed. Thus, I can confirm that the evidence which I have prepared and provide for this Appeal is true to the best of my knowledge and I confirm that the opinions expressed are my true and professional opinions in the matters to which they refer.

2. Legislation, Planning Policy, and Relevant Guidance

2.1. Technical Context

2.1.1. Mineral extraction, processing, and handling operations can give rise to releases of airborne particulate matter (PM) (also referred to as 'dust'). The nature and quantity of airborne PM released at any one time will depend on a wide variety of factors including, but not limited to, the nature of the material being handled, the quantity of materials being handled, the handling processes incorporated, and the weather conditions at the time of handling.

2.1.2. Airborne PM is made up of condensed phase (solid or liquid) particles suspended in the atmosphere and comes from both man-made and natural sources. Particulate matter ranges in sizes from only a few nanometres to around 100µm. The size of the particle influences the aerodynamic and gravitational effects that determine the distance it travels and how long it stays suspended in the air before settling onto a surface.

2.1.3. The deposition and subsequent accumulation of dust on a surface can result in disamenity due to soiling (referred to as 'disamenity dust'). Dust soiling arises from the unwelcome deposition of particulate matter in all size fractions but will be associated mostly with particulate matter greater than 30 µm. Dust accumulation might also affect sensitive habitats through direct impacts on vegetation and aquatic ecosystems from dust deposition and indirect impacts on fauna (e.g., on foraging habitats).

2.1.4. Smaller particles fall out of the atmosphere very slowly remaining suspended in the air for longer distances (referred to as 'suspended particulate matter'). Particles of aerodynamic diameter less than 10 µm (referred to as 'PM_{10}') correspond to the inhalable fraction of particulate matter and, depending on the nature and concentrations of the particles, can be associated with adverse health impacts. PM_{10} includes both fine (those particles of aerodynamic matter less than 2.5 µm; referred to as $PM_{2.5}$) and coarse (diameter between 2.5-10µm; $PM_{2.5-10}$) fractions of suspended particulate matter. These normally arise from different sources, and for quarries most of the suspended dust would be in the coarse fraction.

2.1.5. The use of diesel and petrol fuelled combustion engines for on-road transport, on-site non-road mobile machinery (NRMM), and on-site plant will also result in exhaust emissions. The principal emissions of interest are oxides of nitrogen (NO_x; comprises nitrogen dioxide (NO_2) and nitric oxide (NO)) and PM. NO itself is not considered harmful to human health. However, on release to the atmosphere it usually rapidly oxidises to NO_2, which is associated with adverse effects on human health.

2.1.6. Road transport is also a source of primary PM_{10} both as direct emissions through vehicle exhausts and as indirect emissions through tyre and brake wear, re-suspension of particulate

matter on the road and road wear (mechanical abrasion and corrosion). Road transport may also be responsible for secondary PM formed via gas-to-particle conversion.

2.1.7. The legislative and planning policy context in relation to these potential aerial emissions are discussed further below in sub-sections 2.2-2.4.

2.2. Legislative Context

Air Quality Strategy

2.2.1. In January 2019 Defra published the **Clean Air Strategy** which outlined a comprehensive suite of actions required across all parts of Government to improve air quality and maximise public health benefits. This included national regulations to reduce emissions from domestic burning, industry and farming, alongside stronger powers, and an improved framework for local government to tackle more localised issues, as well as a commitment to set a legally binding target for $PM_{2.5}$.

2.2.2. Under the Environment Act 1995, as amended by the Environment Act 2021, the UK Government and the devolved executives are required to produce a national air quality strategy ('AQS') every 5 years. The AQS is to provide an over-arching strategic framework for air quality management in the UK setting out a framework to enable local authorities to contribute to long-term air quality goals and setting out standards, objectives, and measures for improving ambient air quality.

2.2.3. In April 2023 the UK Government published the **2023 Air Quality Strategy: Framework for Local Authority Delivery** ('2023 AQS') which sets out a strategic framework for local authorities and other partners. It supersedes an earlier 2007 AQS (in respect of England only). The 2023 AQS includes previously established standards that have been are set for specific pollutants deemed to pose a risk for human health or other receptors, a number of which were derived from the EU limit and target values, although requirements for compliance varied. The strategy also includes new standards for $PM_{2.5}$ comprising legally binding targets which have been established under the Environment Act 2021 and the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, and non-legally binding targets as set out in the Environmental Improvement Plan 2023. In December 2025 Defra issued an **Air Quality Environment Act target delivery plan** setting a new interim non-legal target for $PM_{2.5}$ (December 2025, CD12.08).

Air Quality Standards for Human Health

2.2.4. Ambient air quality standards in the UK have been established through the combination of transposition of European legislation and additional UK legislation and requirements. Following the departure of the UK from the EU the air pollution limits established under EU requirements remain in place having been enshrined in UK law, the principal legislation being the Air Quality Standards Regulations 2010 (as amended) which implemented EU Directives 2008/50/EC and 2004/107/EC.

2.2.5. In addition, Part IV of the Environment Act 1995 imposes a duty on local authorities in the UK to review existing and projected air quality in their area. Any location likely to exceed the UK Air Quality Objectives (AQOs) must be declared an Air Quality Management Area (AQMA) and an Air Quality Action Plan (AQAP) prepared and implemented, with the aim of achieving the objectives. This process is referred to as Local Air Quality Management (LAQM). The LAQM process is supported by national statutory policy (CD12.09) and technical guidance (CD1210) provided by Defra. The standards and objectives relevant to the LAQM framework are prescribed through the Air Quality (England) Regulations 2000. Revised versions of the Defra LAQM policy and technical guidance has been issued since the preparation of the Vibrock AQAs but this has no material effect on those assessments. There is no AQMA local to the Appeal Site.

2.2.6. The pollutants that must be assessed under the LAQM Framework include NO_2 and PM_{10}, but not $PM_{2.5}$ which is recognised as a regional pollutant for which many sources are outside local authority control. PM_{10} remains the focus for local authorities with regards to suspended particulate matter. Local authorities are however expected to take appropriate measures to reduce $PM_{2.5}$ emissions from the sources that are within their control.

2.2.7. Following the Environment Act 2021 local authorities who have not had to designate AQMAs or produce AQAPs are now required to draw up a Local Air Quality Strategy detailing how the Council intends to address air quality and ensure levels of pollutants re controlled and reduced.

2.2.8. The air quality objectives (AQOs) and other appropriate standards were provided in Table 1 of the Vibrock Air Quality Assessment (CD1.22) and Table 1 of the Vibrock Updated Air Quality Assessment report submitted within the application (CD3.06).

2.2.9. For ease the current AQOs and other standards of specific relevance to the Site and Proposed Development with regards to protection of human health, referred to in this Proof as Air Quality Assessment levels (AQALs), are summarised in Table 2.1 below.

Table 2.1: Relevant Air Quality Assessment Levels (AQALs)

Pollutant	AQAL	Averaging period
To be currently achieved		
PM_{10}	40 µg/m^3	annual mean
	50 µg/m^3	24-hour mean, not to be exceeded more than 35 times per annum
$PM_{2.5}$	20 µg/m^3	annual mean
	% reduction relative to average exposure indicator (AEI), dependant on initial concentration; to at least 10 µg/m^3	annual mean
NO_2	40 µg/m^3	annual mean
	200 µg/m^3	hourly mean, not to be exceeded more than 18 times per annum

Pollutant	AQAL	Averaging period
Future standards		
$PM_{2.5}$	12 µg/m^3 (interim non-legal target; *to be achieved by 2028)*	annual mean
	reduction in population exposure of 22% compared to 2018 *by 2028*	annual mean
	10 µg/m^3 (new interim target; *to be achieved by 2030)*[2]	annual mean
	reduction in population exposure of 30% compared to 2018 (*new interim target to be achieved by 2030*[2]	annual mean
	10 µg/m^3 (legal target; to be achieved by 2040)	annual mean
	reduction in population exposure of 35% compared to 2018 *by 2040*	annual mean

1: $PM_{2.5}$ –responsibility for meeting the $PM_{2.5}$ target sits with national government.

2.2.10. The new legal targets that have been established for $PM_{2.5}$ under the Environment Act 2021 and subsequent regulations are to be achieved by 2040. These are national targets that the government must achieve and have been set to both reduce concentrations and drive down the population's exposure to $PM_{2.5}$. The interim targets that are to be achieved by 2028 and 2030 are not legally binding and have been established to reflect the progress the government makes towards meeting the 2040 targets. The context of these targets with regards the proposed development are discussed more in Section 6.

2.2.11. Given the very low emission and background rates discussed below – the point is one of academic interest in the circumstances of this case, however, since the above are non-legally binding targets rather than formal standards – they have a reduced status when compared to the standards which UK Government advocates that the development industry are required to work to.

2.2.12. Ambient air refers to the outdoor air and excludes workplaces where members of the pubic do not have regular access. Advice is given in Defra guidance as to where the UK AQOs should apply, as summarised in Table 2.2 below:

Table 2.2: Summary of where the AQOs should apply

Averaging period	Locations where the objective should apply
Annual mean	All locations where members of the public might be regularly exposed; including facades of residential properties, schools, hospitals, care homes etc
24-hour mean and 8-hr mean	All locations where the annual mean objectives apply together with hotels and gardens of residential properties
1-hour mean	All locations where the annual mean, 24-hour and 8-hour means apply; also kerbside Sites, parts of car parks, bus stations and railway stations which are not fully enclosed and any outdoor locations where members of the public might reasonably be expected to spend 1 hour or longer.
15-min mean	All locations where members of the public may be reasonably exposed for a period of 15 minutes.

Note: the AQOs do not apply at building facades or other places of work where members of the public do not have regular access

'Disamenity Dust' - Dust Standards and Control

2.2.13. Deposition dust as such is not regulated as a pollutant under air quality regulations and there are no UK statutory or recommended levels that define the point when deposited dust causes annoyance or disamenity ('disamenity dust'). Instead, a number of 'custom and practice' thresholds are referred to in conjunction with other criteria such as the frequency of occurrence. Where possible, site-specific thresholds are derived taking into account baseline values.

2.2.14. Public concerns in relation to dust accumulation and soiling may be related to a range of factors including the nature of a site and locality and baseline levels. Controls of soiling and annoyance impacts are typically achieved through conditions within planning permissions and / or Environmental Permits requiring the implementation of a dust management plan to prevent amenity impacts.

Other Relevant Legislation

2.2.15. The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 implemented EU regulations 2016/1628 and impose increasingly stringent emission limits to the engines of NRMM and power plant with the aim of progressively reducing the emissions and phasing out polluting equipment from 2019.

2.2.16. In addition, vehicle emission limits for new cars, vans and HGVs in Europe have been progressively tightened since the early 1990s. Separate standards are provided for cars and vans, with the Euro 6 standards applying to all new cars and vans sold after September 2015 and the Euro VI standards being applicable to all HGVs sold after September 2015. As the older vehicle fleets are gradually replaced, a progressive reduction in emissions is achieved.

2.3. Planning Policy, Best Practice and Guidance

National Planning Policy and Guidance

- National Planning Policy Framework (NPPF): in particular paragraphs 187, 198, 199 (extracts provided in Appendix KEH1);
- Planning Practice Guidance regarding Air Quality (nPPG-AQ, CD12.07);
- Planning Practice Guidance on Minerals (PPG-M, CD12.05); in particular paragraphs 023-032; (extracts provided in Appendix KEH2);
- National Planning Policy for Waste (NPPW); in particular paragraph 7 and Annex B (extracts provided in Appendix KEH3);

Local Planning Policy

- Joint Lancashire Minerals and Waste Local Plan: Site Allocation and Development Management Policies (adopted September 2013); in particular Policy DM2: Development Management (CD7.02; extracts provided in Appendix KEH4);
- Joint Lancashire Minerals and Waste Development Framework: Core Strategy Development Plan Document: Managing our Waste and Natural Resources (adopted February 2009); in particular Policy CS5: Achieving Sustainable Minerals Production (CD7.01: extracts provided in Appendix KEH5);
- Adopted Wyre Local Plan 2011-2031 (incorporating partial update of 2022) (adopted January 2023); in particular Policy CDMP1: Environmental Protection (CD7.04: extracts provided in Appendix KEH6);

National Best Practice and Guidance

- Institute of Air Quality Management (IAQM): Planning for Air Quality (CD112.12),
- Institute of Air Quality Management (IAQM): Guidance on the Assessment of Mineral Dust Impacts for Planning (CD12.11),
- Institute of Air Quality Management (IAQM): Guidance on the Assessment of Dust from Demolition and Construction (CD12.13),
- Defra, Local Air Quality Management, Policy Guidance LAQM PG(22), May 2025 (CD12.09)
- Defra, Local Air Quality Management, Technical Guidance, LAQM TG(22), May 2025 (CD12.10)

2.3.1. In addition, Defra is developing guidance for developers and planning authorities on how to consider the new legal air quality targets for $PM_{2.5}$ in planning decisions. A consultation on the new approach and guidance was expected to be published in 2025. In the meantime, Defra has issued interim guidance to provide developers and planning authorities with clarity on how to consider the new targets whilst the full guidance is under development (CD12.08).

2.3.2. The interim guidance sets out that whilst achievement of the targets will be assessed at relevant monitoring sites across the UK, the targets apply to ambient air across the UK. Applicants and Local Planning Authorities should therefore consider the impact of developments on air quality in all ambient air, whether or not a monitor is in place. The interim guidance sets out a series of questions to be used as prompts to support the interim process. This interim guidance was issued since the Vibrock AQAs and the implications with regards the proposed development are discussed further below in Section 6.

2.3.3. Guidance to the mineral industry is also provided in the following documents:

- AEA, Management, Mitigation and Monitoring of Nuisance Dust and PM_{10} Emissions arising from the Extractive Industries: An Overview, February 2011 (CD12.16);
- AEA, Good Practice Guide: Control and Measurement of Nuisance Dust and PM_{10} Emissions arising from the Extractive Industries, February 2011 (CD12.14).

2.4. Key Policy Considerations

2.4.1. The NPPF provides some guidance to local authorities on taking dust and air pollution into account in planning policies and decisions.

2.4.2. Paragraph 187 of the Framework states: '*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*.'

2.4.3. Similarly, Policy DM2 from the Joint Lancashire Minerals and Waste Local Plan states that minerals development will be supported where it can be adequately demonstrated that harm can be eliminated or reduced to ***acceptable*** *levels*. Policy CDMP1 from the Wyre Local Plan states that development should not have a ***significant*** *adverse effect* on health or amenity in with reference to dust and pollution.

2.4.4. These policies do not therefore require that all adverse effects be prevented. They seek instead to avoid impacts and effects that are found to be unacceptable, a balance needs to be drawn in all cases. Neither is there any specific policy to the effect that even an unacceptable impact or adverse effect will automatically, or always, lead to the refusal of planning permission.

2.4.5. I have therefore in my evidence considered the risk of the Appeal proposals resulting in *unacceptable* impacts on amenity or local air quality. In determining what defines an *unacceptable* level or *significant adverse* effect, I have referred to the NPPF and other relevant guidance as detailed above and discussed in the following sections. An adverse impact on its own does not necessarily result in an unacceptable impact or a significant adverse effect. This is

especially so in respect of adverse effects which do not give rise to breaches of nationally recognised standards.

2.4.6. Of particular note, paragraphs 023-032 of the PPG-M require the consideration and assessment of the potential impacts of dust emissions from a mineral site and the provision of recommended mitigation measures. However, it does not specifically state that an adverse effect would necessarily result in refusal.

2.4.7. Although PPG-M sets out outline guidance in relation to the assessment of dust in the context of the planning regime, it does not set out a methodology for determining what forms a significant adverse effect or unacceptable impact. Reference is therefore primarily made to available non-statutory guidance.

2.4.8. The term 'nuisance' or 'annoyance' dust has frequently been referred in relation to deposition dust. However, the term 'nuisance,' has a particular meaning in other legal contexts, and is not referred to in the NPPF, PPG-M or NPPW or supporting guidance and it is the potential impact on general amenity, or with the resulting effect being disamenity, that is the relevant issue in the context of the planning regime. I have therefore used the term 'disamenity' dust instead throughout my Proof to refer to dust that may result in loss of amenity as advised in the IAQM guidance.

2.4.9. The definition of disamenity as given in the IAQM guidance is:

- Disamenity – can be considered as negative element or elements that detract from the overall character or enjoyment of an area.

2.5. Assessment of Significance

2.5.1. Within this Proof the term '*impact*' has been used to describe a change in dust deposition or suspended particulate matter concentrations. The resulting ***effects*** are the consequences of the potential impacts, such as to disamenity or to human health.

2.5.2. IAQM guidelines do not provide a traditional matrix assessment of significant effects with regards to air quality. The frameworks outlined in the guidance above provide methodologies for describing air quality impacts and resulting effects at individual receptors. These frameworks are therefore used as a starting point to assess the significance of predicted effects.

2.5.3. Where *negligible* impacts are predicted, the overall effects will be ***not significant***. In general, where *slight* impacts at receptors are predicted the resulting effects would be considered to be ***not significant***. *Moderate* and *substantial* impacts could result in ***significant*** effects. However, the judgement of the overall significance of the air quality effects of the proposals is informed by the predicted impacts and effects at individual receptors and takes into account a number of factors, such as, but not limited to:

- the existing and predicted future air quality in the absence of the proposed development;
- the extent of current and future population exposure to the predicted impacts and the severity of those impacts;
- whether the predicted impacts potentially result in failure to achieve compliance, or enhance compliance, with UK AQOs and national and / or local air quality action plans;
- whether the predicted impacts potentially result in the need for declaration of a new or extended AQMA, or removal of an existing AQMA;
- whether the predicted impacts potentially result in permanent or temporary damage, or improvements, to nature conservation sites of local, national or international importance and the geographical extent of those impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

3. Procedural Matters

3.1. A full review of the planning application and history of the Site is provided by Mr Liam Toland in his evidence and I refer here only to those matters of relevance to dust and air quality impacts. I defer to his judgment on the interpretation of planning policy and in matters involving the weighing of the planning balance.

3.2. Planning Application Submitted Information

Original Planning Application

3.2.1. The planning application was supported by an Environmental Statement (ES) prepared by Greenfield Environmental Limited ('Greenfield') (July 2023, CD1.08). The ES included a section on Dust and Air Quality (Chapter 13) which was supported by an Air Quality Assessment report prepared by Vibrock Limited, presented in Appendix 10 of the ES (March 2023, CD1.22). This report is referred to in this Proof as the 'Original Vibrock AQA'.

3.2.2. The Vibrock AQA included both a dust assessment and an assessment of traffic impacts. The dust assessment considered potential dust sources associated with the proposals and best practice measures were recommended in order to minimise any such disturbance at sensitive receptors. It was concluded any dust occurrence event would be limited and of short duration and minimised by the implementation of the dust control measures.

3.2.3. The dust assessment also considered potential impacts due to PM_{10} and $PM_{2.5}$ and concluded that air quality objectives (AQOs) would not be exceeded.

3.2.4. The traffic assessment considered the emissions generated by traffic movements that would be generated by the quarry and potential impacts on local ambient air quality. It was concluded the potential air quality impacts from traffic associated with the quarry development are not considered to be significant.

3.2.5. The Original Vibrock AQA (Section 9) also considered potential cumulative impacts. It was considered unlikely that cumulative impacts will arise when considering the local area and the proposed new quarry. Cumulative impacts in regard to the proposed Bourbles Farm Quarry operations were deemed to have a negligible effect on nearby sensitive receptors.

3.2.6. The application was additionally supported by a Planning Statement prepared by Greenfield that included further detail on the proposed development and phasing (July 2023, CD1.02)

Regulation 25 Submission

3.2.7. In response to schedule of comments and request for further information from LCC (March 2024, CD3.01), a Regulation 25 submission of supplementary information was submitted by Greenfield

(December 2024, CD3.02). This included a section on air quality and was supported by an updated Air Quality Assessment produced by Vibrock Limited (August 2024, CD3.06). This report is referred to in this Proof as the 'Updated Vibrock AQA'. The Regulation 25 submission also included a series of revised phasing plans.

3.3. Statutory Consultee Responses

Lancashire County Council, Planning and Environment Service

3.3.1. LCC Director of Public Health provided a response to the original application covering air quality, dust effects, respirable crystalline silica (RCS), noise, traffic and public rights of way (January 2024, CD2.15). The response also drew on advice received by LCC from the UK Health Security Agency (UKHSA) with regards the application (November 2023, CD2.12) and a separate review of the Original Vibrock AQA undertaken by Atkins on behalf of LCC (October 2023, CD2.07-CD2.11).

3.3.2. With respect to air quality, the LCC Public Health response made the following recommendations (CD2.02):

i) 'Given that population health impacts of particulate matter may occur even at levels below the AQS, I recommend that all dust control mitigation measures documented in the Air Quality Assessment (Vibrock March 2023) are included in a dust management plan to keep the air pollutants as low as reasonably practicable and incorporated into planning conditions and the monitoring plan.'

ii) 'Due to the close proximity of several residential receptors to the proposed site I recommend further consideration is given to how material on site, awaiting removal, is stored and transferred due to the potential for its moisture content to be lower than when it was originally processed. This should consider suggested Materials Handling mitigation listed in Table 5 in Guidance on the Assessment of Mineral Dust Impacts for Planning (Institute of Air Quality Management May 2016). Specific consideration should be given to the location of stored material and its proximity to any Public Rights of Way that go through the site.'

iii) 'I recommend that if the planning application is approved, screening bunds when made from soils should be vegetated immediately after their creation.'

iv) 'I recommend that if the planning application is approved, a planning condition is included that defines the required dust monitoring, thresholds, and actions if thresholds are exceeded. This should give consideration to the Monitoring section of Table 5 in Guidance on the Assessment of Mineral Dust Impacts for Planning (Institute of Air Quality Management May 2016).'

v) 'I note the risks from respirable crystalline silica are of particular concern to residents. I also note the risks associated with exposure to respirable crystalline silica by quarry industry workers as identified by the HSE. In this context, given the proximity of several residential receptors (with the potential for prolonged exposure) to dust from the proposed site, I

recommend the applicant completes further work to demonstrate that any risks associated with exposure to respirable crystalline silica will not impact the health of residents, by addressing both the risks of this exposure and proposed mitigation measures.'

vi) *'Specific consideration should be given to the location of stored material and its proximity to any Public Rights of Way that go through the site, to reduce exposure to dust.'*

3.3.3. Further clarification and justification is provided for each of the above points in the full LCC Public health response (January 2024, CD2.15). The overall advice given by LCC Public Health in that response is summarised as follows:

'Having reviewed the planning application, representation from local residents, advice from UKHSA, and council's independent air quality assessment, I consider that ***without adequate mitigation there is a realistic possibility of negative health impacts occurring during the operations of this quarry****. This is likely to be due to a combination of increase in particulate matter and dust, respirable crystalline silica, noise and traffic due to HGVs. I recommend that the risk factors identified are adequately addressed in the planning conditions, environmental permits and the site monitoring plan. In addition, I advise that a community liaison group is formed to respond to concerns from the local residents.'* (emphasis added)

3.3.4. Of note the LCC Public Health response does not recommend refusal but stresses the importance of ensuring potential risks are dealt with adequately to ensure appropriate mitigation is employed. The above measures identified by LCC Public Health have all sought to be addressed in the proposed conditions, and in particular through the Dust Management Plan.

3.3.5. It is further noted that a subsequent consultee response does not appear to have provided by LCC Public Health following the submission of the Regulation 25 responses and Updated Vibrock AQA. A response to the updated noise assessment that was provided with the Regulation 25 submission was however provided by Atkins in their capacity of providing support to LCC (January 2025, CD2.13). It is therefore reasonable to presume that the Regulation 25 submission and updated AQA was also provided to LCC Public Health and Attkins, and that neither considered that there was any concern with this information.

Atkins Technical Note (on behalf of LCC)

3.3.6. Atkins undertook a review of the original application information on behalf of LCC, including the Original Vibrock AQA (October 2023, CD1.22). The review raised a number of comparatively minor omissions in the submissions. However, of note the Atkins Review did not conclude that the proposal would result in unacceptable impacts or significant effects or recommend refusal. Instead Atkins recommended that the applicant be required to prepare a Dust Management Plan (DMP) that must be submitted to the Mineral Planning Authority (MPA) for approval, prior to commencement of works, which would only be relevant if there was not an in-principle concern

to Atkins. Preparation of the DMP is proposed to be secured through a planning condition. It was recommended that further details on the working methods and screening bunds, along with other measures and monitoring, should similarly be set out in the DMP.

3.3.7. Atkins did however recommend the applicant submitted a revised risk assessment with regards to potential human health impacts from exposure to RCS as requested by UKHSA.

3.3.8. It is noted that a subsequent review does not appear to have been provided by Atkins on behalf of LCC following the submission of the Regulation 25 responses and Updated Vibrock AQA.

Wyre Borough Council

3.3.9. Wyre Borough Council (WBC) has responsibility for local air quality and environmental protection for the area. The Council provided responses to the proposal, both following the original submission (January 2024, CD2.14) and the subsequent Regulation 25 submission (January 2025, CD4.04). On both occasions WBC objected including the following objection:

Reason 2: *The application site is located immediately adjacent neighbouring residential properties and it is considered that the operation of the proposed quarry would lead to an unacceptable impact to the amenity of these residential properties as a result of general noise, disturbance and dust. As such the proposal fails to comply with Policy CDMP1 of the adopted Wyre Local 2031.*

3.3.10. It is noted WBC did not object to local air quality grounds, only amenity.

Environment Agency (EA)

3.3.11. The EA noted that a relevant Environmental Permit would be required to undertake the infilling operations as part of the restoration proposals (CD2.03). No comments or objections were raised in the EA response in relation to dust and / or air quality. The interrelationship between the planning and permitting regimes is discussed further in the evidence provided by Mr Simon Rees.

Other Parties

3.3.12. Objections were also received from Preesall Town Council, Hambleton Parish Council, Piling Parish Council and Stalmine with Staynall Parish Council and Cockerham including on dust / silica and HGV emissions concerns. These concerns have therefore also been dealt within my Proof.

3.4. Other Parties Responses

3.4.1. Other responses were received from neighbour notification, advertisement and / or other representations objecting with references to dust arising from the proposals and impacts on local air quality, increased heavy goods vehicle movements and emissions, including concerns regarding silicosis.

3.5. Officer's Report to Development Control Committee

3.5.1. The Report of the Director of Environment and Planning to the Development Control Committee (October 2025, CD6.02) discusses dust and air quality matters in paragraphs 110-117 and 126-133.

3.5.2. The Report notes that significant dust emissions are unlikely to be generated during mineral extraction and processing. It does note that the aspects of the operation with the most significant risks of dust emissions are the operations to strip and store soils, and the haulage of sand and gravel and imported restoration materials between individual phase areas and the processing plant.

3.5.3. It concludes in paragraph 133 that, *'on amenity impacts, whilst this site is relatively small scale in terms of many sand and gravel workings, it is located very close to a number of residential properties. The separation distances are such that there is very limited scope to implement effective mitigation measures in terms of noise and dust impacts'.*

3.5.4. The Report further stated in paragraph 162 *'However, due to the layout of the site and the proximity to the nearest properties, it is considered that there would be significant noise and dust impacts that would cause harm to the amenities of local residents living adjacent to the proposed working areas.'.* It is further stated in para. 162… '*On balance, it is considered that the combination of the amenity impacts and highway safety implications outweigh the benefits of this proposal and there is a conflict with Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policies CDMP1 and CDMP6 of the Wyre Local Plan.*

3.5.5. The Report recommended that planning permission be refused, partly on the grounds of dust impacts: '*The development by reason of proximity to residential properties would have unacceptable noise and dust impacts that could not be satisfactorily mitigated contrary to Paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan.*'

3.5.6. The Report additionally considered the discussion of human health effects within the AQA, including in relation to PM_{10} and $PM_{2.5}$. However, with reference to paragraphs 133 and 162 these make specific reference to **amenity** impacts, and not health.

3.5.7. The Report also considered concerns that had been raised by representations and the responses from LCC Public Health and UKHSA with regards RCS. The report stated, in paragraph 132, that

'it is considered that risk of exposure to Respirable Crystalline Silica dust can be a reason for objection to the proposal'. However, it was advised at the Committee Meeting, and has since been confirmed by LCC, that this was a typographical error and should have read: *'it is considered that risk of exposure to Respirable Crystalline Silica dust can* ***not*** *be a reason for objection to the proposal'* as set out in the overarching Statement of Common Ground (SoCG) and agreed in the Topic Specific Statement of Common Ground (TSSoCG).

3.6. Reason for Refusal

3.6.1. The planning application was refused by the Council's Planning Committee. The formal notice of the decision to refuse planning permission (CD6.01) cites two Reasons for Refusal as follows:

Reason 1: The development would have unacceptable impacts on highway safety which cannot be adequately mitigated and therefore conflicts with Paragraph 116 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP6 of the Wyre Local Plan.

Reason 2: The development by reason of proximity to residential properties would have unacceptable noise and dust impacts that could not be satisfactorily mitigated contrary to Paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan

3.7. Statements of Case

LCC Statement of Case

3.7.1. In relation to reason for refusal 2 and dust impacts the LCC SoC states in Paragraph 7.3: *In terms of dust and air quality impacts, the County Council will demonstrate that there would be likely unacceptable impacts at particular stages of the quarrying and backfill operations due to the close proximity of residential properties to the site boundary and active areas of the site, the requirement to move excavated minerals and backfill materials on unsurfaced haul roads and the difficulties of providing adequate and effective mitigation measures particularly in instances where operations take place in such close proximity to sensitive development.*

3.7.2. No further detail or information is provided in the SoC. I note in particular that whilst LCC cite the 'close proximity' of the proposals to nearby properties – at no stage is there any suggestion as to what distance might render the proposals acceptable.

Rule 6 Party - Preesall & Knott End against Quarry Application SoC

3.7.3. The Rule 6 Party has submitted three documents as its SoC:

- Review of Air Quality Impact Assessment, DustScan AQ (October 2023)
- Jan 25 Adverse Effect on Health and

- AQ Mesh Pod Particulate Study

3.7.4. It is noted the Air Quality Assessment Review report prepared by DustScan AQ is dated October 2023. It comprises a review of the Original AQA submitted by Vibrock, but not the later Reg 25 submission & Updated Vibrock AQA. Several of the comments raised by DustScan AQ were therefore superseded by the Updated Vibrock AQA.

3.7.5. The Review provided commentary on issues identified by DustScanAQ with the Original Vibrock assessment, but does not provide an alternative assessment or conclusions of overall impacts and effects in relation to dust and / or air quality that may arise from the proposed development

3.7.6. Where appropriate I have dealt with any comments raised by DustScan, and in the other Rule 6 documents, in this Proof.

3.8. Third Party Representations

3.8.1. In addition to the reason for refusal and the issues raised by LCC and the Rule 6 Party in their Statements of Case a number of third-party representations have been received. These include references to dust and air quality. These issues have also been dealt within my Proof, where points are raised which differ from those of LCC.

3.9. Statement of Common Ground

3.9.1. Although the LCC Statement of Case did not specify the reasons for refusal on grounds of dust or air quality, the reasons were subsequently outlined in the Statement of Common Ground on Dust issued by their consultants, Atkins, and submitted on 06 March 2026,

3.9.2. Those reasons are reproduced below and are considered and addressed in this Proof:

- The Council do not agree with the Appellant that the Proposed Development meets the air quality, dust and amenity requirements of national and local policy and guidance. The Council's position is that the Proposed Development by reason of proximity to residential properties would have unacceptable dust impacts that could not be satisfactorily mitigated contrary to: Paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan;
- The Council disagree that the Proposed Development is appropriate for its location or an acceptable use of the land due to the proximity of existing highly sensitive residential receptors to operational and restoration activities. The Appellant has not demonstrated or evidenced that the proposed development can operate in a manner so as not to result in loss of amenity due to dust effects beyond the site boundary;
- While agreeing that the adopted methodology for assessment of dust impacts (IAQM Minerals Guidance 2016) is suitable (as presented within Air Quality Assessment, Vibrock

2024), the Council do not agree with the assessment findings regarding the magnitude of dust source emissions and pathway effectiveness for some activities. The Council position is that the magnitude of dust source emissions and pathway effectiveness, and thus the dust impact risk and resultant magnitude of dust soiling effects at some receptor locations are underestimated by the Appellant.

- Given the close proximity of the Proposed Development to highly sensitive residential receptors, the Council do not agree with the Appellant that mitigation during operations including mineral extraction, on-site transportation and backfilling can be effective so as not to cause disamenity to residents when there is limited spatial scope for interruption of pathway effectiveness;
- While agreeing that proposed mineral extraction and restoration operations will not be continuous, the Council do not agree with the Appellant that the proposed campaign basis for extraction serves as a mitigation measure to reduce dust generation and associated disamenity effects. The intermittent nature of dust raising activities does not reduce the magnitude / duration of dust impacts and disamenity that may be experienced at sensitive residential receptor locations when proposed operations give rise to generating dust emissions;
- Given the close proximity of the Proposed Development to highly sensitive residential receptors, the Council do not agree with the Appellant that dust raising from on-site traffic using unsurfaced haul roads can be effectively controlled by the suggested mitigation measures, in all weather conditions, so as not to cause disamenity to residents when there is limited spatial scope for interruption of pathway effectiveness;
- The Council do not agree that the baseline dust deposition monitoring undertaken by the Appellant, as reported in the Air Quality Assessment (Vibrock 2024) is adequate in demonstrating the current conditions and amenity experienced by sensitive receptors that may be adversely affected by the Proposed Development. The monitoring did not align with the recommendation in the IAQM Minerals Guidance (2016) for a minimum of 3 months monitoring of baseline conditions. The monitoring also serves no purpose in estimating future conditions in operation;
- The Council do not agree that implementation of a dust management plan, to include mitigation, would necessarily control dust impacts to acceptable levels given the proximity of residential properties.

3.10. Summary of Procedural Matters

3.10.1. In summary, the planning application was supported by an Environmental Statement which considered Air Quality and Dust impacts in detail. An Updated Air Quality Assessment was subsequently submitted with the Regulation 25 responses. This specifically included responses to comments and requests for information provided by LCC Public Health. It does not appear that any statutory consultee, included LCC Public Health, provided any further comments on dust or air quality matters following this Regulation 25 submission.

3.10.2. The Officer's report to Committee recommended the planning application be refused, including on 'dust impact' grounds. The Report highlighted 'amenity' but not 'air quality' impacts. In the SoCG-Dust the Council state *'The Council do not agree with the Appellant that the Proposed Development meets the **air quality**, dust and amenity requirements of national and local policy and guidance [emphasis added]'.* The other points of disagreement raised by the Council in the SoCG-Dust however all refer to 'amenity'. In light of the comments detailed in the LCC Public Health response, lack of detail in the LCC SoC and comments raised by the Rule 6 Party and other parties I have however considered potential impacts of the Appeal Proposals on both amenity and local air quality.

3.10.3. The Rule 6 Party additionally raises concerns regarding air quality and impacts on human health. Dr Andrew Buroni, a leading expert in health impacts assessments, has therefore provided further commentary on this in the form of a Technical Note and which is included as Appendix KEH12.

4. Current Site Setting and Proposed Development

4.1. Full details of the existing site, site setting and proposed operations are provided in the evidence presented by Mr Liam Toland, the Planning Statement, the ES and summarised in the SoCG. Updated proposed phasing plans are provided in the Regulation 25 submission. In addition, a detailed summary of the proposed working scheme and phasing is provided by Mr Simon Rees.

4.2. Only key summary details of relevance to dust and air quality are provided below.

4.3. Site Location and Surroundings

4.3.1. The application boundary is provided in plan PlanPA23-1v2 included in the Planning Statement (CD1.02). The Site covers a number of agricultural holdings to the east of the village of Preesall and north of Lancaster Road (B52270) and Head Dyke Road (A588). It comprises predominantly arable and general agricultural land with small lakes and a 'duck breeding pen'. The land is accessed off Bourbles Lane which connects between the A588, to the southeast and Little Tongue Lane, on the edge of Preesall, to the northwest.

4.3.2. The Site is bounded by arable fields with isolated farm and residential properties, along with small-scale commercial businesses operating near the site boundaries including a kennels, equestrian fields and a small caravan park.

4.3.3. There are a number of individual properties close to various parts of the Site, as listed below. The separation distances between the nearest facades of these properties and different areas / phases of the site as set out in the LCC Committee report (paragraph 117, CD6.02) are included below:

Table 4.1: Nearest Residential Properties to the Site

Property name/location	Distance from property to site[1]
Group of properties including Hillfield House and Pointer Farm: on Lancaster Road, the B5270, to the east of the proposed site access	140 m to access road / 190 metres to plant site boundary
Borodale and Ourome: eastern end of Gaulters Lane	25 metres to soil storage area / 240 metres to plant site, 250 metres to Phase 1 extraction
Woodlands: on northern side of Bourbles Lane	15 metres to Phase 1 extraction
Crossing Cottage	160 metres to Phase 3 extraction
Red Lea – including a large kennels complex and associated property: north side of Bourbles Lane	25 metres to Phase 1 extraction / 200 metres to Phase 2 extraction
Complex of properties including Bourbles Farmhouse: off Bourbles Lane	50 metres to Phase 2 extraction,110 metres to Phase 3 extraction, 20 metres to Phase 4 extraction

Property name/location	Distance from property to site[1]
Mytax and New England Cottage: off Bourbles Lane	50 metres to Phase 3 extraction, 160 metres to Phase 4 extraction, 250 metres to plant site
Lyndale Farm and Old Hall Farm: near to junction of Bourbles Lane and the A588	190 metres to Phase 3 extraction

1: As set out in paragraph 117 of the LCC Committee Report CD6.02)

4.3.4. In addition, the closest residential properties within Preesall itself located on Little Tongues Lane and Nicksons Lane to the east extend to 80m of the site boundary.

4.3.5. As detailed in the IAQM guidance on mineral dust and planning (Box 2, page 12, CD12.11), and discussed further below in Section 5, a screening distance of 250m is referred to in relation to sand and gravel quarries and disamenity dust. There are no schools or other high occupancy sensitive properties located within 250m of the application boundary. The grounds of St Aiden's Church of England High School and Preesall Hill School lie 485m and 520m to the southwest respectively.

4.3.6. Ground within the Site is generally flay lying or very gently undulating at levels of 4.8 – 6.7m AOD. Surrounding land is located between 5m-10m AOD, lying within an extensive area of low relief on the Flyde coastal plain.

4.3.7. Bourbles Lane is a designated Bridleway (ref: 2-3 BW 21) and passes adjacent to, and through, the Site. A public footpath (ref: 2-3 FP28) runs along Gaulters Lane to the west and crosses the central part of the Site to connect with Bourbles Lane.

4.4 Unauthorised Working

4.4.1 I note from my site visit that work has been undertaken on land which adjoins the appeal site and which is crossed by the access road leading to Phase 1. This has been brought to the attention of LCC by my client, and is addressed within the evidence of my colleagues. This has in part involved importation of material and some land raising activity. The existence of this material and any possible future action taken by the waste planning authority ('WPA') would need to be considered in the discharge of any condition relating to the construction of this road.

4.4.2 I understand from my planning colleagues that enforcement action is not currently under contemplation from either the WPA or the EA. If such action were to be contemplated, then any action taken would in no way impact upon my conclusions.

4.4. Potential Future Surroundings

4.4.1. Chapter 17 of the original ES did not identify any committed or proposed developments in the area which were considered to potentially lead cumulatively to adverse / unacceptable impacts upon local receptors.

4.5. Development Description

4.5.1. Proposals are for the extraction of sand and gravel / solid sand over a 5-year period, with progressive restoration with site-won material and imported inert material. Final restoration would take place across a further 2 years.

4.5.2. Access to the Site would be provided directly off the B5270 Lancaster Road via a newly constructed and purpose-built access point. This is located on the southern side of the Site between Hillfield House and The Beeches.

4.5.3. Elements of the proposals of key relevance to dust and air quality are:

Overall

- works to be progressed in a phased manner; with initial Site Enabling Works being undertaken in Phase A to create a suitable access area and platform for processing;
- Phase A to then form the Plant / Compound Area;
- works to then progress from Phase 1, the closest area to Preesall, through to Phase 4;

Access

- installation of a wheel wash at the Plant / Compound Site prior to commencement of Phase 1 (see Plan PA24-6, Proposed Plant Area, October 2024, CD3.03);
- stretch of access road between off B5270 and wheelwash to be provided with asphalt paved surfacing (distance of at least 160m; note this is longer than the distance of at least 30m stated in the Original ES);
- remainder of access road around plant area to be constructed with geotextile membrane and hard surfaced with imported hardcore & road plannings;
- provision for HGV and car parking (anticipated 8 HGVs) within the Plant / Compound Site;

Soil / Overburden Storage

- all stripped soil and overburden to be retained on site for use in restoration;
- provision of soil screening bunds to eastern and western edges of Plant Site prior to the commencement of extraction in remaining phases (up to 3m for topsoils and up to 5m for sub-soils); to be retained throughout the development until final restoration;
- creation of temporary soil storage bunds as works progress across Phases A, 1-4;
- all soil bunds to be retained to be grass seeded immediately on construction;

Mineral Extraction

- extraction to be carried out using a hydraulic excavator and loading shovel;
- extraction to be undertaken on a 'campaign' basis; expected 2-3 times per year with each campaign of about 4-6 weeks; undertaken using dedicated earthworks contractors;

- all as-raised material to be stockpiled at the Plant / Compound Site and not within extraction areas;
- dewatering to be undertaken during extraction in Phases 2, 3 and 4;

Internal Haulage

- as-raised material to be transported via internal haulage from Phases 1-4 to the processing area;
- restoration materials to be transport via internal haulage from Plant / Compound Site to Phases 1-4;
- internal haul roads to be constructed using compacted hardcore materials;

Processing

- processing plant to be sited on concrete area within Plant / Compound Site;
- processing plant to include sand and gravel wash plant, including sand classifier, gravel screens, stocking conveyors and silt plant;
- investigations have determined there is only a small proportion of oversized (large gravel boulders) within the deposit and therefore a crushing is only to be undertaken on a 'campaign' basis; this would be undertaken using plant hired in for the period required; estimated as no more than 2 x 1 week periods per year;
- no processing of materials imported for restoration is proposed;

Stockpiles

- as-raised materials and processed material to be stockpiled within the Plant / Compound Site;
- as-raised stockpile to be up to 10m high during Phase 1;
- subsequent as-raised stockpile and process stockpiles otherwise to be up to 7m high;

Restoration

- progressive restoration with imported inert waste material and retained soil and overburden; imported material would primarily comprise clays and sands with reclaimed construction materials;
- restoration to be undertaken with a standard bulldozer;
- Phase 1 is not to be subject to restoration using imported material;
- imported materials to be stockpiled in Phase A for transfer to phases (using dump trucks) for restoration when required;
- back-filling to follow extraction as quickly as possible within each phase; the materials would be compacted following placement within the void;
- removal of processing plant and final restoration;
- restoration of Phases 1-3 to agricultural use with lakes; Phase 4 and A to leisure land uses and agricultural and biodiversity enhancement.

4.5.4. The Planning Statement (CD1.02) estimates that 513,000 tonnes of sand and gravel may be present on the Site, of which 487,000 tonnes may be saleable aggregate following washing, processing, and screening. The workable sand and gravel deposits are overlain by thin soils which are generally less than 0.5m thick. With proposed sales over a 4-to-5-year period this results in an output of about 100,000 tonnes per annum (tpa).

4.5.5. Inert import requirements to achieve final restoration are estimated as 220,000m^3 in total. Restoration is to be subject to a restoration plan – but the intention is to restore to broadly previous ground levels and to allow the land to be used for agriculture. The landowner has an aspiration to retain the existing access and to seek planning permission for a holiday lodge based development – but this will require a future consent from Wyre BC and does not form part of this proposal.

4.5.6. Further details on the individual phases are provided in the evidence provided by Mr Simon Rees and summarised below:

Table 4.2: Summary of Phases

Phase	Anticipated Extraction Duration (months)[1]	Comments
Phase A (1.6ha)	6	• Site Enabling Works • 3m screening bunds to be created to west and east boundaries using site-won soils and overburden; • extraction to depth of ~2m; • to be backfilled with engineered fill for construction of Plant Site; • includes construction of new access, access road, clean water lagoon & silt lagoon; • during this Phase as-raised material will be transferred off site for processing and sales; • access to be via Bourbles Lane until new access constructed.
Phase 1 (2.4ha)	18	• access road to Phase 1 to be provided with 1.5m deep cutting; • initial earthworks of 4-6 weeks required to extract mineral under bund foundation area and near to adjacent residential properties; initial extraction to top of water table; area to be backfilled immediately to original level; • soils to be stored in 3m high bunds on northwest and east edges of Phase 1; • subsequent extraction in remaining Phase 1 area to be combination of 'dry' and 'wet' working with no de-watering of the lower unit that is below the water table; • area to be restored using site-won materials; no import of inert waste materials;

Phase	Anticipated Extraction Duration (months)[1]	Comments
		• area to be restored to lakes with site-won materials used as landscaping around lakes to 5m AOD; • final restoration expected to be completed during Phase 2 extraction.
Phase 2 (1.1ha)	6	• soils to be stored in 3m high bunds on north and east edges of Phase 2; • single extraction campaign of 4-6 weeks expected; • to be restored to lake feature; some imported infill fill may be required; • final restoration expected to be completed during early stages of Phase 3 extraction
Phase 3 (4.9ha)	18	• comprises Phase 3a and Phase 3b, either side of the buried gas and water main; • soils to be stored in 3m high bunds on eastern and southwestern edges of Phase 3; • backfilling to occur as rapidly as possible as mineral extraction progresses; • extraction to be to depths of ~2m-3m; • final restoration of Phase 3 b expected to be completed during Phase 4 extraction
Phase 4 (1.9ha)	12	• soils to be stored in 3m high bunds on northern edge of Phase 4; • backfilling to occur as rapidly as possible as mineral extraction progresses;
Phase 5	n/a	• Final Site Restoration • further 2 years provided for completion of final restoration; • to include removal of processing plant and infrastructure and placement of stockpiled soils across Phase A

1: These are broad timescales

4.5.7. The recorded water table lies at a depth of about 0.8m to 1.5m below ground level across the majority of the site. The groundwater table is however variable fluctuating by up to 1.5m between summer lows and winter highs. Hence the deposit will require a limited amount of de-watering for dry working, especially in the central and eastern parts of the site. However, Phase 1 will not be subject to dewatering and the deeper deposits in this phase will be excavated using a 'wet' dig.

4.5.8. As extraction is to be undertaken on a campaign basis there will be periods when both extraction and restoration are taking place and later periods when only restoration is taking place.

4.6. Regulatory Controls

4.6.1. In the event planning permission is granted it is envisaged any such permission would include several conditions. In accordance with standard practice for mineral developments it is expected this would include the requirement for the submission and approval of a Dust Management Plan, as recommended by LCC Public Health, a draft of which has been prepared. This is discussed further in Section 5.

4.6.2. In addition, it is likely there would be several other conditions that would be of relevance to dust and air quality matters, including with regards to provision of a wheel wash, HGV movements and routing, and heights of stockpiles.

4.6.3. In addition, the acceptance and handling of the inert waste material for restoration would be controlled under an Environmental Permit to be issued by the Environment Agency under the requirements of the Environmental Permitting (England and Wales) Regulations 2016.

4.6.4. The Permit would require the management and operation of the permitted operations and directly associated activities using Best Available Techniques (BAT) to prevent, or where that is not practicable, reduce emissions. The Permit would include several conditions and would be expected to include standard boundary conditions in relation to dust and other aerial emissions.

4.6.5. Some quarry processes are also regulated under the Environmental Permitting regime. However, the mineral extraction part of the Scheme is exempt from the Environmental Permitting regime. Defra Process Guidance Note 3/08(12) in relation to quarry processes states: *the extraction of sand and gravel is not a prescribed process. Crushing, grinding, screening and grading of wet material is not normally likely to result in the release into air of particulate matter except in a quantity which is trivial.*

4.6.6. Activities that would not be controlled under the Permitting regime, and hence solely controlled under any granted planning permission and associated conditions with regards to dust, would be the wider quarrying activities comprising soil stripping, overburden removal, extraction and material handling and processing, and internal haulage, not directly associated with material handling of waste materials.

4.6.7. Any mobile plant brought onto site for the purposes of a short campaign for crushing over-sized gravel would be regulated under a mobile plant Environmental Permit.

5. Dust Assessment: Disamenity

5.1. Introduction

5.1.1. Chapter 13 of the ES included a summary of the detailed dust assessment undertaken within the original Vibrock AQA (CD1.22) which was included as Appendix 10 to the ES. An Updated version of the AQA (CD3.06) was subsequently submitted with the Regulation 25 response. I have reviewed the updated assessment and its findings focusing on the overall scope, methodology, results and conclusions.

5.1.2. The assessment considered the potential sources of dust that may arise from the proposals, location and orientation to nearby receptors and potential for adverse impacts at those receptors. The assessment was comprehensive and followed the approach of the illustrative example procedure for a dust assessment provided in the IAQM guidance on mineral dust and planning, with reference to other applicable guidance. The approach is consistent with the guidance which recommends a qualitative risk-based approach.

5.1.3. To inform my Proof I have summarised key salient points of the original dust assessment below. For detail reference should be made to the Updated Vibrock AQA. Where additional information is now available to that presented in the Vibrock Updated AQA, or my assessment approach differs, this is highlighted below.

5.2. Baseline Conditions

Baseline Deposition Dust Conditions

5.2.1. The Site is located on the outskirts of Preesall and Knott-on-Sea in a mixed-use locality, including residential, leisure and agricultural activities. There are some small-scale commercial uses consistent with a rural location, such as the adjacent kennels. The existing dust deposition levels are likely to be mainly influenced by agricultural activities.

5.2.2. The Updated Vibrock AQA included reference to some monitored dust settlement data for several locations on the Site perimeter for the period 24.10.22-08.11.22. The data reports the measured dust settlement levels to be in the range 0.3-0.7 Effective Area Coverage (EAC)%/day. The EAC%/day is a measure of soiling or obscuration. Full details of the monitoring exercise, locations and results are however not provided. As the monitoring was for a short period of less than a month, and no dust deposition data is provided, the data provides no more than a snap-shot and therefore limited information on existing background conditions.

5.2.3. This is consistent with LCC observations in the SoCG Dust that states *the dust monitoring did not align with the recommendation in the IAQM Minerals Guidance (2016) for a minimum of 3 months monitoring of baseline conditions.*

5.2.4. For information typical background dust deposition levels are cited in literature (CD10.09) as:

- Open country: median (50th Percentile): 38 mg/m^2/day; 90th percentile: 103 mg/m^2/day
- Residential areas and outskirts of towns: 56 mg/m2/day; 90th percentile: 146 mg/m^2/day
- Commercial centres of towns: 90 mg/m2/day; 90th percentile: 199 mg/m^2/day

5.2.5. Given the nature of the locality background dust deposition levels are likely to be within ranges cited for open country and residential areas / outskirts of towns, which has been assumed for the assessment.

5.2.6. However, the absence of existing background dust deposition data does not detract from the assessment. It would be typical for a period of background dust monitoring to be undertaken prior to the onset of any operations should planning permission be granted. This approach ensures that any such monitoring is representative of conditions immediately prior to the commencement of activities and enables up to date trigger thresholds to be established based on baseline conditions. Such a period of baseline monitoring has been included within the draft Dust Management Plan that is appended to this Proof and discussed further below in Section 5. There are no prevailing local activities that are likely to give rise to background dust levels to an extent they would pose a constraint to the proposed development.

Meteorological Conditions

5.2.7. The prevailing wind direction was determined by Vibrock through a review of meteorological data provided by Weathernet for Blackpool Squiares Gate, Lancashire. To further inform my assessment I have obtained data for the period 2015-2024 from ADM Ltd, a recognised supplier of meteorological data for the Blackpool Squires Gate (Blackpool Airport, NGR: 332938, 430878, 10m AOD) monitoring station. The monitoring station is located about 17km to the southwest of the Site and forms the closest station to the Site where data is consistently recorded.

5.2.8. A windrose derived from the data is provided in Appendix 8; this depicts average wind speeds and directions over the relevant total monitoring period. The data demonstrates strong east-west influence atypical of standard UK conditions. This is likely due to the nature of the location and proximity of the sea to the west.

5.2.9. A windrose derived from Numerical Weather Prediction (NWP) data centred on the site has therefore also been obtained from ADM Ltd and is provided in Appendix 8. This is produced from modelled data based on the site location and measured data. The NWP data shows a stronger westerly influence likely due to the coastline to the north.

5.2.10. The data has also been used to derive the frequency of 'dry' days across a year (i.e. days with rainfall less than 0.2mm) and frequency of wind speeds above 5 m/s to further inform the assessment.

5.3. Disamenity Dust Impact Assessment

5.3.1. The assessment of disamenity impacts follows the Source-Pathway-Receptor concept and considers the potential strength of the identified dust *sources* and the potential *pathway* from these sources to nearby identified *receptors*.

Potential Sources

5.3.2. The assessment presented in the ES considered the potential *residual source emissions* taking into account the in-design measures that are to be incorporated into the design of the Proposed Development. I have taken the approach of considering any physical / built-in measures that are defined in the plans and application documents, such a provision of bunds, landscaping, wheelwash, hard surfaced access road etc, as forming embedded mitigation. Although it is expected that any quarry development would be supported by a degree of industry standard dust mitigation measures, I have taken this as 'additional mitigation' that is informed by the results of the site-specific risk assessment and would be detailed in a Dust Management Plan (DMP) that would be secured by condition of any granted permission. This provides clear delineation between what measures are 'fixed' as part of the proposed development and what are additional 'management' type measures that are secured separately. The Vibrock assessment broadly follows this approach.

5.3.3. The assessment considers all primary sources associated with the proposed mineral extraction and subsequent restoration. This includes soil stripping, storage and restoration; mineral extraction; loading and tipping; internal haulage; crushing and screening; aggregates stocking; on-road transport; and wind-blow across exposed surfaces and stockpiles.

5.3.4. The sources considered by Vibrock are appropriate. Following the review of the original submission by Atkins, the Update AQA by Vibrock amended some of the defined 'source potentials', predominantly to account for the fact although the extracted sand and gravel would be 'wet' or 'damp' it may dry out during prolonged periods of dry weather. The resulting allocation of residual source magnitudes are accordingly conservative, given the actual nature of the activities.

5.3.5. Key points in relation to potential dust generating sources are summarised below. Full details are provided in Appendix KEH9.

Table 5.1: Sources of Dust

Source of Dust	Residual Dust Source Potential	Comment
site preparation (soil stripping, bund creation)	*medium*	soil stripping to be limited to each phasing area at any one time with largest area (~5ha) Phase 3 subject to phased stripping as required; of short duration; risks similar to those of typical agricultural practices; use of single standard bulldozer
mineral extraction	*small / medium*	to be undertaken using a low-energy extraction method via a single hydraulic excavator; to be undertaken on 'campaign' basis 2-3 times per year; limited to each phasing area as any one time; fresh mineral will typically be in a damp condition and will be unlikely to give rise to substantial dust; although drying out of quarry surfaces could occur rapidly in warm dry conditions; extraction rate of 100,000 tpa
mineral handling	*small / medium*	as-raised materials typically in damp condition; loaded at working face with minimal handling requirements; use of one loading shovel; can increase in prolonged dry conditions if material dries out; to be undertaken on a 'campaign basis' 2-3 times / year mineral to be transferred direct to as-raised stockpile at Plant site
internal haulage – extracted mineral	*medium*	as-raised material to be transported to Plant Site using dump trucks; compacted aggregate internal haul roads; haul road to Phase1 and Phase 2 in 1.5m deep cutting; maximum length of 550m to Phase 1; average of 110-250 average 2-way movements a working day (during a campaign) depending on number of campaigns a year and duration[1];
internal haulage – restoration material	*small*	restoration material to be transferred using dump trucks to areas for backfilling from stockpiles at Plant Site; again using compacted aggregate internal haul roads; average of potential 38 2-way internal movements per working day across year depending on quantity of restoration material[2] no imported material movements to Phase 1; some site-won material only
mineral processing	*medium*	100,000 tpa; wash plant and hence 'wet' process; greatest dust generation risk associated with handling of stockpiled as-raised material if dried out; limited handling required using single loading shovel to load plant; processing plant area to be provided with concrete surfacing crushing of over-size material to be undertaken on a campaign basis if required using mobile plant with a Mobile Pant

Source of Dust	Residual Dust Source Potential	Comment
		Environmental Permit (only 2 x 1 week a year expected to be required)
restoration – inert waste material	*medium*	no processing of imported restoration material to be undertaken; material to be stockpiled at Plant Site and placed at working face immediately on transfer to area for backfilling; progressive restoration in each phase using standard bulldozer; greatest dust generation risk associated with handling of stockpiled restoration material if dried out; screening bunds to be retained in each area until near completion of restoration
restoration - soils	*medium*	source potential increase during periods of prolonged dry weather; risks similar to those of typical agricultural practices; use of single standard bulldozer; undertaken on phased basis
wind-blown dust (from stripped / bare surfaces)	*medium*	phased nature of works minimises areas of exposed surfaces at any one time; surfaces may dry out during prolonged period of dry weather; bunds provide degree of screening to wind-blow across surfaces
wind-blown dust (from stockpiles / bunds)	*medium*	bunds to be seeded with limited potential for dust generation as-raised minerals, processed material and restoration material stockpiles to be sited at Plant Site; continuous use throughout year but limited handling using a loading shovel; ground provided with compacted hardcore; heights up to 7m, other than as-raised stockpile which is to be up to 10m high during Phase 1
external road transport	*medium*	departing HGVs only travel between Plant Site and public highway – no transport further on site; stretch of access road from wheelwash to public highway (at least 160m stretch) to Plant Site to be provided with paved asphalt surfacing; remainder of internal route around Plant Site to be provided with compacted hardcore; wheel wash to be provided for all departing HGVs; daily average of 37 departing HGVs / day whilst export and import undertaken in combination over period of 4 years

1: Updated Vibrock AQA stated 100 internal HGV movements per day. However, assuming extraction campaigns of 2-3 times a year of 4-6 weeks duration, 100,000 tpa, 20 tonnes per dump truck and 5 working days per year results in average of 100-250 2-way internal movements per working day

2: Assuming movement of 100,000 tpa of restoration material across a year results in average of 38 2-way internal movements a working day.

5.3.6. It should be noted the above takes into account the likely 'magnitude' of residual dust emissions from each activity but not the duration of that activity. It should therefore be noted that sources

specifically associated with extraction activities would only occur during the campaigns, e.g. extraction and internal mineral haulage. Other activities including mineral processing, handling at the Plant Site and restoration material internal haulage may occur throughout the year.

5.3.7. Peak internal haulage movements would occur during the campaigns if movements of extracted mineral and restoration material are occurring simultaneously. The worse-case combined average working day 2-way movements could be 288. However, this is only if extraction campaigns are of 4 weeks duration each twice a year and involve the extraction of 100,000 tonnes across these periods. If extraction of 100,000 tones is undertaken across campaigns of 6 weeks duration three times a year then the combined worse-case extraction and restoration internal 2-way movements would be 110. Furthermore, these combined flows would only be potentially experienced during works in Phases 3A/3B, 4 and A with relatively short internal haulage distances. The potential *combined* dust potential therefore remains medium over this period. This is discussed further below.

Potential Pathways

5.3.8. As detailed in the IAQM guidance the larger dust particles (>30 µm) will mainly deposit within 100m of a source whereas intermediate sized particles (10-30 µm) may travel up to 400m, i.e. those larger and intermediate particles that may result in disamenity impacts. It is commonly accepted however that the greatest impacts will be within 100m of a source (Box 2 page 12, IAQM guidance on mineral dust, CD12.11). The levels of particles in the air available for deposition at further distances will have been reduced through deposition and dispersion.

5.3.9. The IAQM guidance is therefore clear that adverse dust impacts from sand and gravel sites are unlikely beyond 250m as measured from the nearest dust generating activities (Box 2 page 12 IAQM guidance on mineral dust, CD12.11). This is irrespective of the prevailing wind direction. Accordingly, the guidance advises that where receptors are not located within 250m of a sand and gravel site it can normally be assumed that a detailed disamenity dust assessment would not be required.

5.3.10. The consideration of the potential *pathway* of any disamenity dust to receptors within the screening distance takes into account the distance from a source to a receptor, local topography and any screening that may be present to impede that pathway along with the prevailing wind direction to determine the likelihood of dust being propagated towards that receptor.

5.3.11. Rainfall acts as a natural suppressant and will suppress wind-blown dust emissions for some time and it is widely accepted that rainfall less than 0.2mm per day may present high-risk conditions. The assessment therefore also takes into account the likelihood of dry days (that is those days when <0.2 mm of rainfall is recorded over a 24-hour period). With reference to the

data from Blackpool Squires Gate Station dry days average 158 days / year across the 2015-2024 period, i.e. 43% of the time.

5.3.12. In accordance with the IAQM guidance (Table A3-2, page 39, CD12.11) the Vibrock assessment only considers wind speeds of >5m/s. However, there are two methods of dust generation:

- that raised by mechanical handling such as which may be generated under average wind speeds, but only occurs during operational hours; and,
- that raised by wind blow which is independent of site working but is only raised under wind speeds of >5m/s.

5.3.13. I have therefore undertaken separate assessments for site working activities for all wind speed conditions and stockpiles / exposed areas for wind speeds conditions of >5m/s. These differing approaches, along with considering the NWP met data, result however in materially similar conclusions of pathway effectiveness from the sources to the individual receptors.

5.3.14. These site-specific factors are used to define the *pathway effectiveness* from a source to a receptor. This may range from *ineffective* (i.e. there is a low likelihood of any dust that may be generated being propagated towards a receptor; for example a receptor may be located distant from a source and frequently upwind of that source) to *highly effective* (i.e. there is a high likelihood of any dust that may be generated being propagated towards a receptor; for example a receptor may be located close to a source and frequently downwind of that source).

Potential Receptors

5.3.15. Receptors considered in the Vibrock AQA comprise those specified by LCC in the EIA Scoping Opinion (August 2022, CD1.10). They comprise those nearest the Site boundary, including Woodlands, Red Lea, Bourbles Farm, Ourome and Mytax / New England Cottage, The Beeches, Ourome and Old Nickson's Cottage. Other receptors are effectively subsumed by these closer receptors.

5.3.16. These receptors are selected to be representative of nearby receptors and may therefore represent several actual properties, or a 'community'. In addition, the gardens / associated open areas of some properties may extend closer to the proposed extraction area than property facades, along with fields used for paddocks.

5.3.17. The drawing provided in Appendix KEH7 to this Proof shows the assessed receptors and the wider surroundings in the context of a distances of 50m, 100m and 250m from the Ste boundary.

5.3.18. The proximity of footpaths and bridleways to the Site are also noted. These are considered further below.

Assessment

5.3.19. The dust impact risk is calculated from residual source estimation and the pathway effectiveness. This dust impact risk therefore takes into account the significant in-design mitigation measures that are to be incorporated within the development as described above in paragraph 5.3.2. This therefore considers both those measures that affect the source emissions (e.g. inherent moisture content of the freshly excavated material) along with those that effect the pathway effectiveness (e.g. provision of bunds that will provide a degree of screening during the excavation works), but not the additional operational and management mitigation measures that would be applied.

5.3.20. The magnitude of dust effect then takes into account dust impact risk and receptor sensitivity. The results, are summarised below in Table 5.1.

5.3.21. The results across my sensitivity testing approaches are materially similar to each other, and materially similar to the results of the Vibrock assessment.

5.3.22. The greatest risk of any dust deposition at the properties nearest the extraction boundary would be during the initial soil stripping and other near-surface activities, including final restoration, in the nearest phases to the properties.

5.3.23. The maximum resulting dust effect at any receptor, with designed-in mitigation measures but in the absence of further mitigation, is *moderate adverse* due to site operations and exposed surfaces during the initial site preparation phases, and latter stages of the subsequent restoration phases. This falls to a maximum effect at any receptor of *slight adverse* during the subsequent extraction and restoration operations following completion of the bunds. These adverse effects are predicted whilst activities are occurring close to the Site boundaries and fall during activities away from the boundaries.

5.3.24. The phasing nature of the proposals would ensure that soil stripping is not occurring in one phase close to property boundaries whilst extraction or restoration is occurring in another phase close to a property boundary. For example, progressive restoration is to take place in Phase 3A and then Phase 3B minimising the likelihood of any infilling works in Phase 3A, close to Bourbles Farm, during soil stripping and extraction in Phase 4.

5.3.25. The phasing nature is also of importance in relation to potential impacts due to internal haulage. The closest receptors to an internal haul route are Red Lea and Bourbles Farm, as shown in the figure in Appendix KEH7. The maximum resulting dust effect due to internal haulage at any receptor, with designed-in mitigation measures but in the absence of further mitigation, is *slight adverse*. This is predicted at Mytex, Bourbles Farm and the Pointer Farm complex due to the combined movements whilst extraction in Phase 4 is on-going whilst material import is on-going in Phase 3B, and at Red Lea during Phase 1 extraction. It is noted haulage will also occur within

the extraction areas themselves but related impacts are assessed within the extraction assessment.

5.3.26. The maximum resulting dust effect at any receptor, with designed-in mitigation measures but in the absence of further mitigation, due to the processing and stockpiles is *slight adverse* at Mytex / New England Cottage This is primarily predicted to working of the stockpiles when at full height if allowed to dry out as processing itself is a wet process.

5.3.27. These results are broadly consistent with those of Vibrock which reported maximum effects of *moderate adverse*, although Vibrock did not specifically differentiate between activities during the site preparation phase and subsequent excavation.

5.3.28. It should be noted however that the potential for some dust generation from this soil stripping and handling activities would be as associated with typical agricultural activities and would be short-lived. The subsequent extraction activities are similar to typical construction earthworks activities and can be readily mitigated using standard industry techniques. These are discussed further below in Section 5.4.

Table 5.1: Summary of Dust Effect Conclusions – with physical in-built mitigation measures

Ref.	Receptor name	Dust Effect Magnitude – with physical in-built mitigation but not accounting for campaign nature and additional management measures			
		Vibrock	SGP		
		All activities	Soil stripping / bund construction	Extraction & processing	Internal Haulage
R1	Bourbles Farm	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse
R2	Crossing Cottage	Moderate Adverse	Slight Adverse	Slight Adverse	*n/a >250m*
R3	Greenacres	Slight Adverse	Slight Adverse	Slight Adverse	*n/a >250m*
R4	Lyndale Farm / Old Farm Hall	Slight Adverse	Slight Adverse	Slight Adverse	*n/a >250m*
R5	Pointer Farm complex	Slight Adverse	Slight Adverse	Slight Adverse	Slight Adverse
R6	The Chestnuts / Beeches	Slight Adverse	Slight Adverse	Slight Adverse	*n/a >250m*
R7	Ourome	Slight Adverse	Moderate Adverse	Slight Adverse	*n/a >250m*
R8	Red Lea	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse
R9	Woodlands	Moderate Adverse	Moderate Adverse	Slight Adverse	*Negligible*
R10	Whinmore Fold	Slight Adverse	Slight Adverse	Slight Adverse	*n/a >250m*
R11	Old Nicholsons Cottage	Slight Adverse	Moderate Adverse	Slight Adverse	*n/a >250m*
R12	Mytax	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse

Note: Assessment has considered parts of residential receptors close to facades such as gardens / driveways that may be considered of 'high' sensitivity along with those areas such as paddocks that may be considered less sensitive.

5.4. Mitigation Measures

5.4.1. All mineral sites will encompass a degree of dust mitigation as part of normal working practices and the essence of the guidance is that dust emissions can be controlled through effective site management. As noted above and within the Updated Vibrock AQA the quarry would be operated in accordance with the dust suppression measures detailed within Section 8 and in Appendix 3 of that report. Furthermore, it is envisaged that any conditions that would be imposed on the grant of any planning permission would include conditions requiring the submission and agreement with the MPA of a Dust Management Plan (DMP), as advised by LCC Public Health during the determination of the application.

5.4.2. In addition, the importation, handling, and placement of inert waste materials for the restoration would be regulated by the EA under an Environmental Permit. This would require the operation in accordance with BAT for these activities and would include standard permit 'boundary' conditions in relation to dust and other emissions.

5.4.3. To further inform the Appeal however a draft DMP for agreement with the MPA, if planning permission is granted, is provided in Appendix KEH11. The findings of the assessment above have been used to determine the measures required to be incorporated into this DMP, based on standard industry practice as provided in the IAQM guidance.

5.4.4. Preparation of the draft DMP takes into account NPPG-AQ which advises that '*Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact*.' This is further reiterated in the IAQM and MIRO guidance, with IAQM stating '*the DMP should be risk-based, with the level of depth, complexity and sophistication of the DMP being dependent on the complexity of the processes and the potential impact from release of dust on neighbouring premises'*

5.4.5. The DMP would draw together the management, control and monitoring measures specifically in relation to fugitive dust. Such mitigation measures include, but are not limited to, the following:

- Overall responsibility for the management and control of dust would lie with the Site Manager;
- As an overriding requirement, should winds carry visible dust towards any sensitive site boundaries, and particularly to the east and southeast, the operations giving rise to dust would be modified or suspended until more suitable conditions pertain, or until effective dust control measures are implemented;
- The prevailing site conditions and projected weather forecast for the day would be reviewed by the site manager prior to the start of activities each day to identify any specific

requirements. This would be particularly essential during a period of prolonged dry conditions. Additional inspections will be undertaken during the day as necessary.

5.4.6. Maintenance of internal roads, limitation of vehicle speeds and provision of dust suppression are all important in minimising dust generation from internal haulage. Standard good practice measures that would be employed include:

- Provision and enforcement of an internal speed limit (10 mph);
- Regular compaction, grading and maintenance of on-site non-metalled internal haulage routes;
- Restriction of site traffic to designated internal haul routes (as detailed in the phasing plans and application information);
- Dust suppression by regular spraying by pressurised bowser in dry conditions (tractor and bowser to be provided on site);
- Fitting of site vehicles with upswept exhausts and radiator fan shields.

5.4.7. Other general matters and the management of the site can also affect the likelihood of significant dust emissions. Such standard measures that would be employed include:

- Visual monitoring for dust throughout the working day with regular inspections of the site boundary for dust;
- Minimisation of drop heights at loading / unloading points;
- Clear delineation of edges of stockpiles;
- Avoidance of soil reinstatement operations during dry and windy conditions;
- Dust suppression by regular spraying by pressurised bowser, in dry conditions;
- Maintenance of adequate year-round water supply (given the nature of the Site water would be readily available year-round);
- Regular maintenance of plant;
- Provision of staff training; and,
- Maintenance of complaints log and response procedure.

5.4.8. Measures that would be employed with respect to on-road transport include:

- Regular inspections of the Site access road and local road network;
- Implementation of measures to ensure that mud and detritus do not accumulate on the public highway;
- Cleaning of wheels of all lorries leaving the site before entering the public highway;
- Securing and covering of all incoming and outgoing loads; and
- Regular cleaning / sweeping of the public highway used to access the site.

5.4.9. The proposed DMP follows a format regularly applied at mineral sites and approved by MPAs.

5.4.10. In addition, the LCC Public Health consultee response included reference to 'dust monitoring'. This typically includes for the carrying out of visual inspections of any dust generating activities and site boundaries, as detailed in the draft DMP. It is additionally proposed that physical dust deposition monitoring is included. An initial scope of the proposed dust monitoring is included within the draft DMP but again would be subject to agreement with the MPA.

5.4.11. The provided draft DMP includes for regular formal review. A regular review process enables the updating and / or amending of the Plan in agreement between the operator and MPA in response to any changes in circumstances potentially requiring additional air quality / dust mitigation measures to ensure it remains robust.

5.5. Residual Effects

5.5.1. Through the implementation of these measures the resulting predicted dust impact effects are significantly reduced and are as follows:

Table 2: Summary of Dust Effect Conclusions – with further mitigation

Ref	Receptor name	Dust Effect Magnitude – with physical in-built mitigation and site-specific management measures			
		Vibrock	SGP		
		All activities	Soil stripping / bund construction	Extraction & processing	Internal Haulage
R1	Bourbles Farm	*negligible*	Slight adverse	*negligible*	*negligible*
R2	Crossing Cottage	*negligible*	*Negligible*	*negligible*	*negligible*
R3	Greenacres	*negligible*	*Negligible*	*negligible*	*negligible*
R4	Lyndale farm / Old Farm Hall	*negligible*	*Negligible*	*negligible*	*negligible*
R5	Pointer farm complex	*negligible*	*Negligible*	*negligible*	*negligible*
R6	The Chestnuts / Beeches	*negligible*	*Negligible*	*negligible*	*negligible*
R7	Ourome	*negligible*	Slight adverse	*negligible*	*negligible*
R8	Red Lea	*negligible*	Slight adverse	*negligible*	*negligible*
R9	Woodlands	*negligible*	Slight adverse	*negligible*	*negligible*
R10	Whinmore Fold	*negligible*	*Negligible*	*negligible*	*negligible*
R11	Old Nicholsons Cottage	*negligible*	Slight adverse	*negligible*	*negligible*
R12	Mytax	*negligible*	Slight adverse	Slight / negligible	*negligible*

Note: Assessment has considered parts of residential receptors close to facades such as gardens / driveways that may be considered of 'high' sensitivity along with those areas such as paddocks that may be considered less sensitive.

5.5.2. A possible *slight adverse* effect remains during the initial soil stripping, and subsequent final bund removal and soil placement activities. However, it must be noted these are effects which are very much short-lived activities with soil stripping / bund creation being of 4-6 weeks duration per phase. Works would not be undertaken during weather conditions which could exacerbate impacts, e.g. during periods of unusually high winds or prolonged dry conditions. Similarly, a

liaison committee is proposed, and it is expected that active mitigation measures would be informed by an iterative process of feedback in terms of off-site effects. This is an entirely conventional approach.

5.5.3. Proposals are also to now include temporary fencing close to the site boundary facing the facades of Woodlands and Red Lea during bund construction in Phase 1 and of Bourbles Farm during Phase 4 as discussed further in the Proofs of Mr Simon Rees (operations) and Mr Rob Storey (noise). These measures would also serve to reduce the potential for adverse effects from dust during these temporary works.

5.5.4. Furthermore, the potential for dust generation and impacts during soil stripping activities is similar to those that may be experienced during typically agricultural activities or construction activities.

5.5.5. The maximum residual adverse effect predicted during the subsequent extraction, processing and restoration activities (other than bund removal) in the absence of further mitigation is *slight*. This is only predicted at Mytex / New England Cottage due to the proximity of the as-raised stockpile, which is up to above the height of the screening bund. This stockpile would be worked throughout the year and hence may on occasion dry out. The height of the stockpile would however reduce markedly between campaigns with adverse dust risks reducing as the height lowers. In addition, the as-dug stockpile would be replenished during the extraction campaigns with freshly dug material which would have a high moisture content. Damping down the stockpiles as necessary during periods of prolonged dry and windy weather, as set out in the draft DMP, would reduce the likelihood of adverse effects. Residual adverse effects at all other receptors are *negligible* through the implementation of site-specific dust mitigation measures.

5.5.6. The above is subject to the maintenance of dust mitigation measures and hence adverse effects may occur if there is failure of these measures.

5.5.7. However key point is the relatively short-lived duration of the extraction activities in any particular area of the site, in combination of the campaign nature of those activities, further reducing the likelihood of adverse impacts and effects associated with these activities.

5.5.8. In addition, the assessment considers wind frequencies across the year. However, the campaign nature of the proposals would reduce the likelihood of specific activities close to Site boundaries occurring during conditions that may disperse any generated dust towards receptors.

5.5.9. The above is consistent with the guidance in relation to mineral dust, which is that dust emissions can be controlled by effective site management. As stated in Section 7.1 of the IAQM guidance (CD12.11) dust mitigation is a dynamic process involving the review and regulation of the mitigation applied as per the conditions on site.

5.5.10. The proximity of a bridleway (ref: 2-3 BW21) and footpath (ref: 2-3 FP28) to the Site is also noted. Bridleway 2-3 BW21 runs along Bourbles Lane and hence alongside all Phases and across internal haul routes at two locations. Footpath 2-3 FP28 will run alongside the Phase A and the Plant Site and alongside Phase 2. With reference to the IAQM Guidance on Mineral Dust [Box 3, page 23, CD12.11] footpaths are considered as *low* sensitivity receptors.

5.5.11. Following the disamenity dust assessment methodology, the pathway effectiveness to either the footpath or bridleway would be highly effective. This would result in a low risk of dust impacts and *slight adverse* effects at most. Potential risks and effects along some stretches where bunds are provided to extraction areas would be reduced to *negligible*. Any exposure at the footpath and bridleway would be transient, and people and animals would only be expected to present for short periods of time as part of the normal pattern of use of the land. The experience of occasionally encountering low levels of wind-borne dust when walking through the agricultural areas of the Lancashire plain is not out of the ordinary.

5.6. Assessment of Significance

5.6.1. Through the incorporation of the in-design mitigation and the additional management and operational dust mitigation measures that would be set out in a DMP no unacceptable impacts or resulting effects on amenity have been identified. The resulting significance of disamenity effects resulting from fugitive dust emissions is **not significant**.

6. Dust Assessment: Air Quality

6.1. Fine Particulate Matter Assessment

6.1.1. As noted above the fugitive dust (particulate matter) that could be generated by the proposed operations will include a proportion of 'fine particulate matter', also referred to as 'suspended particulate matter' (as PM_{10} and $PM_{2.5}$). The Vibrock AQA accordingly also included a PM_{10} and $PM_{2.5}$ Assessment.

6.1.2. However, it should be noted that the main potential effect from mineral sites is disamenity dust due to deposition of large (>30 µm) and intermediate (10-30 µm) sized dust particles (Page 17 IAQM guidance on mineral dust, CD12.11) which are not respirable. The sand and gravel material itself is much larger than PM_{10} or $PM_{2.5}$ (sand being described as having a grain size of 62-200 µm and gravel >200µm) and none of the proposed on-site activities would not involve any abrasive processes that would break the sand into smaller particles, particularly $PM_{2.5}$.

Baseline PM_{10} / $PM_{2.5}$ Concentrations

6.1.3. The Updated Vibrock AQA made reference to the Air Quality Annual Status Report (ASR) published in 2021 by WBC. This details the results of ambient air quality monitoring undertaken by WBC up until the end of 2020 and at the time was the most up to date publicly available ASR published by WBC. WBC has since provided an updated ASR (June 2025, CD12.20), which details the ambient air quality monitoring undertaken by WBC up until the end of 2024.

6.1.4. As of the 2021 Air Quality ASR WBC had not identified any areas of concern in relation to PM_{10} or $PM_{2.5}$ in the air quality annual status reports (ASRs) submitted under its LAQM duties. The 2021 ASR stated WBC did not undertake any monitoring for PM_{10} or $PM_{2.5}$ within its area. As of the 2025 ASR this remains the situation with no areas of concern identified with regards PM_{10} or $PM_{2.5}$ and no monitoring undertaken by the Council.

6.1.5. The PM_{10} and $PM_{2.5}$ concentrations provided in the Updated Vibrock AQA were therefore based on predicted background concentrations provided by Defra. This data is published by Defra in the form of predicted background concentration maps for 1km x 1km grid squares across the UK. These are updated on a regular basis due to updates in background data such as vehicle emission factors, vehicle fleet composition, age and distribution, existing local sources and monitoring data.

6.1.6. The latest available maps were issued in November 2024 and hence since the issue of the Updated Vibrock AQA. This latest predicted data is based on 2021 ambient monitoring and meteorological data.

6.1.7. The grid squares in which nearby receptors are located also appear to be inaccurately referenced in the Updated Vibrock AQA[1]. The current available data for 2026, and a future year, 2030, for the grid squares in which the Site and nearby receptors are located are summarised below.

Table 6.1: Predicted Background Air Quality Data – Particulate Matter

Grid Square	Location[1]	Annual Mean Concentrations (µg/m^3)			
		2026		2030	
		PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
337500, 447500	Site (Main Area), and including Bourbles Farm, Mylex Cottage, Woodlands, Red Lea, Whinmore Fold, Gautlors Lane, Pointer Farm complex, Greenacres, The Chestnuts / The Beeches	8.57	4.86	8.38	4.68
338500, 447500	Site (Phases 3A and 3B), Crossings Cottage	8.75	4.77	8.56	4.60
336500, 447500	Outer Preesall e.g., Little Tongues Lane, Sandicroft Place	8.83	5.11	8.63	4.93
336500, 448500	Little Tongue's Lane (Northwest)	9.61	5.39	9.41	5.21
337500, 448500	Little Tongue's Lane (Northeast)	8.47	4.81	8.27	4.63
AQAL		**40**	**20[2] (12 / 10[3])**	**40**	**12 / 10[3]**

Notes:

1: The grid squares in which nearby receptors are located appear to be inaccurately referenced in the Table 4 of the Original Vibrock AQA and Updated Vibrock AQA

2: Current AQO for $PM_{2.5}$

3: Interim (non-legal) $PM_{2.5}$ targets for 2028 and 2030

6.1.8. The maximum average background PM_{10} and $PM_{2.5}$ concentrations for the grid squares in which the Site and nearest receptors are located are predicted to be substantially below the relevant objectives. These are predicted to fall slightly over time. Predicted background concentrations of $PM_{2.5}$ are also well below the interim (non-legal) target for 2028 of 12 µg/m^3, new interim (non-legal) target for 2030 of 10 µg/m^3 and future legal target for 2040 of 10 µg/m^3.

6.1.9. The data are effectively an average concentration across each 1km square. Pollutant concentrations may therefore be higher than those provided above at any individual receptor close to any particular source such as the nearby A588. However, with reference to the Highways SoCG DfT count data for 2023 show flows on the A558 to be 5,513 2-way AADT of which 138 were HGVs and buses. A local authority survey reported higher total flows but with lower % HGVs and buses. With reference to Defra guidance to Local Authorities (LAQM.TG(22), CD12.10) this

[1] It is noted that Table 4: Annual Average Background Concentrations in the Updated Vibrock AQA (CD3.06) incorrectly places several receptors (including Red Lea, The Woodlands, Greenacres, Lyndale Farm, The Beeches) in different grid squares to 337500, 4447500. However, this does not affect the assessment presented with predicted 2026 and 2030 background PM10 and PM2.5 concentrations for the grid squares in which, in particular Woodlands and Red Lea, were placed being marginally higher than for their actual grid square.

would not be considered a road with either high traffic flows (has less than 10,000 vehicles per day) or road with a high % of HGVs (less than 2,500 HDVs / day). As such, given the nature of locality, it is reasonable to expect the PM_{10} and $PM_{2.5}$ annual mean concentrations provided above in Table 6.1 to be representative of local background concentrations, and as likely experienced at receptors.

6.1.10. To put these levels in context in the absence of any monitoring undertaken by WBC reference had been made to data available for other locations within Lancashire, those in Blackpool and Preston forming the closest available monitoring sites to the Site.

6.1.11. These locations are:

Table 6.2: PM Monitoring Locations within Lancashire

Location	Grid Reference	Type	Distance & Orientation from Site Entrance
Blackpool Whitegate Drive	332062, 435461	AURN; Urban Traffic	13.02km SW
Blackpool Marton	333768, 434759	AURN; Urban Background	13.07km SW
Bootle Street (Preston)	355250, 430126	Local Authority Report & AURN; Urban Background	24.56km SE
Cable Street, Lancaster City	347684, 461963	Local Authority; Roadside	17.81km NE

6.1.12. The annual mean PM_{10} and $PM_{2.5}$ concentrations monitored at these locations are summarised below:

Table 6.3: Lancashire PM Monitoring Data

Location	Annual Mean Concentration					
	2020	2021	2022	2023	2024	2025
PM_{10}						
Blackpool, Whitegate Drive	-	-	-	-	-	-
Blackpool Marton	15	12	14	12	13	13
Preston	13	13	14	12	11	12
Lancaster	17	17	15	14.4	13.4	-
$PM_{2.5}$						
Blackpool, Whitegate Drive	-	-	-	-	9	9

Location	Annual Mean Concentration					
	2020	2021	2022	2023	2024	2025
Blackpool Marton	8	7	8	7	8	8
Preston	7	8	8	7	7	8
Lancaster	-	8	8	7	7.1	-

6.1.13. Two of these locations form 'Urban Background' locations and the other two 'roadside' locations, and both PM_{10} and $PM_{2.5}$ concentration here would be expected to be influenced by vehicle emissions, and general urban emissions. It is noted PM_{10} and $PM_{2.5}$ concentrations are broadly similar across the locations, with PM_{10} concentrations for the period 2022-2025 being in the range 11-15 µg/m^{3}and $PM_{2.5}$ being 7-9 µg/m^3. These are well below the current standards.

Rule 6 Party Monitoring Data

6.1.14. The Rule 6 Party SoC documents includes a AQ Mesh Pod Particulate Study. This reports the results of a particulate matter monitoring exercise over a 3-week period in September-October 2023. The monitoring was undertaken using an AQ Mesh Pod, a recognised 'indicative' particulate matter monitor. However, the report does not provide any specific details or photographs of the monitor location, and no indication that the location met recommended, stringent criteria for the siting of such monitors (proximity of trees etc). Results are only provided for $PM_{2.5}$ and not PM_{10}. Only the raw hourly mean results are presented with no statistical analysis, calculation of 24-hour means, overall means, identification of 'null' readings etc. The data therefore has only limited utility.

6.1.15. The cover note provided by Cllr Collette Rushforth (BSc Hons) in the report makes reference to 'many 'little peaks''. However, this is entirely consistent with $PM_{2.5}$ (and other pollutant) concentrations which fluctuate over time, both within a day, and from day to day, due to both local, regional and cross-boundary influences (e.g. Saharan dust storms). Importantly, the standards established for $PM_{2.5}$ for the protection of human health are provided as annual means, i.e. the average hourly mean across a year.

6.1.16. The cover note also states that the recorded results show a baseline level of $PM_{2.5}$ of 6.48 µg/m^3 at the site and that this is higher than that reported by the applicant of 5.68 µg/m^3. However, these figures are not directly comparable, not least due the very different averaging periods referred to, and the AQ Mesh Pod forming no more than an 'indicative' analyser.

Assessment – PM_{10}

6.1.17. A 1km screening distance is applied to determine the need for a PM_{10} assessment to be consistent with the PPG. However as noted by the IAQM guidance on mineral dust (CD12.11, section 2.3) there does not appear to be any firm evidence that such a distance is relevant to all mineral developments, and particularly those with less dust generating activities than say, open

cast coal mines on which the original research was based. Although these smaller particles may remain suspended in the air and travel for longer distances than larger particles, they will also be subject to greater dispersion thereby reducing concentrations away from a source. The greatest impacts therefore would also be within 100m of a source as for disamenity dust (Box 2 of the IAQM Guidance, CD12.11).

6.1.18. Furthermore, as noted in the IAQM guidance the greatest proportion of dust emitted from mineral workings will be large (>30 µm) and intermediate (10-30 µm) sized dust particles, and not in the sub 10 µm range.

6.1.19. The IAQM Guidance on mineral dust (CD12.11; section 5.2) advises that where the long-term background PM_{10} concentration is less than 17 µg/m^3 there is little risk that additional contributions from a mineral site would lead to an exceedance of the annual mean air quality objective. The guidance advises that if this is the case then no further consideration is typically required.

6.1.20. The screening threshold of 17 µg/m^3 is based on the expectation that the maximum annual mean PC that **may** arise from mineral sites is 15 µg/m^3 (page 17, IAQG guidance CD12.11). The value of 17 µg/m^3 is derived by extracting 15 µg/m^3 from 32 µg/m^3, the value is that provided in LAQM (TG22) (CD10.x) as an indication of the relationship between annual mean concentrations and the risk of the daily PM_{10} objective being exceeded.

6.1.21. This is approach is highly conservative as this guidance and screening threshold is provided for **all** mineral sites, including hard rock sites such as open cast coal, limestone and granitic. With reference to Table A2-6 of the IAQM guidance (CD12.10) PM_{10} contributions from sand and gravel sites are much lower with figures cited as near 0 µg/m^3 within 50m. This is consistent with data provided in the UK National Atmospheric Emissions Inventory for 2023 which provides emissions factors for a range of pollutants from different UK industries. This data estimates $PM_{2.5}$ to be 10% of PM_{10} emissions from quarrying.

6.1.22. As noted above the Defra data predicts annual mean background concentrations of 8.47-9.61 µg/m^3 in the locality of the Site, i.e., well below the recommended screening value of 17 µg/m^3 (at 50-57%). On this basis no further consideration of potential PM_{10} impacts from Proposed Development would be required.

6.1.23. Annual mean PM_{10} concentrations might be higher than the general predicted background levels at some receptors. However, there are none that are in close proximity to any particular sources that could lead to substantially higher levels. The closest properties to the Site, including at Mytax for example, are set back at least 250m from the roadside of the A588. Others are closer to the A588, or the B5270 within Preesall, but with measured traffic flows well below 10,000 AADT

these would not be expected to be subject to high levels of PM_{10}, and are all at least 100m from the Site.

6.1.24. Further assessment for potential PM_{10} impacts can be undertaken through reference to the IAQM guidance on construction dust (CD12.13). Given the short-term nature of the proposals and shallow sand and gravel workings with inert material import and restoration, activities can be considered similar in effects to those associated with earthworks for construction projects, noting such projects can involve material excavation, internal haulage, tipping, the use of on-site crushing and screening processing, and stockpiling. The guidance sets out an assessment methodology taking into account the number of sensitive receptors within certain distances of the Site and the background annual mean PM_{10} concentrations.

6.1.25. Following this approach the dust emission magnitude (in relation to construction earthworks) would be *large* and site sensitivity would be *low* (with reference to Table 3 of CD10.07). The resulting risk of dust impacts with regards PM_{10} would be *low* (with reference to Table 7 of CD12.13). In accordance with the construction dust guidance the findings of the assessment are then used to determine the required site-specific mitigation.

Assessment – $PM_{2.5}$

6.1.26. Any PM_{10} generated by the proposed activities would also include a proportion of $PM_{2.5}$ as a sub-fraction. However, it should be noted that for quarries most of any suspended dust generated will be in the coarse sub-fraction ($PM_{2.5\text{-}10}$), rather than in the fine ($PM_{2.5}$) fraction (page 6, page 12 IAQM guidance on mineral dust, CD12.11). The IAQM guidance on construction dust (paragraph 4.2.2 page 9, CD12.13) advises that the overall $PM_{2.5}$ fraction in PM_{10} of construction emissions varies between 5 and 15%, and as a whole, it is recommended that the average $PM_{2.5}$ content of PM_{10} should be assumed to be 10%. For the reasons given above the $PM_{2.5}$ content of PM_{10} from a sand and gravel site is likely to be similar or in reality probably less than that from a construction site given the nature of activities.

6.1.27. This is consistent with data provided in the National Atmospheric Emissions Inventory (NAEI) which estimates for the UK quarrying industry $PM_{2.5}$ emissions to be 10% of PM_{10} emissions.

6.1.28. No screening thresholds are currently provided in guidance in relation to minerals development and $PM_{2.5}$, the focus of current guidance, including the Minerals nPPG, being on PM_{10}. However, points noted above in relation to deposition dust are all relevant in relation to the likelihood of generation of $PM_{2.5}$ by the proposed development. This includes the inherent nature of the sand and gravel working (mineral with a high moisture content) and short-term campaign nature of extraction, along with other in-design and additional mitigation measures.

6.1.29. If in a worse case assessment, the PM_{10} contribution is taken as 15 $\mu g/m^3$ (see paragraph above), then if 10% of this comprised $PM_{2.5}$ (see paragraph 6.1.26 above) this would equate to a $PM_{2.5}$ contribution of 1.5 $\mu g/m^3$. As discussed above however a PM_{10} contribution of 15 $\mu g/m^3$ is

highly conservative with data provided in the IAQM guidance showing the PM_{10}, contribution as being near 0 µg/m^3 within 50m of a sand and gravel quarry. $PM_{2.5,}$ contributions would correspondingly be much smaller. The Updated Vibrock AQA included further assessment of $PM_{2.5}$. This assumed an additional load of 0.5 µg/m^3 $PM_{2.5}$ attributable (as an annual mean) to the proposed operations to the existing background level (CD3.05).

6.1.30. As detailed above the current legal objective to be achieved (by the Government) in relation to $PM_{2.5}$ is 20 µg/m^3 (as an annual mean). New future annual mean concentration and population exposure targets for $PM_{2.5}$ have been introduced. The annual mean concentrations targets are established as a legal target of 10 µg/m^3 for 2040 and a non-legal interim target of 12 µg/m^3 for 2028. In December 2025 a further non-legal interim target of 10 µg/m^3 was established for 2030 (CD12.21). This was established on the basis '*Concentrations of $PM_{2.5}$ since 2020 have decreased more quickly than indicated by modelling. Analysis commissioned by Defra suggests this reduction is likely to be due to a combination of factors such as reducing emissions of $PM_{2.5}$ precursors (pollutants which react in the atmosphere to produce $PM_{2.5}$) in the UK and also in Europe, leading to a lower amount of pollution being blown in from outside the UK'.* These comments will have been based on the collation of $PM_{2.5}$ monitoring data across the UK including at sites near busy roads and in urban areas, such as those in Lancaster and Preston discussed above.

6.1.31. Current predicted background $PM_{2.5}$ concentrations in the area are well below all these future targets already at 4.77-5.39 µg/m^3, 48-54% of the more stringent target of 10 µg/m^3. Assuming a contribution of 1.5 µg/m^3 as discussed in paragraph 6.1.29 to background concentrations total annual mean $PM_{2.5}$ concentrations remain well below these targets. It should be borne in mind these are future targets with those for 2028 and 2030 being non-legal targets to measures the Government's progress to achieving the 2040 legal target. The proposed development is for a time limited period with restoration to be complete within 7 years of the commencement. Hence if permission was granted by Appeal in 2026 with a requirement to commence within 3 years of granting of permission it would be complete by the latest in 2040.

6.1.32. Further consideration has also been undertaken in light of the Defra interim guidance on considering $PM_{2.5}$ in planning applications this is presented in Appendix KEH10. It is considered the proposal meets the requirements of that guidance and does so by some margin.

Mitigation

6.1.33. The proposed dust mitigation measures to manage fugitive dust emissions would also serve to reduce potential PM_{10} (and $PM_{2.5}$) emissions. Hence, taking into account the nature of the sand and gravel quarry, the proposed mitigation measures, and background air quality, as discussed above with regards to disamenity dust, no further assessment is deemed necessary. Contributions of PM_{10} (and $PM_{2.5}$) from any fugitive dust from the proposed development to local

air quality at relevant receptors is not considered to result in significant adverse effects. Additional mitigation above those outlined above are not deemed necessary.

6.1.34. The proposed DMP includes for dust deposition and soiling monitoring, for a period of 3-months prior to the on-set of the development and thereafter for the duration of the operations, subject to agreement with the MPA. In light of the above assessment, and in particular the nature of the proposed site activities and proposed short-term extraction campaign, it is not considered necessary or proportionate to undertake monitoring for PM_{10} or $PM_{2.5}$. This is consistent with the guidance provided in nPPG-Minerals which is that where PM_{10} levels would not be likely to exceed the relevant AQO good practice measures should suffice and monitoring and additional PM_{10} controls are not necessary.

6.1.35. However, should it be considered appropriate by the MPA then a short-term PM_{10} and $PM_{2.5}$ monitoring exercise can be included within the DMP. The aim of any such monitoring would be to ensure that the agreed mitigation measures to control dust emissions are being applied and are effective, and to determine the need for on-going monitoring.

6.1.36. The methodology of any such monitoring exercise would be subject to agreement with the MPA but would be expected to utilise an MCERTS certified indicative real-time particulate monitor at a suitably agreed location. Such a monitor is not a reference method and as such does not enable direct comparison to national objectives. However, these monitors can be used to assess trends in PM levels, provide an "alert" system with regards to increased emissions of dust and are frequently utilised for the monitoring of construction sites. It would expected that such monitoring would be undertaken for a period of at least 3-months prior to the on-set of operations. This pre-commencement monitoring would be used to provide baseline data and establish a threshold of PM_{10} concentrations that could be used as a Site Action Level (as a 1-hourly mean). Such a level could be used to determine the need to immediately modify, reduce or temporarily cease operations. This approach is consistent with that outlined in the draft DMP with regards to visual observations of dust crossing the site boundary. Post-commencement monitoring would be recommended for a period of at least 3-months to cover initial soil stripping and extraction operations.

6.1.37. If implemented the requirement of any further on-going monitoring beyond the initial post-commencement period would be subject to review and assessment of the results. Such a review would take into account any exceedances of the Site Action Level, along with other influences and factors such as the prevailing weather conditions, local and regional PM_{10} episodes and other local sources such as agricultural activities occurring over the period.

7. Other Considerations

7.1. Vehicle Emissions Assessment

Baseline Conditions

7.1.1. The HGV movements to and from the Proposed Development would result in NO_x / NO_2 and PM_{10} / $PM_{2.5}$ emissions and hence potential adverse impacts on local air quality. This was considered in the Updated Vibrock AQA but I provided additional detail and information here.

7.1.2. The Updated Viborck AQA made reference to Defra predicted background NO_2 concentrations for the years 2022, 2026 and 2030. Background PM_{10} and $PM_{2.5}$ concentrations are discussed above in Section 6.

7.1.3. The current available data for 2026 and 2030 for the grid squares in which the Site and surroundings are located are summarised below.

Table 6.1: Predicted Background Air Quality Data – NO_2

Grid Square	Location	Annual Mean NO_2 Concentrations (µg/m^3)	
		2026	2030
337500, 447500	Site (Main Area), and including Bourbles Farm, Mylex Cottage, Woodlands, Red Lea, Whinmore Fold, Gautlors Lane, Pointer Farm complex, The Chestnuts	4.15	3.64
338500, 447500	Site (Phases 3A and 3B), Crossings Cottage	4.06	3.56
336500, 447500	Outer Preesall e.g., Little Tongues Lane, Sandicroft Place	4.34	3.82
336500, 448500	Little Tongue's Lane (Northwest)	4.50	4.02
337500, 448500	Little Tongue's Lane (Northeast)	3.98	3.54
AQAL		**40**	**40**

Note: As detailed above in Section 6 the grid squares are incorrectly detailed in Table 4 of the Original and Updated Vibrock AQAs

7.1.4. The maximum average background NO_2 concentrations for the grid squares in which the Site and surroundings are located are predicted to be substantially below the relevant objectives, at 11% of the objective in 2026 and falling to 10% by 2030.

7.1.5. As noted in paragraph 3.3.1 Vibrock Updated AQA WBC has declared one AQMA within its administrative area, 8km from the site. This is located on Chapel Street within the centre of Poulton-le-Flyde and was declared due to elevated concentrations of annual mean NO_2.

7.1.6. This AQMA therefore lies over 8km to the south-southwest of the Site and is distant from the local road network. It is further noted that the WBC 2025 Air Quality ASR states that due to the continued compliance of concentrations in the AQMA with the NO_2 annual mean objective, the Council is in the process of revoking this AQMA.

7.1.7. The Updated Vibrock AQA made reference to the Air Quality Annual Status Report (ASR) published in 2021 by WBC. This detailed the results of ambient air quality monitoring undertaken by WBC up until the end of 2020 and at the time was the most up to date publicly available ASR published by WBC. As noted above in Section 6 WBC has since provided an updated ASR (June 2025, CD12.21), which details the ambient air quality monitoring undertaken by WBC up until the end of 2024.

7.1.8. As of the 2020 ASR the Council undertook monitoring for annual mean NO_2 using passive diffusion tubes at 19 locations in its area in 2020. These were located in Poulton-le-Flyde, Fleetwood, Thornton Cleverleys and Garstang and as such were all distant from the Site and the local road network. The 2025 ASR notes however that monitoring commenced in 2024 at a new location at Pointer House, Lancaster Road, Preesall (site ID: 25). This is stated in the ASR as having been established *'to monitor for any pollution concerns as a result of increased traffic due to a proposed local quarry*.' This new monitor is located on Lancaster Road to the east of the proposed access as shown in the figure in Appendix KEH7 to this Proof. Results are provided in this ASR for location 27 for 2024, at 5.8 $\mu g/m^3$ this too is substantially below the AQO.

7.1.9. The annual mean NO_2 concentrations at all the other locations monitored by WBC have been well below the AQO of 40 $\mu g/m^3$ (<75% of the AQO) across the 2020-2024 period, including within the Chapel Street AQMA. The highest annual mean NO_2 concentrations across the monitoring locations in 2024 was 21.1 $\mu g/m^3$ at a location in the AQMA.

7.1.10. This is consistent with expectations across the UK in that the overall trend in NO_2 annual mean concentrations is expected to continue downwards in light of continuous reduced vehicle emissions, and it is considered unlikely that the majority of UK roadside locations are likely to experience concentrations above those experienced in 2019 at any point in the foreseeable future.

Assessment

7.1.11. Details on the expected HGV movements to / from the Proposed Development are set out in the Updated Transport Statement to the ES (CD1.11), and the Highways SoCG. The numbers provided in para 7.7 of the Updated Vibrock AQA appear to be slightly incorrect and do not specify whether they refer to 1-way or 2-way movements. I have therefore summarised relevant details below.

7.1.12. Assuming no weekend working and a 245-day working year, over the 5-year mineral extraction period, there would be an average of 20 HGV outward movements per working day for material export.

7.1.13. Assuming a similar amount of infill import as mineral extracted, over the 6-year restoration period, there would be an average of 17 HGV inward HGV movements per working day. The actual import requirements are predicted to be less than the quantity of mineral extracted with resulting reduced HGV movements.

7.1.14. In the absence of any back-haul for either the mineral export vehicles or infill material import vehicles then the resulting average working day 2-way HGV movements would be 40 associated with mineral export (20 in / 20 out) and 34 associated with infill import (17 in / 17 out).

7.1.15. For a period both export and import HGV movements would be experienced, resulting in an average of 74 2-way HGV movements per working day (37 in / 37 out). Reduced movements would be experienced during the initial stage before material import commences and during the latter phases on completion of mineral export.

7.1.16. The resulting annual average daily (AAD) movements would be less than this average working day figure, as movements would be averaged across a full year of 365 days. For example, during the period of both export and import than an average of 74 2-way movements per working day x 245 working days / 365 days per year results in 50 2-way movements as AADT (25 in / 25 out).

7.1.17. All movements to / from the Site would be via Lancaster Road, the B5270 to the south of the Site.

7.1.18. AQM guidance on air quality and planning (CD12.12; box 6.2) provides screening criteria for additional traffic movements to be introduced as part of a development above which an air quality assessment is advised. Such as an assessment may take the form of a simple or detailed assessment depending on factors such as the sensitivity of the area, proximity of sensitive receptors to the affected road network etc. The screening criteria for HGVs are +100 AADT where distant from an AQMA and +25 AADT where within or close to an AQMA. Exceedance of these criteria does not imply that significant adverse effects would result but that some form of air quality assessment should be undertaken. This may take the form of a simple qualitative assessment or detailed quantitative assessment. As discussed above the Site and local road network are distant from any AQMAs or identified areas of potential air quality concern. Furthermore, monitoring over 2024 at a location on Lancaster Road to the east of the proposed access reported annual mean NO_2 concentrations to be substantially below the AQO at 5.8 $\mu g/m^3$ compared to the AQO of 40 $\mu g/m^3$. It is therefore appropriate to refer to a threshold of +100 HGV AADT as provided in IAQM guidance to indicate the need for some form of air quality assessment.

7.1.19. At 50 HGV AADT, the 2-way on-road HGV movements associated with the Proposed Development at the access point are **well below** the screening criteria of +100 HGV AADT. HGV movements would be further reduced during the periods of the development when only export or import occur.

7.1.20. As detailed in the Transport Statement all HGV traffic will arrive from and depart to the east along Lancaster Road and the A588 Head Dyke Road. There will be no HGV's using the section of Lancaster Road to the west of the site going through Preesall or Knott End on Sea. Again at 50 HGV AADT all 2-way movements on Lancaster Road would still be well below the screening threshold.

7.1.21. The additional contributions of NO_2 and PM_{10} (and $PM_{2.5}$) to façade concentrations from the 50 HGV AADT would not therefore be expected to result in significant adverse impacts at these properties.

7.1.22. The conclusions are therefore in line with the Updated Vibrock AQA in that HGV movements are below the relevant IAQM screening thresholds. As concluded in the Updated Vibrock AQA it is considered that the contribution of the proposed quarry related HGV exhaust emissions to the local air quality would **not be significant**.

7.2. Other Matters – Respirable Crystalline Silica (RCS)

7.2.1. On review of the Original Virock AQA UKHSA & Atkins recommended further consideration of potential impacts associated with Respirable Crystalline Silica (RCS). No further consultee response were provided following the provision of the Updated Vibrock AQA and Regulation 25 responses.

7.2.2. As noted above in paragraph 3.5.7 it has been confirmed that the Report to the Development Control Committee contained a typographical error and should have read: '*it is considered that risk of exposure to Respirable Crystalline Silica dust can**not** be a reason for objection to the proposal'* as set out in the overarching Statement of Common Ground (SoCG)

7.2.3. However, within the Rule 6 Party SoC documents ('Adverse Effects on Health') reference is made to potential harmful effects of silica sand and silicosis. I have therefore provided further information here in relation to the proposed development.

Potential Sources of RCS

7.2.4. Silica (silicon dioxide) is an abundant naturally occurring substance existing in both crystalline and non-crystalline (amorphous) forms. The minerals quartz, tridymite and cristobalite are all crystalline silica, and as such it is found in varying amounts in most rocks, sand and clay and in building products such as concrete, bricks, tiles and mortars. The mechanical breaking of silica

containing materials, particularly cutting, sanding, carving etc can give rise to fine dust which can include crystalline silica within the respirable fraction (respirable crystalline silica (RCS)).

7.2.5. The respirable dust fraction (of which any RCS would form a proportion) lies between the particle size fractions of $PM_{2.5}$ and PM_{10}, and equates broadly to an environmental particle size fraction of PM_4. However, any RCS would only form a proportion of PM_4 (and hence also $PM_{2.5}$); these particles in the ambient air **would not** comprise solely of RCS. It must also be noted that PM_{10}, PM_4, $PM_{2.5}$ and RCS all exist naturally at background levels in ambient air.

7.2.6. Long-term inhalation of RCS may give rise to silicosis and / or chronic obstructive pulmonary disease (COPD). Extremely high exposures can also give rise to acute silicosis.

7.2.7. Risks of exposure to RCS is known to be greatest for construction workers working on materials such as concrete, mortar and sandstone that contain higher quantities of silica.

7.2.8. Quarrying activities may also give rise to RCS and guidance is provided by the Health and Safety Executive (HSE) to the quarrying industry in relation to silica and Control of Substances Hazardous to Health Regulations 2002 (COSHH). Health and safety controls are employed to manage the potential exposure of employees to RCS, as are employed for all activities that may pose harm to workers and / or exposure to potentially harmful materials. This includes a series of advice sheets produced by the HSE covering aspects such as rock drilling, excavating and haulage, crushing and dry screening. These detail recommended measures to reduce workers exposure to RCS.

7.2.9. Monitoring for RCS is routinely undertaken for employee occupational exposure monitoring and is typically undertaken for RSC (quartz) and respirable dust (of which a proportion is RCS). The UK Health and Safety Executive have established Workplace Exposure Limits (WELs) of 0.1 mg/m^3 for RCS and 4 $mg/^3$ for respirable dust (both as 8-hour time weighted averages). Further health surveillance is undertaken for employees where there is a high-risk of exposure to RCS. Such employee health surveillance is not a substitute for effective control measures but a secondary check to ensure they are working.

7.2.10. The greatest risks for exposure would be to workers in **enclosed** environments where RCS may be generated through energetic processing such as crushing and other mechanical activities, and to those undertaking cleaning and maintenance activities that re-suspend any deposited fine particles in such enclosed environments.

7.2.11. The HSE advice notes in relation to crushing and dry screening advice that, where possible, these operations should be located outdoors away from buildings. Advice in relation to excavating and haulage is provided to operators in control cabs along with general advice to use standard

dust suppression measures. Respiratory protective equipment (RPE) is generally not normally required other than for certain **internal** activities where the risk of exposure is greater.

7.2.12. With regards to the Proposed Development itself proposals are for sand and gravel / sand extraction with no blasting or any other significant breaking activities. Processing will involve the use of water and would not require the use of large or permanent crushing plant. Where any crushing of oversize gravel is to be undertaken this is to be of a very short-term campaign nature sited within the Plant Site using a mobile crusher, similar to that frequently employed on demolition or material recycling sites. Any such plant would be permitted under a separate mobile plant Environmental Permit issued by the relevant local authority with which the plant is registered.

7.2.13. The in-design measures that would serve to substantially reduce the potential for generation of dust, along with PM_{10} and $PM_{2.5}$, would equally serve to reduce the potential for emissions of RCS.

7.2.14. The implementation of dust suppression measures in accordance with an approved DMP as discussed above in Section 5 would further all serve to minimise the risk of any RCS emissions from the site.

Assessment

7.2.15. It must be noted that the focus of RCS concerns is on workplace exposure as an occupational disease, and not the ambient environment and general public exposure. There are no established or recommended standards in the UK for RCS in ambient air such as exists for PM_{10} and $PM_{2.5}$. Similarly, there are no approved or readily available methods for monitoring RCS in the ambient air. There is additionally no UK best practice or recommended methodology for the assessment for potential RCS emissions to ambient air or potential off-site impacts,

7.2.16. Although, any RCS may potentially form a proportion of any PM_{10} generated, all the outlined mitigation measures described above in Section 5 and provided in the draft DMP, and that would be expected to be required through condition of any granted planning permission, would serve to reduce dust, PM_{10} and $PM_{2.5}$, and hence also any potential RCS emissions.

7.2.17. There is no evidence that the proposed development would pose a potential significant risk to the local population due to RCS.

8. Overall Conclusions

8.1. LCC has advised it is putting forward Reason for Refusal 2 with regards to *unacceptable …dust impacts that could not be satisfactorily mitigated …..* In LCCs SoC it is stated that '*In terms of dust and air quality impacts, the County Council will demonstrate that there would be likely unacceptable impacts at particular stages of the quarrying and backfill operations due to the close proximity of residential properties to the site boundary and active areas of the site, the requirement to move excavated minerals and backfill materials on unsurfaced haul roads and the difficulties of providing adequate and effective mitigation measures particularly in instances where operations take place in such close proximity to sensitive development'.*

8.2. No further detail or information is provided by LCC in their SoC.

8.3. In preparing this proof I have therefore reviewed the original Air Quality Assessment, and subsequent Updated Air Quality Assessment, prepared by Vibrock and submitted with the planning application, and other relevant information and consultee responses. I have further reviewed the areas of disagreement as set out by LCC in the SoCG on dust.

8.4. The Vibrock Air Quality Assessments considered the potential impacts from fugitive dust on local receptors, both with regards to deposition (disamenity) dust and suspended particulate matter (PM_{10} and $PM_{2.5)}$. The assessment also included recommended outline mitigation measures that would be incorporated within any future consented operations.

8.5. The original assessment was reviewed by LCC Public Health who requested additional assessment and requested that should planning permission be granted the provision of a Dust Management Plan (DMP) should be required under condition. LCC Public Health did not object to the proposed development. An Updated AQA was prepared by Vibrock and submitted in as part of Regulation 25 response to LCC. It does not appear that any further responses from LCC Public Health were received following this submission.

8.6. I have therefore reviewed the Virbock AQAs in detail and undertaken my own assessment of the potential impacts of any dust generated by the proposed development on nearby receptors. I have also considered the proposed phasing and in-design mitigation measures that form part of the planning application specific to this scheme, along with the outline additional management and operational mitigation measures that were detailed in the AQAs.

8.7. I have provided further details on standard management and operational mitigation measures and prepared a draft DMP. This forms the basis of a document to be agreed with LCC should permission be granted. This draws on the findings of the dust assessment and brings together industry standard best practice measures that can be employed to minimise the generation of

dust from the proposed activities. Further regulatory control would be provided through the Environmental Permit that would be applicable to the material import aspects of the development.

8.8. I conclude that through both the in-design mitigation measures and additional management and operational measures that can be applied that the Appeal proposals would not result in significant adverse impacts or unacceptable impacts on local amenity or local air quality.

8.9. Other potential aerial emissions associated with the proposals such as on-road vehicle exhaust emissions are also not predicted to result in significant adverse impacts.

8.10. Overall, from my review of the information and results of the assessment, I conclude that, with the incorporation of appropriate mitigation, the proposed development complies with the relevant national and local planning policies in relation to dust and air quality.

APPENDIX KEH1

Extract of National Planning Policy Framework (NPPF)

Ministry of Housing,
Communities &
Local Government

National Planning Policy Framework

December 2024

15. Conserving and enhancing the natural environment

187. Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;

e) 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; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

188. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework[65]; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

189. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and National Landscapes which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks

[65] Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

Ground conditions and pollution

196. Planning policies and decisions should ensure that:

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

197. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

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

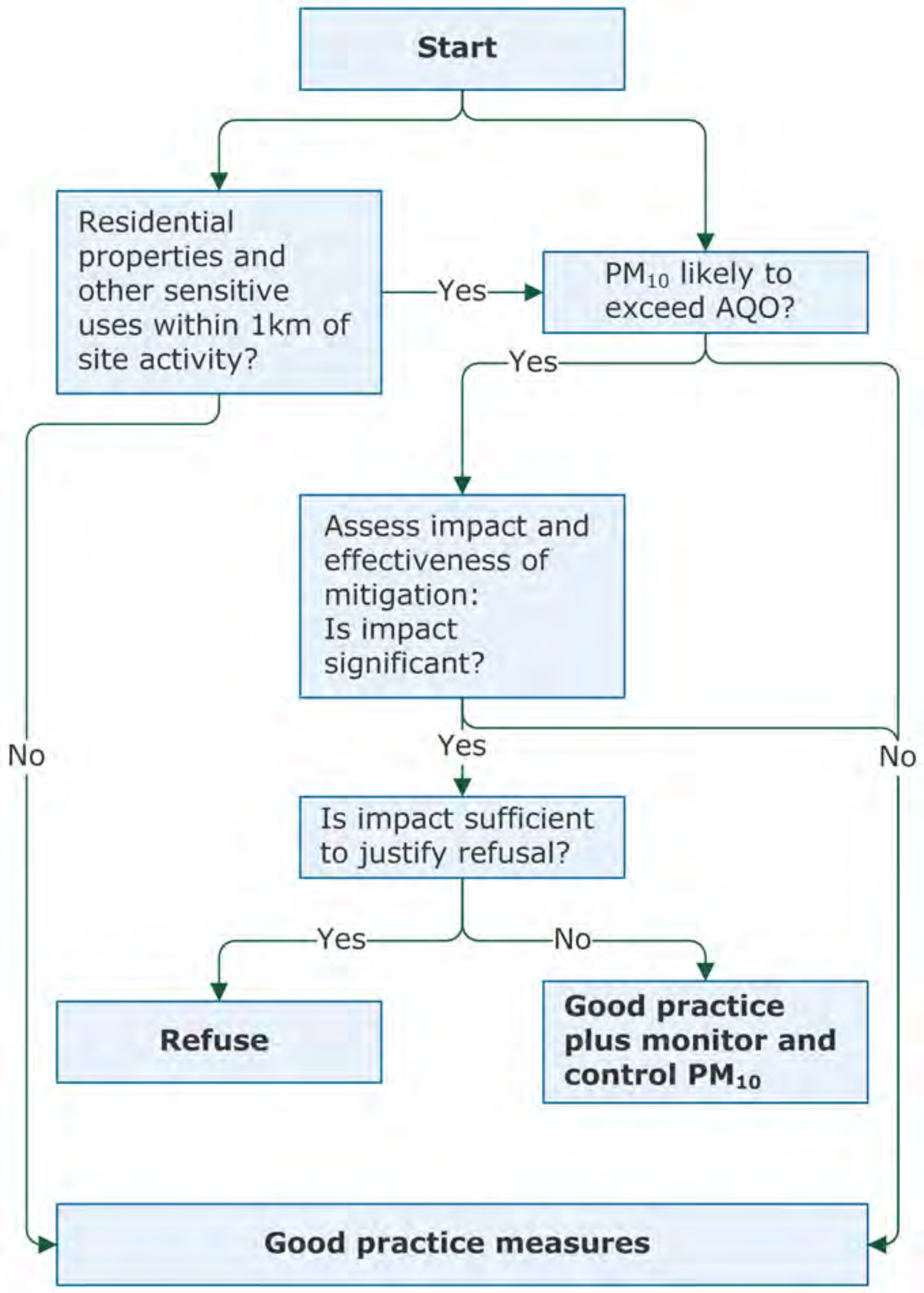
a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life[72];

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

199. 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.

[72] See Explanatory Note to the *Noise Policy Statement for England* (Department for Environment, Food & Rural Affairs, 2010).


Start
Residential properties and other sensitive uses within 1km of site activity?
Yes
PM_{10} likely to exceed AQO?
Yes
No
Assess impact and effectiveness of mitigation: Is impact significant?
Yes
No
Is impact sufficient to justify refusal?
Yes
No
Refuse
Good practice plus monitor and control PM_{10}
Good practice measures

APPENDIX KEH2

Extract of PPG-M

GOV.UK

Guidance

Minerals

Guidance on the planning for mineral extraction in plan making and the application process.

From: **Ministry of Housing, Communities and Local Government (/government/organisations/ministry-of-housing-communities-local-government)**, **Ministry of Housing, Communities & Local Government (2018 to 2021) (/government/organisations/ministry-of-housing-communities-and-local-government-2018-2021)** and **Department for Levelling Up, Housing and Communities (/government/organisations/department-for-levelling-up-housing-and-communities)**

Published 17 October 2014

Contents

Revision date: 06 03 2014

Dust emissions

How should mineral operators seek to minimise dust emissions?

Where dust emissions are likely to arise, mineral operators are expected to prepare a dust assessment study, which should be undertaken by a competent person/organisation with acknowledged experience of undertaking this type of work.

There are 5 key stages to a dust assessment study:

- establish baseline conditions of the existing dust climate around the site of the proposed operations;
- identify site activities that could lead to dust emission without mitigation;
- identify site parameters which may increase potential impacts from dust;
- recommend mitigation measures, including modification of site design
- make proposals to monitor and report dust emissions to ensure compliance with appropriate environmental standards and to enable an effective response to complaints.

Paragraph: 023 Reference ID: 27-023-20140306

Revision date: 06 03 2014

Stages of the dust assessment study

Paragraph: 024 Reference ID: 27-024-20140306

Revision date: 06 03 2014

Stage 1: Establish existing baseline conditions

Existing ambient conditions should be recorded over a period sufficient to identify seasonal variations in the range of existing conditions which naturally exist (ideally by a dust-monitoring programme). The assessment should take into account the principal existing dust sources (other than the site) such as air pollution from urban and industrial areas, existing mineral operations, agricultural activities and construction activities.

The location of residential areas, schools and other dust-sensitive land uses should be identified in relation to the site, as well as proposed or likely sources of dust emission from within the site.

The assessment should explain how topography may affect the emission and dispersal of site dust, particularly the influence of areas of woodland, downwind or adjacent to the site boundary, and of valley or hill formations in altering local wind patterns.

The assessment should explain how climate is likely to influence patterns of dispersal by analysing data from the UK Meteorological Office or other recognised agencies on wind conditions, local rainfall and ground moisture conditions.

Paragraph: 025 Reference ID: 27-025-20140306

Revision date: 06 03 2014

Stage 2: Identify site activities that could lead to dust emission without mitigation

Potential dust sources should be identified and their potential to emit dust assessed with respect to the duration of the activity or the potential of dust to become airborne.

Paragraph: 026 Reference ID: 27-026-20140306

Revision date: 06 03 2014

Stage 3: Identify site parameters which may increase potential impacts from dust

This brings together information collected in Stages 1 and 2 with information on sensitive land uses around the site in order to understand how these uses could be affected by dust. Computer modelling techniques can be used to understand how dust could disperse from a site. Alternatively, a more qualitative approach, relying on professional judgement, could be used to bring together the data collected in Stages 1 and 2.

Paragraph: 027 Reference ID: 27-027-20140306

Revision date: 06 03 2014

Stage 4: Recommend mitigation measures and site design modifications

Measures to control dust should be specified and described in terms of their potential to reduce dust and consequent impacts.

Paragraph: 028 Reference ID: 27-028-20140306

Revision date: 06 03 2014

What facilities are sensitive or less sensitive to dust emissions?
The relationship of the activities within mineral workings to surrounding land uses will vary from site to site. Since the nature of those land uses varies, so will their sensitivity to dust. Some environmental features may also be sensitive to dust.

Paragraph: 029 Reference ID: 27-029-20140306

Revision date: 06 03 2014

What additional dust control measures might be necessary?
Additional measures to control fine particulates (PM10) to address any impacts of dust might be necessary if, within a site, the actual source of emission (eg the haul roads, crushers, stockpiles etc) is in close proximity to any residential property or other sensitive use. Operators should follow the assessment framework for considering the impacts of PM10 from a proposed site.

Paragraph: 030 Reference ID: 27-030-20140306

Revision date: 06 03 2014

When should this additional assessment be carried out?
The actual cut-off point for consideration of additional assessments for individual proposals will vary according to local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive use in relation to the prevailing wind direction and visibility).

Paragraph: 031 Reference ID: 27-031-20140306

Revision date: 06 03 2014

Site Assessment flow chart
Site assessment flow chart (https://assets.publishing.service.gov.uk/media/5a80007aed915d74e33f7dda/minerals1_033.pdf)

PDF, 200 KB, 1 page

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Paragraph: 032 Reference ID: 27-032-20140306

Revision date: 06 03 2014

Quarry-slope stability

What factors should be considered in assessing quarry-slope stability?

The consideration of slope stability that is needed at the time of an application will vary between mineral workings depending on a number of factors, eg depth of working; the nature of materials excavated; the life of the working the length of time interim slopes are expected to be in place; and the nature of the restoration proposals.

Appraisal of slope stability for new workings should be based on existing information, which aims to:

- identify any potential hazard to people and property and environmental assets and assess its significance, and;
- identify any features which could adversely affect the stability of the working to enable basic quarry design to be undertaken.

Paragraph: 033 Reference ID: 27-033-20140306

Revision date: 06 03 2014

Charging for site visits

Can mineral planning authorities charge for site visits?

Under the Town and Country Planning (Fees for Applications, Deemed Applications, Requests and Site Visits) (England) Regulations 2012, mineral planning authorities can charge for a maximum of 8 site visits for monitoring site operations within any 12 month period where the site is operational, or one visit in other circumstances (https://www.legislation.gov.uk/uksi/2012/2920/contents/made). Additional site visits may be undertaken but they cannot be

APPENDIX KEH3

Extract of National Planning Policy for Waste (NPPW)

Ministry of Housing, Communities & Local Government

Ministry of Housing, Communities & Local Government (2018 to 2021)

Department for Levelling Up, Housing & Communities

Policy paper

National planning policy for waste

Published 16 October 2014

Applies to England

Contents

This publication is available at https://www.gov.uk/government/publications/national-planning-policy-for-waste/national-planning-policy-for-waste

planning authorities, should first look for suitable sites and areas outside the Green Belt for waste management facilities that, if located in the Green Belt, would be inappropriate development. Local planning authorities should recognise the particular locational needs of some types of waste management facilities when preparing their Local Plan.

Determining planning applications

7. When determining waste planning applications, waste planning authorities should:

- only expect applicants to demonstrate the quantitative or market need for new or enhanced waste management facilities where proposals are not consistent with an up-to-date Local Plan. In such cases, waste planning authorities should consider the extent to which the capacity of existing operational facilities would satisfy any identified need;

- recognise that proposals for waste management facilities such as incinerators that cut across up-to-date Local Plans reflecting the vision and aspiration of local communities can give rise to justifiable frustration, and expect applicants to demonstrate that waste disposal facilities not in line with the Local Plan, will not undermine the objectives of the Local Plan through prejudicing movement up the waste hierarchy;

- consider the likely impact on the local environment and on amenity against the criteria set out in Appendix B and the locational implications of any advice on health from the relevant health bodies**.** Waste planning authorities should avoid carrying out their own detailed assessment of epidemiological and other health studies;

- ensure that waste management facilities in themselves are well-designed, so that they contribute positively to the character and quality of the area in which they are located;

- concern themselves with implementing the planning strategy in the Local Plan and not with the control of processes which are a matter for the pollution control authorities. Waste planning authorities should work on the assumption that the relevant pollution control regime will be properly applied and enforced;

- ensure that land raising or landfill sites are restored to beneficial after uses at the earliest opportunity and to high environmental standards through the application of appropriate conditions where necessary.

8. When determining planning applications for non-waste development, local planning authorities should, to the extent appropriate to their responsibilities, ensure that:

- the likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities;

Appendix B

Locational Criteria

In testing the suitability of sites and areas in the preparation of Local Plans and in determining planning applications, waste planning authorities should consider the factors below. They should also bear in mind the envisaged waste management facility in terms of type and scale.

a. protection of water quality and resources and flood risk management
Considerations will include the proximity of vulnerable surface and groundwater or aquifers. For landfill or land-raising, geological conditions and the behaviour of surface water and groundwater should be assessed both for the site under consideration and the surrounding area. The suitability of locations subject to flooding, with consequent issues relating to the management of potential risk posed to water quality from waste contamination, will also need particular care.

b. land instability
Locations, and/or the environs of locations, that are liable to be affected by land instability, will not normally be suitable for waste management facilities.

c. landscape and visual impacts
Considerations will include (i) the potential for design-led solutions to produce acceptable development which respects landscape character; (ii) the need to protect landscapes or designated areas of national importance (National Parks, the Broads, Areas of Outstanding Natural Beauty and Heritage Coasts) (iii) localised height restrictions.

d. nature conservation
Considerations will include any adverse effect on a site of international importance for nature conservation (Special Protection Areas, Special Areas of Conservation and RAMSAR Sites), a site with a nationally recognised designation (Sites of Special Scientific Interest, National Nature Reserves), Nature Improvement Areas and ecological networks and protected species.

e. conserving the historic environment
Considerations will include the potential effects on the significance of heritage assets, whether designated or not, including any contribution made by their setting.

f. traffic and access
Considerations will include the suitability of the road network and the extent to which access would require reliance on local roads, the rail network and transport links to ports.

g. air emissions, including dust
Considerations will include the proximity of sensitive receptors, including ecological as well as human receptors, and the extent to which adverse emissions can be controlled through the use of appropriate and well-maintained and managed equipment and vehicles.

h. odours
Considerations will include the proximity of sensitive receptors and the extent to which adverse odours can be controlled through the use of appropriate and well-maintained and managed equipment.

i. vermin and birds
Considerations will include the proximity of sensitive receptors. Some waste management facilities, especially landfills which accept putrescible waste, can attract vermin and birds. The numbers, and movements of some species of birds, may be influenced by the distribution of landfill sites. Where birds congregate in large numbers, they may be a major nuisance to people living nearby. They can also provide a hazard to aircraft at locations close to aerodromes or low flying areas. As part of the aerodrome safeguarding procedure (ODPM Circular 1/2003[5]) local planning authorities are required to consult aerodrome operators on proposed developments likely to attract birds. Consultation arrangements apply within safeguarded areas (which should be shown on the policies map in the Local Plan).

The primary aim is to guard against new or increased hazards caused by development. The most important types of development in this respect include facilities intended for the handling, compaction, treatment or disposal of household or commercial wastes.

j. noise, light and vibration
Considerations will include the proximity of sensitive receptors. The operation of large waste management facilities in particular can produce noise affecting both the inside and outside of buildings, including noise and vibration from goods vehicle traffic movements to and from a site. Intermittent and sustained operating noise may be a problem if not properly managed particularly if night-time working is involved. Potential light pollution aspects will also need to be considered.

k. litter
Litter can be a concern at some waste management facilities.

l. potential land use conflict
Likely proposed development in the vicinity of the location under consideration should be taken into account in considering site suitability and the envisaged waste management facility.

[5] Safeguarding aerodromes, technical sites and military explosives storage areas and on the application of the Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002

APPENDIX KEH4

Extracts of Joint Lancashire Minerals and Waste Local Plan:
Site Allocation and Development Management Policies: Policy DM2

Lancashire Minerals & Waste Local Plan

Joint Lancashire Minerals and Waste Local Plan

Site Allocation and Development Management Policies - Part One

September 2013

2.2 Development Management

Policy DM2 - Development Management

Development for minerals or waste management operations will be supported where it can be demonstrated to the satisfaction of the mineral and waste planning authority, by the provision of appropriate information, that all material, social, economic or environmental impacts that would cause demonstrable harm can be eliminated or reduced to acceptable levels. In assessing proposals account will be taken of the proposal's setting, baseline environmental conditions and neighbouring land uses, together with the extent to which its impacts can be controlled in accordance with current best practice and recognised standards.

In accordance with Policy CS5 and CS9 of the Core Strategy developments will be supported for minerals or waste developments where it can be demonstrated to the satisfaction of the mineral and waste planning authority, by the provision of appropriate information, that the proposals will, where appropriate, make a positive contribution to the:

- Local and wider economy
- Historic environment
- Biodiversity, geodiversity and landscape character
- Residential amenity of those living nearby
- Reduction of carbon emissions
- Reduction in the length and number of journeys made

This will be achieved through for example:

- The quality of design, layout, form, scale and appearance of buildings
- The control of emissions from the proposal including dust, noise, light and water.
- Restoration within agreed time limits, to a beneficial afteruse and the management of landscaping and tree planting.
- The control of the numbers, frequency, timing and routing of transport related to the development

Justification

2.2.1 Minerals and waste developments are vital to the economy of Lancashire, either by supplying raw materials to manufacturing processes or by treating the wastes produced as a byproduct of manufacturing or other business or commercial activity; they also provide jobs for a wide range of skill sets, from manual handling to process engineering. They are essential for the nation's prosperity, infrastructure and quality of life. However, they have the potential to cause disruption to local communities and the environment due to the nature of their operations, in common with other heavy industries. These impacts can often be addressed through the sensitive design and operation of the facility. Planning conditions will be imposed, where appropriate, to ensure this.

2.2.2 Such conditions may indeed enable development to take place where it would otherwise be necessary to refuse planning permission. Conditions will be attached to planning permission to control how development takes place, to minimise disturbance to the environment, and to ensure the satisfactory working and reclamation of the site. To ensure certainty, transparency and to

APPENDIX KEH5

Extracts of Joint Lancashire Minerals and Waste Development Framework: Core Strategy Development Plan Document: Managing our Waste and Natural Resources: Policy CS5

Lancashire
Minerals & Waste
Development Framework

Joint Lancashire Minerals and Waste Development Framework Core Strategy DPD

Managing our Waste and Natural Resources

FEBRUARY 2009

Section 6.5

Achieving Sustainable Minerals Production

POLICY CS5

Alternatives to the bulk transportation of minerals by road will be encouraged. Existing or potential transport, storage, handling or reprocessing facilities will be safeguarded where they offer the potential for the use of rail, water or other means to transport minerals.

Criteria will be developed for the site identification process, and also for considering other proposals brought forward outside the plan-making process, to ensure that:

(i) our natural resources including water, air, soil and biodiversity are protected from harm and opportunities are taken to enhance them;

(ii) features and landscapes of historic and cultural importance and their settings are protected from harm and opportunities are taken to enhance them;

(iii) workings will not adversely contribute to fluvial flood risks or surface water flooding;

(iv) proposals for mineral workings incorporate measures to conserve, enhance and protect the character of Lancashire's landscapes;

(v) the amenity, health, economic well-being and safety of the population are protected by the introduction of high operating standards, sensitive working practices and environmental management systems that minimise harm and nuisance to the environment and local communities throughout the life of the development;

(vi) essential infrastructure and services to the public will be protected;

(vii) sensitive environmental restoration and aftercare of sites takes place, appropriate to the landscape character of the locality and the delivery of national and local biodiversity action plans. Where appropriate, this will include improvements to public access to the former workings to realise their amenity value.

Concurrent mineral working will be encouraged where it will maximise the recovery of the materials worked, including secondary materials.

Waste materials will be used positively wherever appropriate and will not constitute a nuisance before a suitable use can be found.

APPENDIX KEH6

Extracts of Wyre Local Plan 2011-2031: Policy CDMP1

Wyre Local Plan (2011-2031) (incorporating partial update of 2022)

Adopted – 26 January 2023










6 Core Development Management Policies

6.1 Introduction

6.1.1 Core Development Management Policies cover issues regarding matters which potentially relate to any development requiring planning permission irrespective of scale and location. These matters are important considerations in determining planning applications. The Core Development Management Policies therefore apply to all proposals where relevant irrespective of whether they are crossed referenced in other policies in this Local Plan. Cross references where they occur add an emphasis on the importance of the matters covered by Core Development Management Policies.

6.2 Environmental Protection

6.2.1 Development brings many benefits - it can provide new housing, new or better jobs, or improved services and facilities. However some development can cause pollution and pose a risk to the environment and to health and safety if not managed properly. Also land may be contaminated due to historic land uses and it is important that appropriate remediation takes place before development occurs.

6.2.2 Environmental law separate to planning, deals specifically with controlling matters such as pollution, contamination and nuisance. Policy CDMP1 does not duplicate these separate statutory provisions but aims to complement them where appropriate and to minimise the risk to health and the environment from new developments. Policy CDMP1 sets out the matters that will need to be considered to ensure a healthy and safe environment for both the existing community in the vicinity of the development and the future occupiers of the development.

6.2.3 Every borough is required to meet national air quality standards. Wyre Council monitors air quality across the Borough in relation to these standards and where these standards are consistently not met, an Air Quality Management Area (AQMA) has to be declared. Development must not compromise Wyre's ability to meet national air quality targets. Policy CDMP1 aims to manage air quality issues linked to development.

CDMP1 Environmental Protection

1. Development will be permitted where in isolation or in conjunction with other planned or committed developments it can be demonstrated that the development:

   a) Will be compatible with adjacent existing uses or uses proposed in this plan and it would not lead to significant adverse effects on health, amenity, safety and the operation of surrounding uses and for occupants or users of the development itself, with reference to noise, vibration, odour, light, dust, other pollution or nuisance, Applications will be required to be accompanied, where appropriate by relevant impact assessments and mitigation proposals;

   b) In the case of previously developed, other potentially contaminated or unstable land, a land remediation scheme can be secured which will ensure that the land is remediated to a standard which provides a safe environment for occupants and users and does not displace contamination;

   c) (i) Will not give rise to a deterioration of air quality in a defined Air Quality Management Area or result in the declaration of a new AQMA. Where appropriate an air quality impact assessment will be required to support development proposals.

(ii) Where development will result in, or contribute to, a deterioration in air quality, permission will only be granted where any such harm caused is significantly and demonstrably outweighed by other planning considerations and appropriate mitigation measures are provided to minimise any such harm.

2. Proposals for the development of hazardous installations/pipelines, modifications to existing sites, or development in the vicinity of hazardous installations or pipelines, will be permitted where it has been demonstrated that the amount, type and location of hazardous substances would not pose unacceptable health and/or safety risks.

6.3 Flood Risk and Surface Water Management

6.3.1 Wyre is a coastal borough, predominately low-lying and crossed by the River Wyre and its tributaries – the Calder and Brock. Flooding can impact on the life and wellbeing of residents and has consequences for the local economy and the environment. Flood risk from all sources and its management is a main issue in Wyre. It is important that new development manages flood risk from all sources but most critically that surface water is managed sustainably through the use of sustainable drainage systems or schemes (SuDS). It is important to ensure that new development is not at risk of flooding and does not increase the risk elsewhere.

6.3.2 Drainage of surface water can potentially put a strain on existing water and waste water infrastructure especially during heavy rain. Policy CDMP2 establishes a hierarchy of options for dealing with surface water. Surface water draining into the public sewer should be the last resort and only if all other options have been considered and where possible implemented either wholly or in part so that the volume of surface water in to the public sewer is minimised.

CDMP2 Flood Risk and Surface Water Management[26]

Flooding

1. Development is required to have regard to the most up-to-date Wyre Strategic Flood Risk Assessment Level 2[27] including the SFRA Level 2 Flood Risk Sequential Test Paper and comply with the most up to date version of any relevant plans and strategies[28] including:

   a) Surface Water Management Plan;
   b) Local Drainage Strategies;
   c) Land Drainage Strategy;
   d) Catchment Flood Management Plans;
   e) Shoreline Management Plan;
   f) Coastal Defence Strategy;
   g) Emergency Flood Plans.

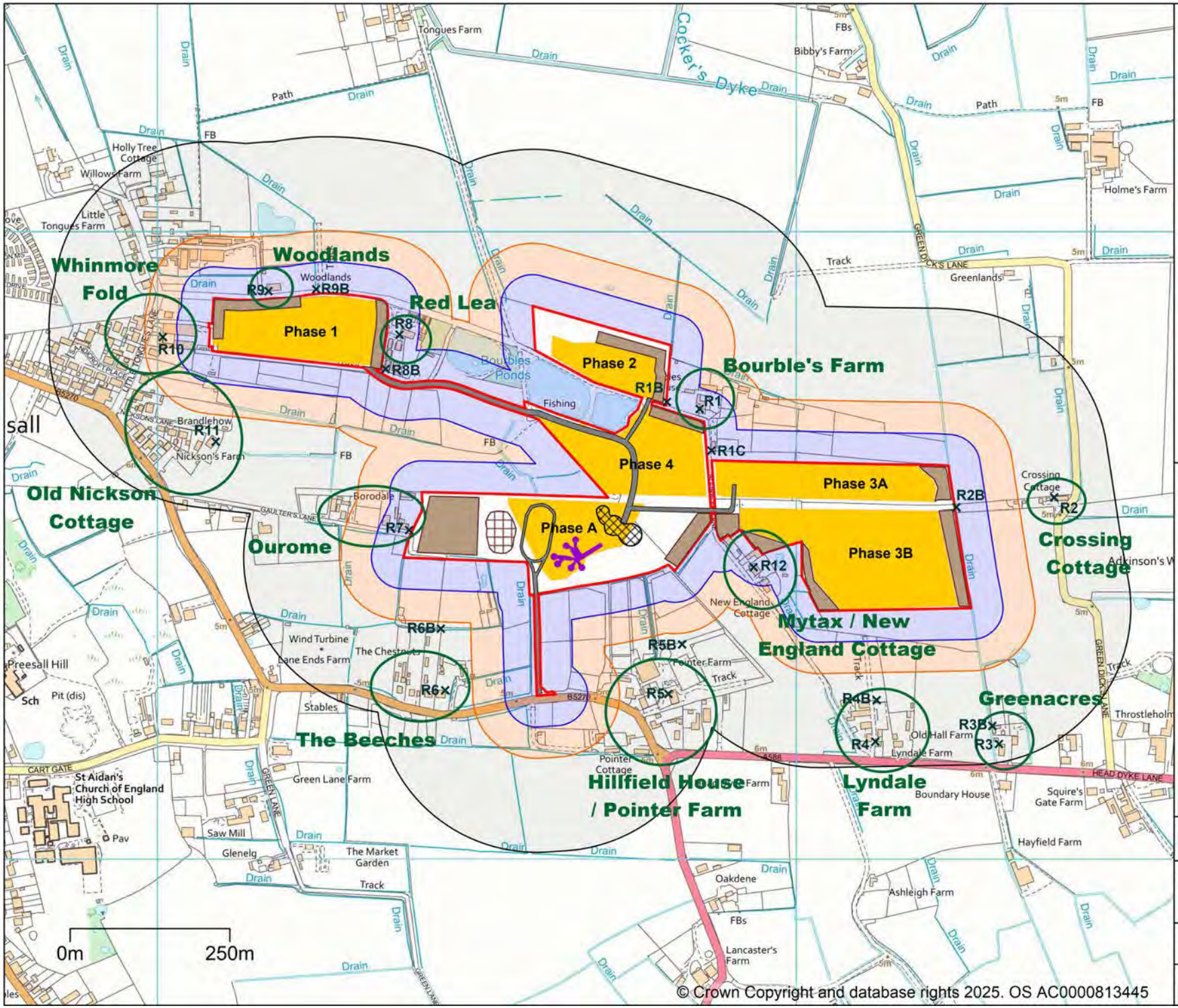
2. Development will be required to demonstrate that:

   a) It will not be at an unacceptable risk of flooding; and
   b) It would not lead to an increased risk of flooding elsewhere; and

[26] Useful guidance on the requirements of the Lead Flood Authority is found on LCC's website at http://www.lancashire.gov.uk/media/657248/LLFA-Standing-Pre-Application-Advice.pdf
[27] The SFRA Level 2 is made up of a suite of documents and is available on Wyre's Website http://www.wyre.gov.uk/info/200460/environment/1063/environment_evidence
[28] Relevant plans and strategies can be accessed through the Council's web site at www.wyre.gov.uk/floodinganddrainage

APPENDIX KEH7

Plans of Site and Receptors



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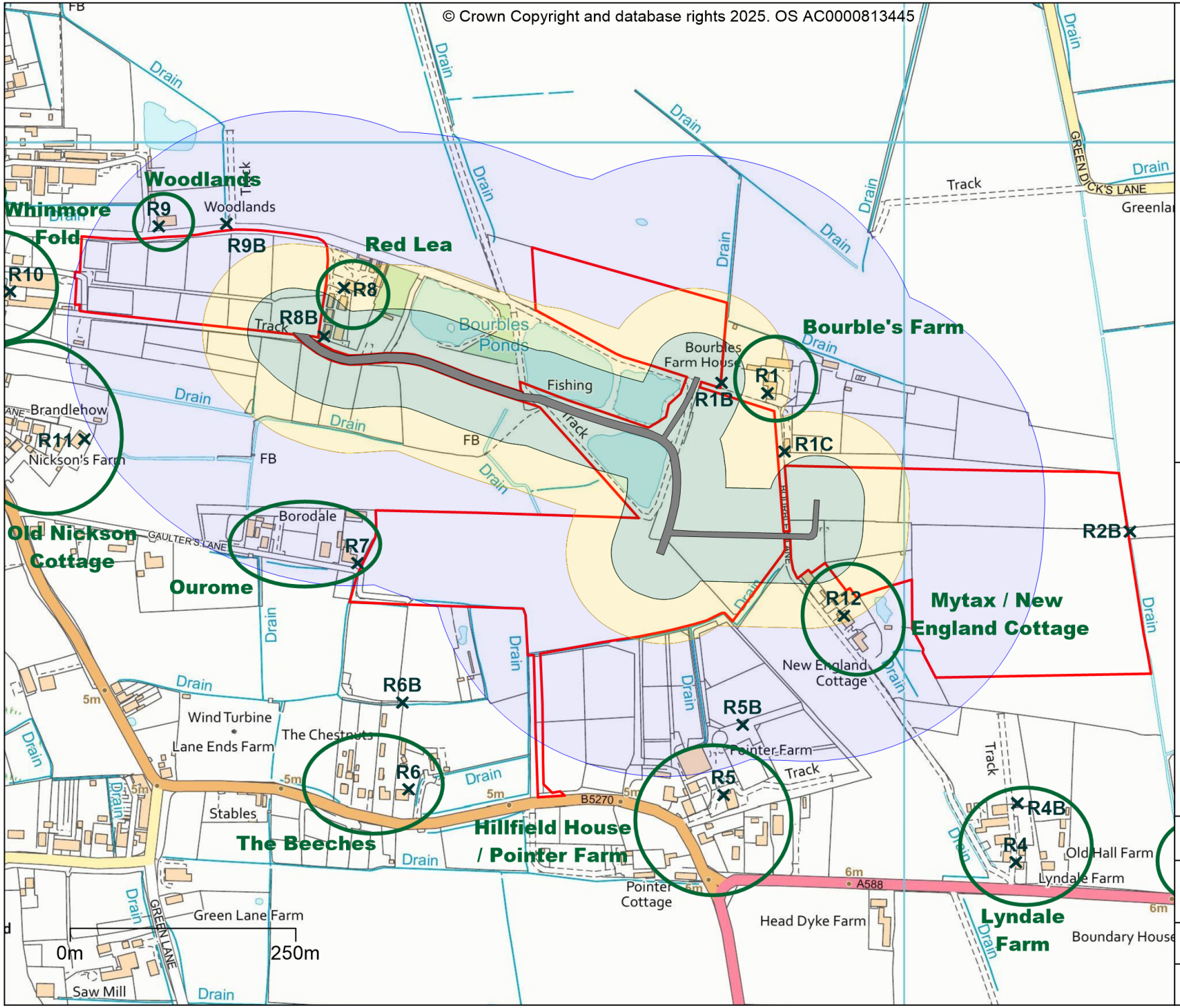
Project:
Bourbles Quarry

Drawing:
Mineral Dust Assessment: Dust Receptors

Date:	Job No:
20/02/2026	R3549
Drawn by: E.MacDonald	Checked by: K.Hawkins



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Project:
Bourbles Quarry

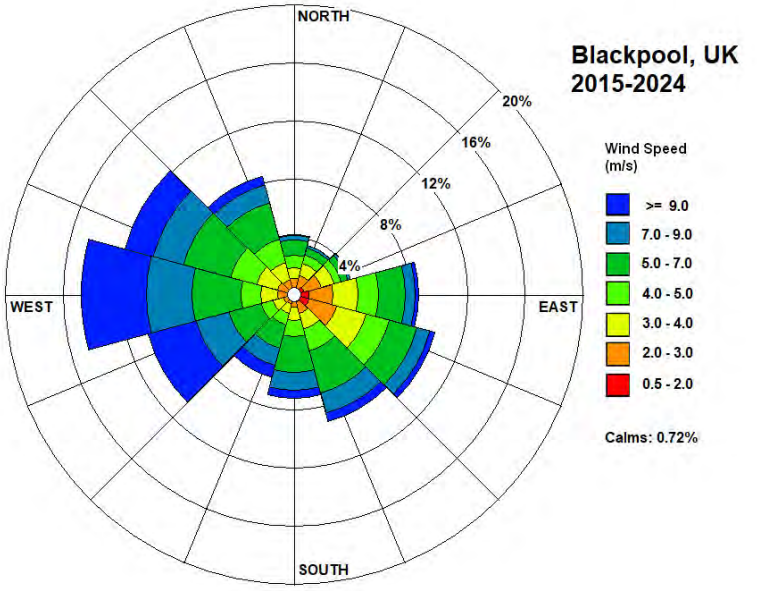
Drawing:
Mineral Dust Assessment: Internal Haul Roads

Date:	Job No:
13/03/2026	R3549
Drawn by: E.MacDonald	Checked by: K.Hawkins

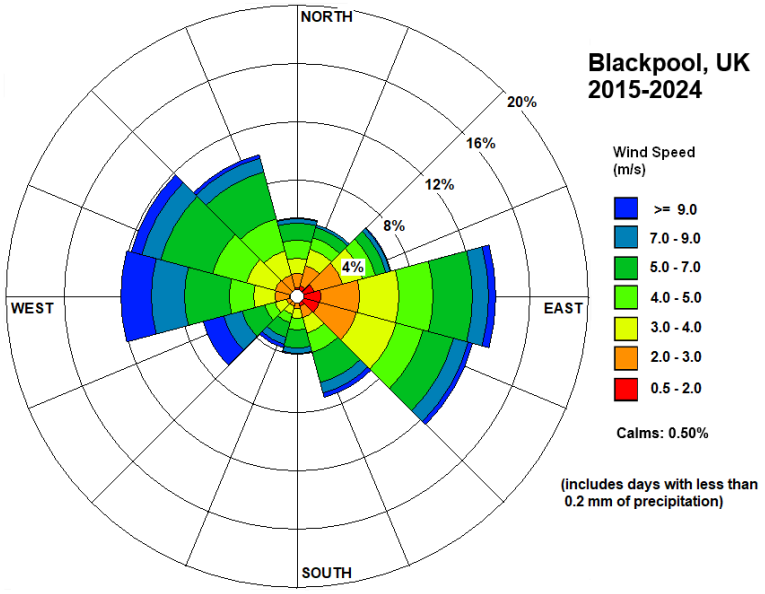
APPENDIX KEH8

Windroses

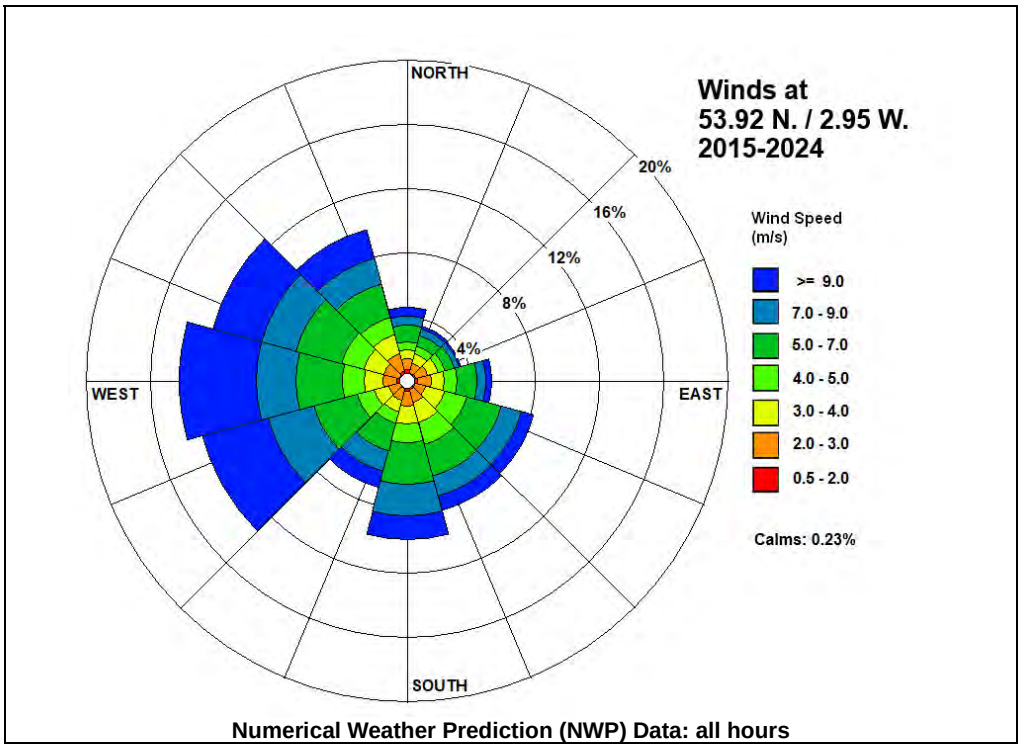
Wind Roses Derived from 10 years Meteorological Data: 2015-2024



Blackpool Squires Gate: all hours



Blackpool Squires Gate: dry hours



Numerical Weather Prediction (NWP) Data: all hours

APPENDIX KEH9

Sensitivity Dust Assessment

R3549: Proposed Sand and Gravel Quarry, Land off Bourbles Lane, Preesall
Disamenity Dust Assessment - Sensitivity Assessment

Appendix KEH9: Disamenity Dust Assessment

ID	Receptor	Type	Receptor Sensitivity	Primary Source	Dust Source Potential	Distance to Site Boundary (m)	Distance to Working Area (m)	Assessment Distance Range (m)	Distance Description	Orientation to Source	Range of wind directions that effect receptor (°)
Bourbles Farm											
R1	Bourbles Farm	Residential	High	Phase 2 - soil stripping / bund construction	Medium	50m	50m	50-100m	Intermediate	E	300, 330
R1B	Bourbles Farm - garden area	Leisure	High	Phase 2 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	E	300, 330
R1C	Bourbles Farm - paddocks	Leisure	Medium	Phase 2 - soil stripping / bund construction	Medium	*superseded by above*					
R1	Bourbles Farm	Residential	High	Phase 4 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	S	180, 210, 240, 270
R1	Bourbles Farm	Residential	High	Phase 4 - extraction / Phased 3B infilling	Medium	5m	5m	<50m	Close	S, SE	150, 180, 210, 240, 270
R1B	Bourbles Farm - garden area	Leisure	High	Phase 4 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	S	120, 150, 180, 210
R1C	Bourbles Farm - external grounds	Leisure	Low	Phase 4 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	E	210, 240, 270, 300
R1C	Bourbles Farm - external grounds	Leisure	Low	Phase 3A/3B - soil stripping	Medium	5m	5m	<50m	Close	NW	120, 150
R1	Bourbles Farm	Residential	High	internal haulage - Phase 3B restoration & Phase 4 extraction	Medium	50m	130m	100-250m	Distant	N	180, 210, 240, 270
R1B	Bourbles Farm - garden area	Leisure	High	internal haulage - Phase 3B restoration & Phase 4 extraction	Medium	*superseded by above*					
R1C	Bourbles Farm - paddocks	Leisure	Medium	internal haulage - Phase 3B restoration & Phase 4 extraction	Medium	*5m*	110m	100-250m	Distant	N	150, 180, 210
Crossing Cottage											
R2	Crossing Cottage	Residential	High	Phase 3A/3B - soil stripping / bund construction	Medium	155m	155m	100-250m	Distant	E	210, 240, 270
R2B	Crossing Cottage - gardens	Leisure	Medium	Phase 3A/3B - soil stripping / bund construction	Medium	5m	5m	<50m	Close	E	210, 240, 270, 300, 330
R2	Crossing Cottage	Residential	High	Phase 3A/3B - internal haulage	Medium	*>250m no assessment required*					
R2B	Crossing Cottage - gardens	Leisure	Medium	Phase 3A/3B - internal haulage	Medium	*>250m no assessment required*					
Greenacres											
R3	Greenacres	Residential	High	Phase 3B - soil stripping, extraction, restoration	Medium	165m	165m	100-250m	Distant	SSE	300, 330
R3B	Greenacres-Paddock	Leisure	Medium	Phase 3B - soil stripping, extraction, restoration	Medium	120m	120m	100-250m	Distant	SSE	300, 330
Lyndale Farm											
R4	Lyndale Farm / Old Hall Farm	Residential	High	Phase 3B - soil stripping, extraction, restoration	Medium	195m	195m	100-250m	Distant	S	330, 0, 30
R4B	Lyndale Farm - grounds / nursery	Leisure	High	Phase 3B - soil stripping, extraction, restoration	Medium	130m	130m	100-250m	Distant	S	330, 0, 30
Hillfied House / Pointer Farm											
R5	Pointer Farm complex	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	200m	200m	100-250m	Distant	SE	330, 0
R5B	Pointer Farm complex - paddock	Leisure	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	140m	140m	100-250m	Distant	SE	300, 330, 0
R5	Pointer Farm complex	Residential	High	Internal haulage - Phase 3B restration/ Phase 4 extraction	Medium	240m	240m	100-250m	Distant	SE	300, 330
R5B	Pointer Farm complex - paddock	Leisure	High	Internal haulage - Phase 3B restration/ Phase 4 extraction	Medium	*>250m no assessment required*					
R5	Pointer Farm complex	Residential	High	Access Road	Small	90m	90m	50-100m	Intermediate	E	270, 300
R5B	Pointer Farm complex - paddock	Leisure	High	Access Road	Small	245m	245m	100-250m	Distant	E	240, 270, 300
The Beeches / The Chestnuts											
R6	The Chestnuts	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	210m	210m	100-250m	Distant	SW	0, 30
R6B	The Chestnuts - rear gardens	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	120m	110m	100-250m	Distant	SW	0, 30, 60
R6	The Chestnuts	Residential	High	Access Road	Small	110m	110m	100-250m	Distant	W	60, 90
R6B	The Chestnuts - rear gardens	Residential	High	Access Road	Small	110m	110m	100-250m	Distant	W	60, 90, 120
Gaulter's Lane / Ourome											
R7	Ourome	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	5m	5m	<50m	Close	W	60, 90, 120
R7	Ourome	Residential	High	Phase 1 - soil stripping, extraction	Medium	260m	260m	>250m	Distant	SE	0, 330
Red Lea											
R8	Red Lea	Residential	High	Phase 1 - soil stripping, extraction	Medium	5m	5m	<50m	Close	E	240, 270, 300
R8B	Red Lea - grounds	Residential	Medium	Phase 1 - soil stripping, extraction	Medium	5m	5m	<50m	Close	E	240, 270, 300
R8	Red Lea	Residential	High	Phase 1 - internal haulage	Medium	5m	70m	50-110m	Intermediate	N, NW	120, 150, 180
R8B	Red Lea - grounds	Residential	Medium	Phase 1 - intenral haulage	Medium	5m	5m	<50m	Close	N, NW	120, 150, 180
R8	Red Lea	Residential	High	Phase 2 - soil stripping, extraction	Medium	210m	240m	100-250m	Distant	W	90
R8B	Red Lea - grounds	Residential	Medium	Phase 2 - soil stripping, extraction	Medium	235m	260m	>250m	*>250m no assessment required*		
R8	Red Lea	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	225m	265m	>250m	*>250m no assessment required*		
R8B	Red Lea - grounds	Residential	Medium	Phase A - soil stripping, extraction, processing, stockpiles	Medium	205m	215m	100-250m	Distant	N	120, 150
Woodlands											
R9	Woodlands	Residential	High	Phase 1 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	N	90, 120, 150, 180, 210, 240
R9B	Woodlands - grounds	Residential	High	Phase 1 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	N	120, 150, 180, 210, 240, 270
R9	Woodlands	Residential	High	Phase 1 - internal haulage	Medium	5m	190m	100-250m	Distant	NE	120
R9B	Woodlands - grounds	Residential	High	Phase 1 - intenral haulage	Medium	5m	150m	100-250m	Distant	NE	120
Little Tounges Lane / B5270											
R10	Whinmore Fold Farm	Residential	High	Phase 1 - soil stripping / bund construction	Medium	70m	75m	50-100m	Intermediate	W	60, 90
R11	Old Nicholsons Cottage	Residential	High	Phase 1 - soil stripping, extraction	Medium	140m	140m	100-250m	Distant	S	0, 30, 60
Bourbles Lane - Mytax / New England Cottage											
R12	Mytax	Residential	High	Phase 3B - soil stripping, extraction, restoration	Medium	25m	25m	<50m	Close	NE	330, 0, 30, 60, 90, 120
R12	Mytax	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	25m	110m	100-250m	Distant	NW	270, 300
R12	Mytax	Residential	High	internal haulage	Medium	25m	90m	50-100m	Intermediate	N	330
R12	Mytax	Residential	High	cumulative - Phase 3B & processing & haulage	Medium	25m	25m	<50m	Close	NE	330, 0, 30, 60, 90, 120
R12B	Mytax - paddock	Leisure	Low	Phase 3B - soil stripping, extraction, restoration	Medium	5m	5m	<50m	Close	NE	330, 0, 30, 60, 90, 120
R12B	Mytax - paddock	Leisure	Low	Phase A - soil stripping, extraction, processing, stockpiles	Medium	5m	110m	100-250m	Distant	NW	240, 270, 300
R12B	Mytax - paddock	Leisure	Low	internal haulage	Large	5m	5m	<50m	Close	N	300, 330, 0
R12B	Mytax - paddock	Leisure	Low	cumulative - Phase 3B & processing & haulage	Medium	5m	5m	<50m	Close	NE	300, 330, 0, 30, 60, 90, 120

Notes:

1: Residential- receptors assessed at areas of garden / driveways etc thaty could be considered of high sensitivity closest to source rather than façade

2: Disamenity dust assessment undertaken following methodology adapted from Institute of Air Quality Management Guidance, on the Assessment of Mineral Dust Impacts for Planning, May 2016

R3549: Proposed Sand and Gravel Quarry, Land off Bourbles Lane, Preesall
Disamenity Dust Assessment - Sensitivity Assessment

Appendix KEH9: Disamenity Dust Assessment

Blackpool Winds
All winds

								During soil stripping / bund construction			During extraction / restoration		
ID	Receptor	Type	Receptor Sensitivity	Sum of %frequency of winds to receptor	Frequency Description (all winds)	Pathway Effectiveness	Screening (existing & proposed)	Residual Pathway Effectiveness (prior to screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect	Residual Pathway Effectiveness (post screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect
Bourbles Farm													
R1	Bourbles Farm	Residential	High	20.6%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	20.6%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - paddocks	Leisure	Medium										
R1	Bourbles Farm	Residential	High	38.3%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1	Bourbles Farm	Residential	High	47.3%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	32.1%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - external grounds	Leisure	Low	43.2%	Very Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1C	Bourbles Farm - external grounds	Leisure	Low	19.1%	Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1	Bourbles Farm	Residential	High	32.6%	Very Frequent	Moderately Effective	Screening Bund - only in Phase 4	Slightly effective	Low	Slight	Slightly effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High										
R1C	Bourbles Farm - paddocks	Leisure	Medium	22.1%	very frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Crossing Cottage													
R2	Crossing Cottage	Residential	High	31.1%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R2B	Crossing Cottage - gardens	Leisure	Medium	51.7%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R2	Crossing Cottage	Residential	High										
R2B	Crossing Cottage - gardens	Leisure	Medium										
Greenacres													
R3	Greenacres	Residential	High	20.6%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R3B	Greenacres-Paddock	Leisure	Medium	20.6%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Lyndale Farm													
R4	Lyndale Farm / Old Hall Farm	Residential	High	16.2%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R4B	Lyndale Farm - grounds / nursery	Leisure	High	16.2%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
Hillfied House / Pointer Farm													
R5	Pointer Farm complex	Residential	High	12.6%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	24.7%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5	Pointer Farm complex	Residential	High	20.6%	Very Frequent	Moderately Effective	screening bund	Slightly effective	Low	Slight	Slightly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High										
R5	Pointer Farm complex	Residential	High	26.8%	Very Frequent	Highly Effective	none	Highly Effective	Low	Slight	Highly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	37.3%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
The Beeches / The Chestnuts													
R6	The Chestnuts	Residential	High	7.7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	11.8%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6	The Chestnuts	Residential	High	12.7%	Frequent	Slightly Effective	none	Slightly Effective	*Negligible*	*Negligible*	Slightly Effective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	22.8%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
Gaulter's Lane / Ourome													
R7	Ourome	Residential	High	22.8%	Very Frequent	Highly Effective	Storage Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R7	Ourome	Residential	High	13%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
Red Lea													
R8	Red Lea	Residential	High	37%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	37%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	26%	Very Frequent	Highly Effective	Screening Bund	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	26%	Very Frequent	Highly Effective	Screening Bund	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium										
R8	Red Lea	Residential	High										
R8B	Red Lea - grounds	Residential	Medium	19%	Frequent	Slightly Effective	none	Slightly Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
Woodlands													
R9	Woodlands	Residential	High	51%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9B	Woodlands - grounds	Residential	High	57%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9	Woodlands	Residential	High	10%	Moderately Frequent	Ineffective	Screening Bund	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R9B	Woodlands - grounds	Residential	High	10%	Moderately Frequent	Ineffective	Partial Screening Bund	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Little Tounges Lane / B5270													
R10	Whinmore Fold Farm	Residential	High	13%	Frequent	Moderately Effective	Partial Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R11	Old Nicholsons Cottage	Residential	High	12%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Bourbles Lane - Mytax / New England Cottage													
R12	Mytax	Residential	High	39%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12	Mytax	Residential	High	27%	Very Frequent	Moderately Effective	Screening Bund - below height of as-dug stockpile	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R12	Mytax	Residential	High	8%	Moderately Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R12	Mytax	Residential	High	39%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12B	Mytax - paddock	Leisure	Low	39%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	*Negligible*	Moderately Effective	Low	*Negligible*
R12B	Mytax - paddock	Leisure	Low	37%	Very Frequent	Moderately Effective	Screening Bund - below height of as-dug stockpile	Moderately Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
R12B	Mytax - paddock	Leisure	Low	25%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	High	Slight	Moderately Effective	Medium	*Negligible*
R12B	Mytax - paddock	Leisure	Low	51%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	*Negligible*	Moderately Effective	Low	*Negligible*

Notes:
1: Residential- receptors assessed at areas of garden / driveways etc th
2: Disamenity dust assessment undertaken following methodology ada
on the Assessment of Mineral Dust Impacts for Planning, May 2016

R3549: Proposed Sand and Gravel Quarry, Land off Bourbles Lane, Preesall
Disamenity Dust Assessment - Sensitivity Assessment

Appendix KEH9: Disamenity Dust Assessment

NWP
All winds

								During soil stripping / bund construction			During extraction / restoration		
ID	**Receptor**	**Type**	**Receptor Sensitivity**	**Sum of %frequency of winds to receptor**	**Frequency Description (all winds)**	**Pathway Effectiveness**	**Screening (existing & proposed)**	**Residual Pathway Effectiveness (prior to screening bund construction)**	**Risk of impact / Exposure**	**Magnitude of Dust Effect**	**Residual Pathway Effectiveness (post screening bund construction)**	**Risk of impact / Exposure**	**Magnitude of Dust Effect**
Bourbles Farm													
R1	Bourbles Farm	Residential	High	22%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	22%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - paddocks	Leisure	Medium										
R1	Bourbles Farm	Residential	High	44%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1	Bourbles Farm	Residential	High	52%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	33%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - external grounds	Leisure	Low	47%	Very Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1C	Bourbles Farm - external grounds	Leisure	Low	17%	Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1	Bourbles Farm	Residential	High	38%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High										
R1C	Bourbles Farm - paddocks	Leisure	Medium	25%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Crossing Cottage													
R2	Crossing Cottage	Residential	High	34%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R2B	Crossing Cottage - gardens	Leisure	Medium	56%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R2	Crossing Cottage	Residential	High										
R2B	Crossing Cottage - gardens	Leisure	Medium										
Greenacres													
R3	Greenacres	Residential	High	22%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R3B	Greenacres-Paddock	Leisure	Medium	22%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Lyndale Farm													
R4	Lyndale Farm / Old Hall Farm	Residential	High	18%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R4B	Lyndale Farm - grounds / nursery	Leisure	High	18%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
Hillfied House / Pointer Farm													
R5	Pointer Farm complex	Residential	High	14%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	27%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5	Pointer Farm complex	Residential	High	22%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High										
R5	Pointer Farm complex	Residential	High	27%	Very Frequent	Highly Effective	none	Highly Effective	Low	Slight	Highly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	40%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
The Beeches / The Chestnuts													
R6	The Chestnuts	Residential	High	8%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	12%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6	The Chestnuts	Residential	High	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	17%	Frequent	Slightly Effective	none	Slightly Effective	*Negligible*	*Negligible*	Slightly Effective	*Negligible*	*Negligible*
Gaulter's Lane / Ourome													
R7	Ourome	Residential	High	17%	Frequent	Highly Effective	Storage Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R7	Ourome	Residential	High	14%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
Red Lea													
R8	Red Lea	Residential	High	40%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	40%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	26%	Very Frequent	Highly Effective	Screening Bund	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	24%	Very Frequent	Highly Effective	Screening Bund	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	5%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium										
R8	Red Lea	Residential	High										
R8B	Red Lea - grounds	Residential	Medium	17%	Frequent	Slightly Effective	none	Slightly Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
Woodlands													
R9	Woodlands	Residential	High	52%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9B	Woodlands - grounds	Residential	High	61%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9	Woodlands	Residential	High	8%	Moderately Frequent	Ineffective	Screening Bund	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R9B	Woodlands - grounds	Residential	High	8%	Moderately Frequent	Ineffective	Partial Screening Bund	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Little Tounges Lane / B5270													
R10	Whinmore Fold Farm	Residential	High	9%	Moderately Frequent	Slightly Effective	Partial Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R11	Old Nicholsons Cottage	Residential	High	12%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Bourbles Lane - Mytax / New England Cottage													
R12	Mytax	Residential	High	35%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12	Mytax	Residential	High	27%	Very Frequent	Moderately Effective	Screening Bund - below h	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R12	Mytax	Residential	High	10%	Moderately Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R12	Mytax	Residential	High	35%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12B	Mytax - paddock	Leisure	Low	35%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	*Negligible*	Moderately Effective	Low	*Negligible*
R12B	Mytax - paddock	Leisure	Low	40%	Very Frequent	Moderately Effective	Screening Bund - below h	Moderately Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
R12B	Mytax - paddock	Leisure	Low	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	High	Slight	Moderately Effective	Medium	*Negligible*
R12B	Mytax - paddock	Leisure	Low	47%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	*Negligible*	Moderately Effective	Low	*Negligible*

Notes:
1: Residential- receptors assessed at areas of garden / driveways etc th
2: Disamenity dust assessment undertaken following methodology ada
on the Assessment of Mineral Dust Impacts for Planning, May 2016

R3549: Proposed Sand and Gravel Quarry, Land off Bourbles Lane, Preesall
Disamenity Dust Assessment - Sensitivity Assessment

Appendix KEH9: Disamenity Dust Assessment

Blackpool Winds - Dry Days
All Winds

								During soil stripping / bund construction			**During extraction / restoration**		
ID	**Receptor**	**Type**	**Receptor Sensitivity**	**Sum of %frequency of winds to receptor**	**Frequency Description (all winds)**	**Pathway Effectiveness**	**Screening (existing & proposed)**	**Residual Pathway Effectiveness (prior to screening bund construction)**	**Risk of impact / Exposure**	**Magnitude of Dust Effect**	**Residual Pathway Effectiveness (post screening bund construction)**	**Risk of impact / Exposure**	**Magnitude of Dust Effect**
Bourbles Farm													
R1	Bourbles Farm	Residential	High	22%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	22%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - paddocks	Leisure	Medium										
R1	Bourbles Farm	Residential	High	26%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1	Bourbles Farm	Residential	High	34%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - external grounds	Leisure	Low	34%	Very Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1C	Bourbles Farm - external grounds	Leisure	Low	20%	Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1	Bourbles Farm	Residential	High	22%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High										
R1C	Bourbles Farm - paddocks	Leisure	Medium	15%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Crossing Cottage													
R2	Crossing Cottage	Residential	High	22%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R2B	Crossing Cottage - gardens	Leisure	Medium	44%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R2	Crossing Cottage	Residential	High										
R2B	Crossing Cottage - gardens	Leisure	Medium										
Greenacres													
R3	Greenacres	Residential	High	22%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R3B	Greenacres-Paddock	Leisure	Medium	22%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Lyndale Farm													
R4	Lyndale Farm / Old Hall Farm	Residential	High	21%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R4B	Lyndale Farm - grounds / nursery	Leisure	High	21%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
Hillfied House / Pointer Farm													
R5	Pointer Farm complex	Residential	High	15%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	27%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5	Pointer Farm complex	Residential	High	22%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High										
R5	Pointer Farm complex	Residential	High	24%	Very Frequent	Highly Effective	none	Highly Effective	Low	Slight	Highly Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	31%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
The Beeches / The Chestnuts													
R6	The Chestnuts	Residential	High	10%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	17%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R6	The Chestnuts	Residential	High	20%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R6B	The Chestnuts - rear gardens	Residential	High	33%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
Gaulter's Lane / Ourome													
R7	Ourome	Residential	High	33%	Very Frequent	Highly Effective	Storage Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R7	Ourome	Residential	High	15%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
Red Lea													
R8	Red Lea	Residential	High	31%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	31%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	24%	Very Frequent	Highly Effective	Screening Bund	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	24%	Very Frequent	Highly Effective	Screening Bund	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	14%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium										
R8	Red Lea	Residential	High										
R8B	Red Lea - grounds	Residential	Medium	20%	Frequent	Slightly Effective	none	Slightly Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
Woodlands													
R9	Woodlands	Residential	High	48%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9B	Woodlands - grounds	Residential	High	46%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9	Woodlands	Residential	High	12%	Moderately Frequent	Ineffective	Screening Bund	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R9B	Woodlands - grounds	Residential	High	12%	Moderately Frequent	Ineffective	Partial Screening Bund	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Little Tounges Lane / B5270													
R10	Whinmore Fold Farm	Residential	High	20%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R11	Old Nicholsons Cottage	Residential	High	17%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
Bourbles Lane - Mytax / New England Cottage													
R12	Mytax	Residential	High	53%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12	Mytax	Residential	High	24%	Very Frequent	Moderately Effective	Screening Bund - below H	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R12	Mytax	Residential	High	10%	Moderately Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R12	Mytax	Residential	High	53%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12B	Mytax - paddock	Leisure	Low	53%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	*Negligible*	Moderately Effective	Low	*Negligible*
R12B	Mytax - paddock	Leisure	Low	31%	Very Frequent	Moderately Effective	Screening Bund - below H	Moderately Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
R12B	Mytax - paddock	Leisure	Low	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	High	Slight	Moderately Effective	Medium	*Negligible*
R12B	Mytax - paddock	Leisure	Low	65%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	*Negligible*	Moderately Effective	Low	*Negligible*

Notes:
1: Residential- receptors assessed at areas of garden / driveways etc th
2: Disamenity dust assessment undertaken following methodology ada
on the Assessment of Mineral Dust Impacts for Planning, May 2016

Appendix KEH9: Disamenity Dust Assessment - Wind-Blown Dust from Exposed Surface and Stockpiles

ID	Receptor	Type	Receptor Sensitivity	Primary Source	Dust Source Potential	Distance to Site Boundary (m)	Distance to Working Area (m)	Assessment Distance Range (m)	Distance Description	Orientation to Source	Range of wind directions that effect receptor (°)
Bourbles Farm											
R1	Bourbles Farm	Residential	High	Phase 2 - soil stripping / bund construction	Medium	50m	50m	50-100m	Intermediate	E	300, 330
R1B	Bourbles Farm - garden area	Leisure	High	Phase 2 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	E	300, 330
R1C	Bourbles Farm - paddocks	Leisure	Medium	Phase 2 - soil stripping / bund construction	Medium	*superseded by above*					
R1	Bourbles Farm	Residential	High	Phase 4 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	S	180, 210, 240, 270
R1B	Bourbles Farm - garden area	Leisure	High	Phase 4 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	S	120, 150, 180, 210
R1C	Bourbles Farm - external grounds	Leisure	Low	Phase 4 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	E	210, 240, 270, 300
R1C	Bourbles Farm - external grounds	Leisure	Low	Phase 3A/3B - soil stripping	Medium	5m	5m	<50m	Close	NW	120, 150
Crossing Cottage											
R2	Crossing Cottage	Residential	High	Phase 3A/3B - soil stripping / bund construction	Medium	155m	155m	100-250m	Distant	E	210, 240, 270
R2B	Crossing Cottage - gardens	Leisure	Medium	Phase 3A/3B - soil stripping / bund construction	Medium	5m	5m	<50m	Close	E	210, 240, 270, 300, 330
Greenacres											
R3	Greenacres	Residential	High	Phase 3B - soil stripping, extraction, restoration	Medium	165m	165m	100-250m	Distant	SSE	300, 330
R3B	Greenacres-Paddock	Leisure	Medium	Phase 3B - soil stripping, extraction, restoration	Medium	120m	120m	100-250m	Distant	SSE	300, 330
Lyndale Farm											
R4	Lyndale Farm / Old Hall Farm	Residential	High	Phase 3B - soil stripping, extraction, restoration	Medium	195m	195m	100-250m	Distant	S	330, 0, 30
R4B	Lyndale Farm - grounds / nursery	Leisure	High	Phase 3B - soil stripping, extraction, restoration	Medium	130m	130m	100-250m	Distant	S	330, 0, 30
Hillfied House / Pointer Farm											
R5	Pointer Farm complex	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	200m	200m	100-250m	Distant	SE	330, 0
R5B	Pointer Farm complex - paddock	Leisure	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	140m	140m	100-250m	Distant	SE	300, 330, 0
R5	Pointer Farm complex	Residential	High	Access Road	Small	90m	90m	50-100m	Intermediate	E	270, 300
R5B	Pointer Farm complex - paddock	Leisure	High	Access Road	Small	245m	245m	100-250m	Distant	E	240, 270, 300
The Beeches / The Chestnuts											
R6	The Chestnuts	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	210m	210m	100-250m	Distant	SW	0, 30
R6B	The Chestnuts - rear gardens	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	120m	110m	100-250m	Distant	SW	0, 30, 60
R6	The Chestnuts	Residential	High	Access Road	Small	110m	110m	100-250m	Distant	W	60, 90
R6B	The Chestnuts - rear gardens	Residential	High	Access Road	Small	110m	110m	100-250m	Distant	W	60, 90, 120
Gaulter's Lane / Ourome											
R7	Ourome	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	5m	5m	<50m	Close	W	60, 90, 120
R7	Ourome	Residential	High	Phase 1 - soil stripping, extraction	Medium	260m	260m	>250m	Distant	SE	0, 330
Red Lea											
R8	Red Lea	Residential	High	Phase 1 - soil stripping, extraction	Medium	5m	5m	<50m	Close	E	240, 270, 300
R8B	Red Lea - grounds	Residential	Medium	Phase 1 - soil stripping, extraction	Medium	5m	5m	<50m	Close	E	240, 270, 300
R8	Red Lea	Residential	High	Phase 2 - soil stripping, extraction	Medium	210m	240m	100-250m	Distant	W	90
R8B	Red Lea - grounds	Residential	Medium	Phase 2 - soil stripping, extraction	Medium	235m	260m	>250m	Distant	W	90
R8	Red Lea	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	225m	265m	>250m	Distant	N	150, 180
R8B	Red Lea - grounds	Residential	Medium	Phase A - soil stripping, extraction, processing, stockpiles	Medium	205m	215m	100-250m	Distant	N	120, 150
Woodlands											
R9	Woodlands	Residential	High	Phase 1 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	N	90, 120, 150, 180, 210, 240
R9B	Woodlands - grounds	Residential	High	Phase 1 - soil stripping / bund construction	Medium	5m	5m	<50m	Close	N	120, 150, 180, 210, 240, 270
Little Tounges Lane / B5270											
R10	Whinmore Fold Farm	Residential	High	Phase 1 - soil stripping / bund construction	Medium	70m	75m	50-100m	Intermediate	W	60, 90
R11	Old Nicholsons Cottage	Residential	High	Phase 1 - soil stripping, extraction	Medium	140m	140m	100-250m	Distant	S	0, 30, 60
Bourbles Lane - Mytax / New England Cottage											
R12	Mytax	Residential	High	Phase 3B - soil stripping, extraction, restoration	Medium	25m	25m	<50m	Close	NE	330, 0, 30, 60, 90, 120
R12	Mytax	Residential	High	Phase A - soil stripping, extraction, processing, stockpiles	Medium	25m	110m	100-250m	Distant	NW	270, 300

Notes:

1: Residential- receptors assessed at areas of garden / driveways etc thaty could be considered of high sensitivity closest to source rather than façade

2: Disamenity dust assessment undertaken following methodology adapted from Institute of Air Quality Management Guidance, on the Assessment of Mineral Dust Impacts for Planning, May 2016

Appendix KEH9: Disamenity Dust Assessment - Wind-Blown Dust from Exposed **Blackpool Winds Winds >5 m/s** **During soil stripping / bund construction**

ID	Receptor	Type	Receptor Sensitivity	Sum of %frequency of winds to receptor	Frequency Description (all winds)	Pathway Effectiveness	Screening (existing & proposed)	Residual Pathway Effectiveness (prior to screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect	Residual Pathway Effectiveness (post screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect
Bourbles Farm													
R1	Bourbles Farm	Residential	High	12%	Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	12%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - paddocks	Leisure	Medium										
R1	Bourbles Farm	Residential	High	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	16%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - external grounds	Leisure	Low	30%	Very Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1C	Bourbles Farm - external grounds	Leisure	Low	8%	Moderately Frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Crossing Cottage													
R2	Crossing Cottage	Residential	High	23%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R2B	Crossing Cottage - gardens	Leisure	Medium	35%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
Greenacres													
R3	Greenacres	Residential	High	12%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R3B	Greenacres-Paddock	Leisure	Medium	12%	Frequent	Slightly Effective	none	Slightly Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
Lyndale Farm													
R4	Lyndale Farm / Old Hall Farm	Residential	High	7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R4B	Lyndale Farm - grounds / nursery	Leisure	High	7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Hillfied House / Pointer Farm													
R5	Pointer Farm complex	Residential	High	6%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R5B	Pointer Farm complex - paddock	Leisure	High	14%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R5	Pointer Farm complex	Residential	High	19%	Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	27%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
The Beeches / The Chestnuts													
R6	The Chestnuts	Residential	High	2%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6	The Chestnuts	Residential	High	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Gaulter's Lane / Ourome													
R7	Ourome	Residential	High	7%	Moderately Frequent	Moderately Effective	Storage Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R7	Ourome	Residential	High	6%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Red Lea													
R8	Red Lea	Residential	High	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8	Red Lea	Residential	High	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium	8%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Woodlands													
R9	Woodlands	Residential	High	27%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9B	Woodlands - grounds	Residential	High	35%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
Little Tounges Lane / B5270													
R10	Whinmore Fold Farm	Residential	High	3%	Infrequent	Slightly Effective	Partial Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R11	Old Nicholsons Cottage	Residential	High	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Bourbles Lane - Mytax / New England Cottage													
R12	Mytax	Residential	High	13%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12	Mytax	Residential	High	19%	Frequent	Slightly Effective	Screening Bund - below height of as-	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*

Notes:

1: Residential- receptors assessed at areas of garden / driveways etc th

2: Disamenity dust assessment undertaken following methodology ada
on the Assessment of Mineral Dust Impacts for Planning, May 2016

Appendix KEH9: Disamenity Dust Assessment - Wind-Blown Dust from Exposed NWP Winds >5 m/s — **During soil stripping / bund construction**

ID	Receptor	Type	Receptor Sensitivity	Sum of %frequency of winds to receptor	Frequency Description (all winds)	Pathway Effectiveness	Screening (existing & proposed)	Residual Pathway Effectiveness (prior to screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect	Residual Pathway Effectiveness (post screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect
Bourbles Farm													
R1	Bourbles Farm	Residential	High	14%	Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	14%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - paddocks	Leisure	Medium										
R1	Bourbles Farm	Residential	High	30%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	19%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1C	Bourbles Farm - external grounds	Leisure	Low	32%	Very Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1C	Bourbles Farm - external grounds	Leisure	Low	9%	Moderately Frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Crossing Cottage													
R2	Crossing Cottage	Residential	High	24%	Very Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R2B	Crossing Cottage - gardens	Leisure	Medium	38%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
Greenacres													
R3	Greenacres	Residential	High	14%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R3B	Greenacres-Paddock	Leisure	Medium	14%	Frequent	Slightly Effective	none	Slightly Effective	Low	*Negligible*	Slightly Effective	Low	*Negligible*
Lyndale Farm													
R4	Lyndale Farm / Old Hall Farm	Residential	High	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R4B	Lyndale Farm - grounds / nursery	Leisure	High	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Hillfied House / Pointer Farm													
R5	Pointer Farm complex	Residential	High	8%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R5B	Pointer Farm complex - paddock	Leisure	High	16%	Frequent	Slightly Effective	none	Slightly Effective	Low	Slight	Slightly Effective	Low	Slight
R5	Pointer Farm complex	Residential	High	18%	Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	28%	Very Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
The Beeches / The Chestnuts													
R6	The Chestnuts	Residential	High	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	4%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6	The Chestnuts	Residential	High	3%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	8%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Gaulter's Lane / Ourome													
R7	Ourome	Residential	High	8%	Moderately Frequent	Moderately Effective	Storage Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R7	Ourome	Residential	High	8%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Red Lea													
R8	Red Lea	Residential	High	28%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	28%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	2%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium	2%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8	Red Lea	Residential	High	10%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Woodlands													
R9	Woodlands	Residential	High	31%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9B	Woodlands - grounds	Residential	High	39%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
Little Tounges Lane / B5270													
R10	Whinmore Fold Farm	Residential	High	3%	Infrequent	Slightly Effective	Partial Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R11	Old Nicholsons Cottage	Residential	High	4%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Bourbles Lane - Mytax / New England Cottage													
R12	Mytax	Residential	High	17%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12	Mytax	Residential	High	18%	Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*

Notes:

1: Residential- receptors assessed at areas of garden / driveways etc th

2: Disamenity dust assessment undertaken following methodology ada
on the Assessment of Mineral Dust Impacts for Planning, May 2016

Appendix KEH9: Disamenity Dust Assessment - Wind-Blown Dust from Exposed

ID	Receptor	Type	Receptor Sensitivity	Blackpool Winds - Dry Days Winds >5 m/s Sum of %frequency of winds to receptor	Frequency Description (all winds)	Pathway Effectiveness	Screening (existing & proposed)	Residual Pathway Effectiveness (prior to screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect	Residual Pathway Effectiveness (post screening bund construction)	Risk of impact / Exposure	Magnitude of Dust Effect
Bourbles Farm													
R1	Bourbles Farm	Residential	High	10%	Moderately Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R1B	Bourbles Farm - garden area	Leisure	High	10%	Moderately Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R1C	Bourbles Farm - paddocks	Leisure	Medium										
R1	Bourbles Farm	Residential	High	15%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R1B	Bourbles Farm - garden area	Leisure	High	10%	Moderately Frequent	Moderately Effective	Screening Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R1C	Bourbles Farm - external grounds	Leisure	Low	19%	Frequent	Highly Effective	none	Highly Effective	Medium	*Negligible*	Highly Effective	Medium	*Negligible*
R1C	Bourbles Farm - external grounds	Leisure	Low	7%	Moderately Frequent	Moderately Effective	none	Moderately Effective	Low	*Negligible*	Moderately Effective	Low	*Negligible*
Crossing Cottage													
R2	Crossing Cottage	Residential	High	14%	Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R2B	Crossing Cottage - gardens	Leisure	Medium	24%	Very Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
Greenacres													
R3	Greenacres	Residential	High	10%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R3B	Greenacres-Paddock	Leisure	Medium	10%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Lyndale Farm													
R4	Lyndale Farm / Old Hall Farm	Residential	High	7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R4B	Lyndale Farm - grounds / nursery	Leisure	High	7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Hillfied House / Pointer Farm													
R5	Pointer Farm complex	Residential	High	6%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R5B	Pointer Farm complex - paddock	Leisure	High	12%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R5	Pointer Farm complex	Residential	High	13%	Frequent	Moderately Effective	none	Moderately Effective	Low	Slight	Moderately Effective	Low	Slight
R5B	Pointer Farm complex - paddock	Leisure	High	18%	Frequent	Slightly Effective	none	Slightly Effective	*Negligible*	*Negligible*	Slightly Effective	*Negligible*	*Negligible*
The Beeches / The Chestnuts													
R6	The Chestnuts	Residential	High	2%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	4%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6	The Chestnuts	Residential	High	5%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R6B	The Chestnuts - rear gardens	Residential	High	9%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Gaulter's Lane / Ourome													
R7	Ourome	Residential	High	9%	Moderately Frequent	Moderately Effective	Storage Bund	Moderately Effective	Low	Slight	Slightly Effective	Low	Slight
R7	Ourome	Residential	High	6%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Red Lea													
R8	Red Lea	Residential	High	18%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R8B	Red Lea - grounds	Residential	Medium	18%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Slight	Moderately Effective	Low	*Negligible*
R8	Red Lea	Residential	High	4%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium	4%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8	Red Lea	Residential	High	5%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
R8B	Red Lea - grounds	Residential	Medium	7%	Moderately Frequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Woodlands													
R9	Woodlands	Residential	High	19%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R9B	Woodlands - grounds	Residential	High	22%	Very Frequent	Highly Effective	Partial Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
Little Tounges Lane / B5270													
R10	Whinmore Fold Farm	Residential	High	5%	Moderately Frequent	Slightly Effective	Partial Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*
R11	Old Nicholsons Cottage	Residential	High	4%	Infrequent	Ineffective	none	Ineffective	*Negligible*	*Negligible*	Ineffective	*Negligible*	*Negligible*
Bourbles Lane - Mytax / New England Cottage													
R12	Mytax	Residential	High	16%	Frequent	Highly Effective	Screening Bund	Highly Effective	Medium	Moderate	Moderately Effective	Low	Slight
R12	Mytax	Residential	High	13%	Frequent	Slightly Effective	Screening Bund	Slightly Effective	Low	Slight	Ineffective	*Negligible*	*Negligible*

Notes:

1: Residential- receptors assessed at areas of garden / driveways etc th

2: Disamenity dust assessment undertaken following methodology ada
on the Assessment of Mineral Dust Impacts for Planning, May 2016

Dust Impact Assessment

Disamenity dust assessment matrix adapted from methodologyprovided in Institute of Air Quality Management Guidance, on the Assessment of Mineral Dust Impacts for Planning, May 2016

Table 1: Categories of Frequency of Potentially Dusty Winds	
Infrequent	Frequency of winds from the direction of the dust source (on dry days) are less than 5%
Moderately frequent	Frequency of winds from the direction of the dust source (on dry days) are between 5% and 12%
Frequent	Frequency of winds from the direction of the dust source (on dry days) are between 12% and 20%
Very frequent	Frequency of winds from the direction of the dust source (on dry days) are greater than 20%

Table 2: Categories of receptor distance from Source		
Close	receptor is <50m from source	
Intermediate	receptor is 50-100m from source	
Distant	receptor is 100-250m from source	
Far	receptor is 250-400m from source	*for hard rock ony*

Table 2: Pathway Effectiveness

	Frequecy of winds (%)			
	Infrequent	**Moderately Frequent**	**Frequent**	**Very Frequent**
	<5	**5-12**	**12-20**	**>20**
Close	Slightly Effective	Moderately Effective	Highly Effective	Highly Effective
Intermediate	Slightly Effective	Slightly Effective	Moderately Effective	Highly Effective
Distant	Ineffective	Ineffective	Slightly Effective	Moderately Effective
Far	Ineffective	Ineffective	Ineffective	Slightly Effective

Pathway effectiveness may be adjusted taking into account any screening (full or partial) and local terrain and topography

Table 3: Risk of Dust Impacts

		Source Potential		
		Small	**Medium**	**Large**
Pathway Effectiveness	**Highly Effective**	Low	Medium	High
	Moderately Effective	Low	Low	Medium
	Slightly Effective	Negligible	Low	Low
	Ineffective	Negligible	Negligible	Low

Table 4: Magnitude of Dust Effects

		Receptor Sensitivity		
		Low	**Medium**	**High**
Dust Impact Risk	**High**	Slight	Moderate	Substantial
	Medium	Negligible	Slight	Moderate
	Low	Negligible	Negligible	Slight
	Negligible	Negligible	Negligible	Negligible

APPENDIX KEH10

Additional $PM_{2.5}$ Considerations

Additional $PM_{2.5}$ Considerations

1 Background

1.1 Any fugitive dust that may be generated by the proposed activities would also comprise suspended particulate matter consisting of PM_{10}, which will include a component of $PM_{2.5}$. The 2023 Air Quality Strategy included new standards for $PM_{2.5}$, which have since been established under the Environment Act 2021 and the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

1.2 The purpose of the targets is to improve air quality by reducing levels of $PM_{2.5}$ across the country, therefore improving public health. While achievement of the targets will be assessed at relevant monitoring sites, the targets apply to ambient (outdoor) air throughout England.

1.3 Defra is developing guidance for developers and planning authorities on how to consider the new legal air quality targets for $PM_{2.5}$ in planning decisions. Pending publication of the new guidance, Defra has issued interim guidance (CD12.08) to provide developers and planning authorities with clarity on how to consider the new targets in assessing the impacts of new developments on local air quality whilst the full guidance is under development.

1.4 The interim guidance sets out a series of questions to be used as prompts to support the interim process. The questions included in the interim guidance and responses relevant to this Application are set out below.

2 Interim Guidance Questions

2.1 <u>Question 1:</u> How has exposure to $PM_{2.5}$ been considered when selecting the development site?

Applicants are advised to consider the following in their application:

- *Site proximity to people (particularly large populations and/or vulnerable groups, e.g., schools, hospitals, care homes, areas of deprivation) and the impact of the development on these,*
- *Site proximity to pollution sources and the impact of these on users of the development,*
- *Exposure and emissions during both construction and in-use.*

2.2 <u>Question 2:</u> What actions and / or mitigations have been considered to reduce $PM_{2.5}$ exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of $PM_{2.5}$ and its precursors?

Applicants are advised to explain (with evidence where possible) why each measure was implemented. Or, if no mitigation measures have been implemented, why this was not proposed. Actions can refer to, but are not limited to, the following:

- *Site layout,*
- *The development's design,*
- *Technology used in the construction or installed for use in the development,*
- *Construction and future use of the development.*

3 Responses

3.1.1 The following comments can be made with respect to these questions and the application:

Question 1: Potential Exposure to $PM_{2.5}$:

- The Original Vibrock AQA (CD1.22) and subsequent Updated Vibrock AQA (CD3.06) each described the baseline conditions at the Site including the location of nearby residential and other sensitive human receptors;
- the local air quality, including presence of any nearby Air Quality Management Areas (AQMAs), data obtained from local ambient air quality monitoring, and predicted data provided by Defra, was further detailed in the Vibrock AQAs; updated data has also been presented in my Proof;
- existing background annual mean $PM_{2.5}$ concentrations for the area are predicted to be in the range 4.77-5.39 µg/m^3 (2026) and future concentrations are predicted to be 4.60-5.21 µg/m^3 (2030); these are well below the (non-legal) interim targets of 12 µg/m^3 (for 2028) and legal target of 10 µg/m^3 (for 2040);
- these are also well below the newly established (non-legal) interim target of 10 µg/m^3 (for 2030);
- the Original Vibrock AQA and Updated Vibrock AQA included an assessment of potential impacts on nearby receptors due to dust that may may arise during the proposed extraction, mineral processing, material import, and restoration activities. This is further presented in my Proof. The assessment methodology follows guidance provided by the Institute of Air Quality Management (IAQM) on planning and mineral dust (CD10.05) and construction dust (CD10.07) where these are applicable to the proposed site activities; the assessment focuses on deposition dust and PM_{10} in accordance with the current guidance and considering potential sources of dust, distance and orientation to receptors, local topography, prevailing wind directions and physical designed in mitigation measures to determine the potential for adverse impacts; as $PM_{2.5}$ would form a component of PM_{10} this incorporates $PM_{2.5}$ within the assessment;
- the Original Vibrock AQA and Updated Vibrock AQA additionally included a vehicle emissions screening assessment; this considers the predicted numbers and routing of

HGV movements to / from the site to determine the need for further detailed assessment of vehicle emissions. This is again further presented in my Proof. Vehicle movements are below relevant screening thresholds and it is concluded further assessment of emissions, including $PM_{2.5}$, is not required.

Question 2: Actions & Mitigation Measures to Reduce Potential $PM_{2.5}$ Exposure

- the Proposed Development incorporates several designed-in mitigation measures that serve to minimise dust, and hence PM_{10} and $PM_{2.5}$, emissions as outlined in the Vibrock AQAs and my Proof;
- All mineral sites will encompass a degree of dust mitigation as part of normal working practice. In addition, the submission, and agreement with the MPA, of a Dust Management Plan (DMP) prior to the on-set of works would be expected to be secured by condition of any granted planning permission;
- The importation, processing, handling and placement of inert waste materials would additionally be regulated under an Environmental Permit by the Environment Agency (EA). This would require the operation in accordance with Best Available Techniques (BAT) for these activities and would include a standard permit 'boundary' condition in relation to dust and other emissions;
- the Original Vibrock AQA and Updated Vibrock AQA set out recommended standard good practice measures that would be employed at the facility to minimise potential dust emissions. These measures have been further expanded upon in a draft DMP which is provided as Appendix KEH12 and which sets out further detail on the proposed mitigation measures, based on the findings of the dust assessment;
- as $PM_{2.5}$ (and PM_{10}) form a proportion of 'dust' these measures equally serve to minimise the generation of $PM_{2.5}$ emissions from the proposals.

3.2 Summary

3.2.1 As set out above exposure to $PM_{2.5}$ and ways to minimise $PM_{2.5}$ emissions from operational activities associated with the Proposed Development have been considered within the application. It is further noted proposals are time limited being for a 7-year period (5 years extraction with further 2 years for restoration). It is therefore considered that the development complies with the requirements to deliver achievement of the new targets by 2040 as appropriate action has been taken to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable.

APPENDIX KEH11

Health Technical Note

March 2025

Proposed Sand and Gravel Quarry. Land off Bourbles Lane, Preesall

Dr Andrew Buroni
Human Health Technical Note

Planning Inspectorate Reference: APP/6002168

Local Authority Reference: LCC/2023/0030

savills

Table of Contents

1 Summary

1.1.1 My name is Dr Andrew Buroni. I am a Director within the Environment and Infrastructure team at Savills (UK) Ltd, responsible for Health and Social Impact Assessment Services. I hold a BSc with honours in Biological Sciences, an MSc in Environmental Impact Assessment (EIA), and a PhD in international Health Impact Assessment (HIA) methods and best practice. I have received formal training in Environmental Health Impact Assessment at the Caribbean Environmental Health Institute by the Pan American Health Organisation and Health Canada, and at the International Health Impact Assessment Consortium (IMPACT) at the University of Liverpool.

1.1.2 In the absence of any evidence of a health impact from the proposed development from any party; given that all tangible environmental parameters with the potential to impact upon health have been satisfactorily addressed; and that the Statement of Case from, and Statement of Common Ground with Lancashire County Council (LCC) lacks any mention of health impact (solely focusing on noise/dust amenity impacts), the scope of my proof is limited to signposting as to how and where health has been assessed and addressed; responding to Rule 6 health concerns raised; and I will be available at the inquiry to respond to any health item.

1.1.3 The remainder of this technical note, provides:

I. A general overview of how health is addressed through planning;

II. Frames the key health concerns, and where they are addressed; and

III. Provides a concluding statement on health.

2 Introduction

2.1 Qualifications

2.1.1 My name is Dr Andrew Buroni, I am the Director of Health and Social Impact Assessment services within Savills Planning, Environment and Infrastructure. I hold a BSc with Honours in Biological and Biomedical Sciences, an MSc in Environmental Impact Assessment (EIA), and a PhD in international Health Impact Assessment (HIA) methods and best practice. I have received training in Environmental Health Impact Assessment at the Caribbean Environmental Health Institute, by the Pan American Health Organisation and Health Canada; I am a Fellow of the Royal Society of Medicine, and a Fellow of the Royal Society for Public Health; and I am classed as an Advanced Expert under the Institute of Sustainability & Environmental Professionals (ISEP, formally the Institute of Environmental management & Assessment IEMA) competency framework.

2.1.2 I provide specialist advice to the public and private sector clarifying potential health and social outcomes, separating perceived impacts from actual risk, assessing the distribution, significance and likelihood of potential health outcomes, and providing bespoke Health Action Plans geared to addressing existing burdens of poor health and inequality.

2.2 Experience

2.2.1 I am a leading, internationally recognised expert with 26 years of health assessment experience within three mainstream environmental and planning consultancies. I have designed, led assessments and provided evidence at oral hearing, public inquiry and issue specific hearing to some of the most complex planning focussed examples of HIA. I have an extensive catalogue of HIA project examples ranging from new nuclear power stations; road and rail infrastructure; airport expansions, port expansion, redevelopment and regeneration; surface mines, oil and gas, waste and mineral development frameworks, through to informing Local Plans, the planning of garden villages and new town developments, national strategies and the development of climate adaptation and resilience action plans.

2.2.2 This has included the development of Sector specific HIA guidance, the development of a transport and health resource for the UK Department of Health and Department for Transport; an electromagnetic field (EMF) health evidence base for EirGrid, and I am a technical advisor and accredited author to the WHO on the health effects of energy recovery, waste management and the circular economy, where I was subsequently invited alongside a select group of international experts to share and discuss the latest evidence at the United Nations building in Bonn. The outputs of which have since been applied to inform the WHO's input to the European Environment and Health Process.

2.2.3 I sit on the ISEP Health in Impact Assessment expert panel, I am acknowledged in much of the UK HIA guidance, I provide training on Health in Planning for the Office for Health Improvement and Disparities (OHID) and Public Health Wales, I am a guest lecturer on the subject at the Brighton and Sussex University Joint Medical School, and I am a global commissioner on healthy indoor air.

2.2.4 With specific regard to mineral extraction experience, I led the Caerphilly Nant Llesg Surface Mine HIA and provided additional health support on the Ffos-y-Fran mine; I further led the HIA and presented evidence on the Curraghinalt Gold Mine in Northern Ireland; the Craig yr Hesg Quarry in Pontypridd and the Wasperton Quarry in Warwickshire. I led the generic UK nuclear geological disposal facility HIA; and further covered particulate matter exposure, asbestiform materials, zeolitic mineral and silicosis health risk on the ARC 21 waste management solution in the former quarry site near Mallusk. I also led the HS2 Phase 2b Lot 3 Health Assessment, the design of which included a number of borrow pits along the longest route section.

2.2.5 During the course of this work, I have had the privilege to work alongside leading internationally recognised and respected air and noise experts, and I have applied the supporting health evidence base to inform quantitative exposure response assessments for changes in air and noise.

2.3 Declaration

2.3.1 I declare that the evidence presented in this appeal is factual and accurate to the best of my knowledge. Furthermore, I verify that all opinions expressed within this document are my own and constitute my true professional assessment of the case.

2.4 Technical Note Scope of Evidence

2.4.1 As detailed in CD1.10 The Lancashire Scoping Report agreed to a proportionate Environmental Impact Assessment on the 10th August 2022 to satisfy the regulatory requirement and standards protective of the environment and health, insofar as they are relevant to the EIA process.

2.4.2 On the 22nd November 2022 (CD1.10 page 8), Lancashire supplemented its Scoping Opinion, noting that since the scoping opinion was issued, a number of representations from local residents and Parish Councils had been received regarding dust concern. The County Council did not identify a gap in the previously requested assessment scope or a failure of the regulatory planning process, quite the contrary, noting that the County Council's original scoping response already requested the ES contain an assessment of dust /particulate impacts based upon the recognised methodology in paragraphs 023 -032 of the Planning Practice Guidance protective of the environment and health.

2.4.3 The County Council noted that "*Given the concerns that have been expressed I would advise that your assessment should contain an analysis of the human health impacts of dust including silica rich particulates. The assessment should take into account guidance from the HSE and NHS regarding silica dust impacts including any other research into silica dust related health impacts*" (CD1.10 page 8).

2.4.4 The scoping opinion supplement was therefore apparently issued in order to reinforce the already agreed air quality assessment, offering wider discussion on how known hazards are assessed and addressed through the regulatory assessment process, to manage and remove potential risk, and to aid in responding to public risk perceptions (AKA fear).

2.4.5 The Air Quality Assessment (CD1.22) met both the original scoping opinion geared to meeting the regulatory requirement, and the scoping opinion supplement to better respond to risk perceptions. This included:

I. a legislative and policy review, framing all pertinent air quality objectives protective of health (CD1.22 Section 2);

II. a technical guidance review, framing all pertinent air quality, health and mineral extraction specific assessment guidance (CD1.22 Section 2.4);

III. a health impact study review, providing a summary of pertinent occupational and public health research on the health effects from dust and mineral extraction (CD1.22 Section 2.5);

IV. a hazard characterisation, baseline and exposure rationale (to establish any credible hazard-receptor-exposure pathway to assess) (CD1.22 Section 4);

V. a dust assessment (CD1.22 Section 5); and

VI. a dedicated Human health assessment section (CD1.22 Section 6); explaining:

a. how the worst case projected concentration at any receptor remains well within air quality objectives which have been set to be protective of health for PM_{10} and $PM_{2.5}$; (CD1.22 Paragraph 61.17);

b. the absence of any significant Respirable Crystal Silica public health exposure pathway (CD1.22 Section 6.2);

c. that transport movements fall well below the threshold criteria for air quality assessment, and is not considered significant in air quality or health terms (CD1.22 Section 7.0); and

d. that coarse dust, (i.e. not small enough to bypass the respiratory defence or impact upon physical health) are considered a negligible impact when following the recognised Institute for Air Quality Management (IAQM) guidance (CD1.22 Section 8).

2.4.6 The application was reported to the Planning Committee on July 2023, and a Regulation 25 Request for additional information was made in December 2024. With regards to health, the Regulation 25 Request was inconsequential requesting the latest $PM_{2.5}$ air quality objective targets be applied, and commented on the Health Impact Study review (where the scope extended beyond sand extraction). Neither altered the assessment findings, where the proposed development remained well within all air quality objectives protective of health, and reducing the scope of the Health Impact Study did not alter how known hazards are well understood and inherently addressed through planning to protect the environment and health.

2.4.7 The Officer recommended, and Members of the Committee resolved to refuse the application for the following reason:

"(i) The development would have unacceptable impacts on highway safety which cannot be adequately mitigated and the development therefore conflicts with Paragraph 116 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP6 of the Wyre Local Plan.

(ii) The development by reason of proximity to residential properties would have unacceptable noise and dust impacts that could not be satisfactorily mitigated contrary to Paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan".

2.4.8 However, no technical evidence was provided to members to substantiate any unacceptable health impact. No gaps or failings were identified in the transport, air quality or noise assessments submitted; and no technical evidence of a significant or unacceptable health impact was presented by any party. It will of course be noted that health is not raised as a concern in the reasons for refusal.

2.4.9 Following a review of the County Council Statement of Case and Statement of Common Ground, it is clear that there is no science-based evidence of any gap or failing within the technical assessments submitted, no evidence of a significant environmental impact that couldn't be addressed through condition, and no evidence of a health impact directly attributable to the proposed project (including from RCS). The sole issue raised in relation to health by the County Council to date, is amenity impacts from noise (addressed in the noise assessment and subsequent proof of evidence), and general dust management (that does not pose a health risk).

2.4.10 Given the air quality and health scope agreed with the County Council has been delivered, in the absence of any evidence of a measurable adverse health outcome, and given that health is not a reason for refusal, this technical note largely serves to signpost to and further explain how and where health has been assessed and addressed, and further respond to residual risk perceptions. That said, I note that the Council have now instructed expert witnesses to provide evidence to support the reasons for refusal, and I reserve the right to respond to any new evidence that may be produced.

2.4.11 Turning to the Rule 6 parties, it is understood that the Lancaster Road Quarry Boundary Residents Association have withdrawn from participating at the inquiry as a Rule 6 Party. The Preesall & Knott End Against Quarry Rule 6, however, raise concern for risks from Particulate Matter, silica, and noise pollution, but do not support this with any technical evidence.

2.4.12 In the absence of any evidence of a health impact from the proposed applications from any party; given that all tangible environmental parameters with the potential to impact upon health have been satisfactorily addressed; and that the County Council Statement of Case lacks any mention of health impact (solely focusing on amenity impacts from noise), the scope of this technical note is limited to responding to the Rule 6 health concerns raised, signposting as to how and where they have been assessed and addressed, and where appropriate, provides additional narrative to the representations received since, or questions raised during the appeal process.

2.4.13 The remainder of this technical note, provides:

IV. A general overview of how health is addressed through planning;

V. Frames the key health concerns, and where they are addressed; and

VI. Provides a concluding statement on health.

2.5 Planning and Health

2.5.1 It is important to emphasise that the founding principle and purpose of the planning process is to investigate potential activities during the life cycle of a development that may pose a credible environmental, socio-economic or health hazard at an early enough stage that they can be designed out, managed or mitigated, tailored to local circumstance, need and relative sensitivity. The planning system focuses upon the land use decision as to where development can be appropriately located and works upon the sensible assumption that other systems of regulatory control will operate properly[1]. The final planning application submission and its supporting information is the end of the iterative informative process.

2.5.2 In the same way that medicine has different branches (e.g. oncology, radiology, paediatrics), given the complex multidisciplinary nature of health, planning and the supporting technical assessments separate individual health pathways into environmental and socio-cultural disciplines, with their own regulatory requirements and technical expertise to investigate, assess and address potential hazards, to prevent and manage risk (air quality, noise, hydrology, transport etc).

[1] Ministry of Housing, Communities and Local Government. National Planning Policy Framework, December (2024). Paragraph 201. https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

2.5.3 In this instance, and as detailed in the Planning Statement (CD1.02), the application was conducted in accordance with national legislation and local planning policy requirements, and appropriate technical disciplines were commissioned proportionate to the known hazards and any potentially significant impacts. This proportionate approach is the cornerstone to making sure planning applications and their supporting technical assessments are appropriate, robust, are geared to the decision-making process they are intended to inform, and do not include matters that are not relevant or significant.

2.6 Health Concerns

Hazard and Risk

2.6.1 A common factor associated with health concerns raised in relation to many planning applications in my experience, is a misunderstanding of the concepts of hazard and risk, and how they are considered and addressed. In its simplest form, a hazard is any agent with the potential to cause harm, and a risk is the likelihood of that harm occurring.

2.6.2 The existence of a hazard by itself does not constitute a risk, it is only when there is a hazard source, a receptor (i.e. a person or population), and a credible pathway of exposure connecting the two that there is any potential for a risk to health to arise.

2.6.3 Where a source-pathway-receptor linkage does exist, it is then relevant to consider the nature of the specific hazard source, the magnitude and concentration of potential exposure, and the likely sensitivity of the receptor that will define the degree, extent and nature of the risk and its likely significance. This is true of all physical, chemical and biological agents, and is the primary mechanism to protect the environment and human health during planning, through recognised objective thresholds protective of health.

2.6.4 Health concerns tend to manifest when the source-pathway-receptor concept is either ignored or misapplied. This typically results in presenting a hazard, its supporting health evidence base and receptor sensitivity independently to infer a risk, rather than applying them objectively to define the degree, extent and nature of risk, and its likely significance (if any).

2.6.5 Human intuition is an unreliable metric for risk, as it is skewed by subjective biases and evolving personal priorities that shift throughout a person's life. To maintain consistency, regulatory bodies utilise an objective framework focused on societal risk. While this technical approach effectively weighs infrastructure benefits against hazards using established standards, it often fails to address individual or community-level anxieties. To bridge this gap, engagement is essential; to explore these wider concerns, and provide the necessary context to align technical data with public perception, a process to which this Technical Note and its supporting evidence directly contribute.

Health Risk from Changes in Air quality

2.6.6 As detailed in CD 21.22 and further articulated in the Air Quality Proof of Evidence, the potential air quality hazards are well known, understood and addressed through the regulatory assessment process, protective of health. This is informed by decades of epidemiological and toxicological research, systematic reviews and meta-analyses on specific health outcomes and air pollutants, steered by internal expert panel discussions and expert consensus to interpret and weigh the available evidence, and is updated as and when the evidence base permits. This body of knowledge has then been used to inform the requisite standards within this area at a national and supra-national level.

2.6.7 The assessment submitted has already concluded that the changes in air quality are negligible, remain well within air quality objective thresholds which are informed by proven dose-response research to be protective of health, and do

not present any significant risk to the achievement of relevant air quality standards and objectives locally. That does not mean that any possible individual risk can be scientifically excluded – but rather that such risk has been assessed properly and has been appropriately assessed to fall within acceptable limits.

2.6.8 While sufficient for planning, to set risk into further context, a review of the health evidence base was further provided, reinforcing this conclusion, and is further expanded upon in the Air Quality Proof of Evidence, demonstrating that extraction is a largely wet process, with no abrasive or crushing process reducing the generation of particle sizes that might present a respirable hazard, while also limiting dispersion and inhalation opportunity. In effect, there is neither a significant health hazard or credible exposure pathway, and the main impact remains coarse dust.

2.6.9 Despite this, the Air Quality Proof of Evidence, offers a hypothetical PM_{10} worst case by extrapolating the maximum annual mean Process Contribution (PC) of 17 µg/m^3. In reality, PM_{10} contributions from sand and gravel sites are much lower with figures cited as near 0 µg/m^3 within 50m. This is consistent with data provided in the UK National Atmospheric Emissions Inventory for 2023 which provides emissions factors for a range of pollutants from different UK industries.

2.6.10 This data further estimates that the $PM_{2.5}$ fraction of PM10 3mmissions could form up 10%, equating to 1.7 µg/m^3 in this context.

2.6.11 Given the residual concerns, a quantitative exposure response assessment was explored, applying recognised Concentration Response Functions (CRF) derived from the WHO Health Risks of Air Pollution in Europe (HRAPIE) guidance and the UK Committee for the Medical Effects for Air Pollution.

2.6.12 While quantitative exposure response models vary in complexity between projects, the fundamentals remain the same, where the calculation applies the relative change in air quality concentration, multiplied by the appropriate CRF and relative receptor exposure, measured over the existing health baseline.

2.6.13 In this instance however, both the hypothetical change in worst case PM_{10} and $PM_{2.5}$ concentration and exposure remain orders of magnitude lower than is required to quantify any measurable change in health.

2.6.14 To put this into context, even when applying a highly hypothetical scenario, assuming that the highest burden of poor health is applied as a constant, and when further assuming that 1,000 people all live in a single household with the greatest change in $PM_{2.5}$, from the hypothetical worst case, it is still not possible to quantify any, let alone any significant, change in local health outcome. The same is the case when attempting to quantify any change in health from changes in PM_{10}.

2.6.15 Such a result is to be expected given the project has already demonstrated that the change in air quality is negligible; that air quality will remain well within recognised air quality objectives thresholds protective of health; and given that the County Council is not pursuing any points regarding unacceptable health impacts from changes in air quality. The change is just not significant or sufficient to quantify any change in health when applying the accepted scientific health evidence.

2.6.16 On this basis, the proposed development remains well within air quality objectives protective of health, and the absolute change does not present any measurable risk to local community health, even when assuming the highest burden of poor health as a universal constant for all residents.

2.7 Conclusion

2.7.1 As detailed above, no party has presented any technical evidence of a measurable adverse health impact from what is proposed. The Rule 6 party Statement of Case raise health concerns, however, they are unsupported, confusing hazard to infer risk, and largely present elements of the health evidence base, rather than seeking to correctly apply it.

2.7.2 Overall, it is my professional opinion that the submitted planning application housed all the pertinent information sufficient to meet the legislative and policy requirement, investigate and address potential health hazards through design, and inform the decision making process.

APPENDIX KEH12

Draft Dust Management Plan

Smith Grant
Environmental Consultancy

Proposed Sand and Gravel Quarry

Land off Bourbles Lane, Preesall

DUST MANAGEMENT PLAN (DRAFT)

For: Baxter Construction Ltd. and Greenfield Environmental Ltd.

Date: March 2026

Report Ref: R3549-DMP-v2

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PROPOSED SAND AND GRAVEL QUARRY: LAND OFF BOURBLES LANE, PREESALL

DUST MANAGEMENT PLAN

For: Baxter Construction Ltd. and Greenfield Environmental Ltd.

Contents

Appendices

1 Introduction

1.1 General

1.1.1 Planning permission is being sought by Baxter Construction Ltd. for a Proposed Sand and Gravel Quarry on Land off Bourbles Lane in Preesall. A planning application was submitted to Lancashire County Council (LCC), as the MIneraal Planning Authority (MPA), which was supported by an Environmental Statement (ES) prepared by Greenfield Environmental Ltd. on behalf of Baxter Construction. The ES incorporated a chapter on Dust and Air Quality prepared by Vibrock Ltd., which summarised the results of an Air Quality Assessment (AQA)[1] undertaken by Vibrock. An Updated AQA[2] was subsequently provided by Vibrock which was submitted to LCC as part of a Regulation 25 response.

1.1.2 Planning permission was refused by LCC on 20 October 2025[3]. The formal notice of the decision to refuse planning permission includes the following Reason for Refusal:

Reason for Refusal 2: *'The development by reason of proximity to residential properties would have unacceptable noise and dust impacts that could not be satisfactorily mitigated contrary to Paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan.'*

1.1.3 Baxter Construction are appealing the decision.

1.1.4 The Original Vibock AQA, and subsequent Updated Vibrock AQA, included outline mitigation measures to minimise the risk of dust generation and potential impacts on nearby properties. This following Dust Management Plan (DMP) has been prepared by Smith Grant LLP (SGP) to provide further detail on these measures for provision with the Appeal documentation.

1.2 Scope and Objectives

1.2.1 The following DMP takes into account the potential for dust emissions associated with the proposed activities and the findings of the AQA. It will form an integral part of the environmental management controls at the facility. The DMP will be a 'live' document subject to periodic review with revision as appropriate to ensure its continuing effectiveness.

1.2.2 The Plan is based on current mineral guidance provided in Planning Practice Guidance on Minerals (PPG: Minerals)[4] supplemented with additional site-specific measures developed with

[1] Vibrock Ltd., *Air Quality Assessment: Proposed Mineral Extraction and Restoration, Land off Bourbles Lane, Preesall, Lancashire*, dated: 27th March 2023.
[2] Vibrock Ltd., *Air Quality Assessment: Proposed Mineral Extraction and Restoration, Land off Bourbles Lane, Preesall, Lancashire*, dated: 1st August 2024.
[3] Lancashire County Council, Planning re: LCC/2023/0030, Refusal of Planning Permission, dated 20 October 2025
[4] Communities and Local Government, Planning Practice Guidance: Minerals, last updated 17.10.2014

reference to additional guidance the Institute of Air Quality Management (IAQM)[5,6].and that provided by the Mineral Industry Research Organisation (MIRO)[7]. The DMP has also been prepared with reference to the EA Dust and Emissions Management Plan template[8].

1.2.3 This DMP is provided as an Appendix to the Proof for the Appellant on Air Quality and Dust. It is envisaged agreement of the DMP with the MPA would be required under Condition of any such granted permission.

1.2.4 The agreed DMP would be subject to regular review to ensure its continuing effectiveness.

[5] Institute of Air Quality Management (IAQM), Guidance on the Assessment of Mineral Dust Impacts for Planning, dated: May 2016 (v1.1)
[6] Institute of Air Quality Management (IAQM), Guidance on Monitoring in the Vicinity of Demolition and Construction Sites, dated: October 2018 (v.1.1)
[7] Mineral Industry Research Organisation (MIRO) / AEA Technology plc (AEA), Management, mitigation and monitoring of nuisance dust and PM_{10} emissions arising from the extractive industries: an overview, dated: 25th February 2011
[8] Environment Agency; Example Dust Emissions Management Plan, v10, issued October 2018

2 Site Operations and Site Setting

2.1 Site Operations

2.1.1 Full details of the proposed operations at the Site were provided in the planning application, accompanying ES and supplementary documentation. Key elements of relevance to the DMP are detailed below.

2.1.2 Proposals are for the extraction of sand and gravel / solid sand over a 5-year period, with progressive restoration with site-won material and imported inert waste material. Final restoration would take place across a further 2 years.

2.1.3 The scheme involves the extraction of an estimated 513,000 tonnes of sand and gravel, of which 487,000 tonnes may be saleable aggregate following washing, processing, and screening. With proposed sales over a 4-to-5-year period this results in an output of about 100,000 tonnes per annum (tpa). Inert import requirements to achieve final restoration are estimated as 220,000m^3 in total.

2.1.4 . The proposed development comprises several phases:

- **Phase A**: Site Enabling Works to include construction of a new access, and extraction and backfilling in the Phase A area to create a suitable platform for the Plant and Compound Area; followed by establishment of new site infrastructure (to include installation of a wheel wash, weighbridge, site offices, and processing plant, and construction of internal haulage roads and screening bunds); approximate duration of 6 months;
- **Phases 1-4**: extraction of mineral across four phases followed by progressive restoration using site-won and imported restoration materials; approximate duration of 4.5 years;
- **Phase 5**: removal of processing plant, stockpiles, and haul roads, and restoration of the Phase A area and the final phase area (phase 4); approximate duration of 2 years.

2.1.5 With regards the proposed operations the following key points are noted:

- mineral extraction to be undertaken on a ‘campaign basis, each of 4-6 weeks about 3 times a year;
- Phase 1 is to be restored to lakes using site-won material; no placement of imported materials to be required;
- Phase 2 is envisaged to be subject to a single extraction campaign of 4-6 weeks duration;
- mineral processing would be undertaken through use of a ‘wash plant’ which requires the use of water; given the nature of the deposit crushing would be limited to a small quantity of over-size material, expected to be undertaken through hired-in mobile plant on a campaign basis of 2 x 1 week periods a year;
- no processing of imported materials prior to placement in restoration areas is proposed.

2.1.6 The ES and application were accompanied by a comprehensive suite of plans detailing the working and restoration scheme and related developments. For reference the phasing plans are included in Appendix A to this DMP. The proposed Plant Site plan is provided in Appendix B.

2.1.7 The material import and infilling activities would also be regulated under an Environmental Permit, to be issued by the Environment Agency (EA). The Permit would include measures on environmental pollution control, including management of dust and incoming materials and a standard boundary condition in relation to dust.

2.2 Site Setting

2.2.1 The Site covers a number of agricultural holdings to the east of the village of Preesall and north of Lancaster Road (B52270) and Head Dyke Road (A588). It currently comprises predominantly arable and general agricultural land with small lakes and a 'duck breeding pen' and is currently accessed off Bourbles Lane which connects between the A588, to the southeast and Little Tongue Lane, on the edge of Preesall, to the northwest.

2.2.2 As part of the proposed development a new access to the Site would be constructed direct from the B5270, Lancaster Road, to the south via a newly constructed access point and access road.

2.2.3 The Site is bounded by arable fields with isolated farm and residential properties, along with small-scale commercial businesses operating near the site boundaries including a kennels, equestrian fields and a small caravan park.

2.2.4 There are a number of individual properties close to various parts of the Site. These include:

- Group of properties including Hillfield House and Pointer Farm: on Lancaster Road, the B5270, to the east of the proposed site access;
- Borodale and Ourome: eastern end of Gaulters Lane;
- Woodlands: on northern side of Bourbles Lane;
- Red Lea – including a large kennels complex and associated property: north side of Bourbles Lane;
- Complex of properties including Bourbles Farmhouse: off Bourbles Lane;
- Mytax and New England Cottage: off Bourbles Lane
- Lyndale Farm and Old Hall Farm: near to junction of Bourbles Lane and the A588;
- Closest residential areas within Preesall itself are located on Little Tongues Lane and Nicksons Lane to the east.

2.2.5 There are no schools or other high occupancy sensitive properties located within 250m of the application boundary. St Aiden's Church of England High School and Preesall Hill School lie 400m and 460m to the southwest respectively.

2.2.6 Ground within the Site is generally flay lying or very gently undulating at levels of 4.8 – 6.7m AOD. Surrounding land is located between 5m-10m AOD, lying within an extensive area of low relief on the Flyde coastal plain.

2.2.7 Bourbles Lane is a designated Bridleway (ref: 2-3 BW 21) and passes adjacent to and through the Site. A public footpath (ref: 2-3 FP28) runs along Gaulters Lane to the west and crosses the central part of the Site to connect with Bourbles Lane.

2.2.8 There are no statutory designated nature conservation sites within 250m of the Site. Parts of the Site lie within the non-statutory designated Pilling Moss-Head Dyke Biological Area (BHA) which is designated for its overwintering wildfowl. This however is viewed as a blanket designation of the area.

3 Dust Assessment Summary

3.1 Potential for Emissions

3.1.1 The proposals include for the extraction and processing of sand and gravel deposits, followed by importation and handling of inert restoration materials to backfill the quarry void to required restoration levels.

3.1.2 These activities can give rise to potential releases of dust or airborne particulate matter[9]. Airborne particulate matter is made up of condensed phase (solid or liquid) particles suspended in the atmosphere and ranges in size from a few nanometres to around 100µm. Dust can, if not controlled, give rise to the following:

- soiling effects through settling / deposition on surfaces resulting in loss of amenity (referred to as 'disamenity' dust); associated mostly with particulate matter greater than 30 µm;
- human health effects through the inhalation of suspended particle; associated with particles below 30 µm (referred to as PM_{10});
- ecological effects through deposition and impacts on vegetation and aquatic ecosystems.

3.1.3 Airborne dust emissions occur when fine particles are disturbed and loosened by physical activity such as excavating, loading, tipping, and transport. In addition, an airstream passing over such materials can give rise to dust with wind speeds greater than 10 knots (~5 m/s) across loose fine materials potentially causing windblown dust emissions.

3.1.4 Light winds will transport fine particles already suspended in the atmosphere due to disturbance. In calm conditions, any raised dust tends to settle out in the vicinity of the source. In windier conditions, the dust may be carried for a greater distance before settling out. The distance the dust will be carried depends on the wind speed, the particle size, the topography of the site and its surroundings.

3.1.5 The principal releases of dust from the sand workings and associated activities will be fugitive emissions, i.e., those not collected or released under controlled physical conditions.

3.1.6 IAQM guidance[6] advises that adverse dust impacts are uncommon beyond 250m of a sand and gravel quarry and 400m from a hard rock quarry, where these distances are measured from the dust generating activities, not necessarily the quarry boundary. The greatest risk of impacts will typically be within 100m of a dust generating source.

3.1.7 The potential sources of airborne dust associated with the quarrying and processing operations at the Site are summarised below:

[9] In this document, and with reference to IAQM guidance, the term dust refers to all particulate matter; this differs to the definition given in BS6069 where dust refers to particles up to 75 µm.

Table 3.1: Sources of Dust

Source of Dust	Residual Dust Source Potential	Comment
site preparation (soil stripping, bund creation)	*medium*	soil stripping to be limited to each phasing area at any one time with largest area (~5ha) Phase 3 subject to phased stripping as required; of short duration; risks similar to those of typical agricultural practices; use of single standard bulldozer
mineral extraction	*small / medium*	to be undertaken using a low-energy extraction method via a single hydraulic excavator; to be undertaken on 'campaign' basis 2-3 times per year; limited to each phasing area as any one time; fresh mineral will typically be in a damp condition and will be unlikely to give rise to substantial dust; although drying out of quarry surfaces could occur rapidly in warm dry conditions; extraction rate of 100,000 tpa
mineral handling	*small / medium*	as-raised materials typically in damp condition; loaded at working face with minimal handling requirements; use of one loading shovel; can increase in prolonged dry conditions if material dries out; to be undertaken on a 'campaign basis' 2-3 times / year mineral to be transferred direct to as-raised stockpile at Plant site
internal haulage – extracted mineral	*medium*	as-raised material to be transported to Plant Site using dump trucks; compacted aggregate internal haul roads; haul road to Phase1 and Phase 2 in 1.5m deep cutting; maximum length of 550m to Phase 1; average of 110-250 average 2-way movements a working day (during a campaign) depending on number of campaigns a year and duration[1];
internal haulage – restoration material	*small*	restoration material to be transferred using dump trucks to areas for backfilling from stockpiles at Plant Site; again using compacted aggregate internal haul roads; average of potential 38 2-way internal movements per working day across year depending on quantity of restoration material[2] no imported material movements to Phase 1; some site-won material only
mineral processing	*medium*	100,000 tpa; wash plant and hence 'wet' process; greatest dust generation risk associated with handling of stockpiled as-raised material if dried out; limited handling required using single loading shovel to load plant; processing plant area to be provided with concrete surfacing crushing of over-size material to be undertaken on a campaign basis if required using mobile plant with a Mobile Pant Environmental Permit (only 2 x 1 week a year expected to be required)
restoration – inert waste material	*medium*	no processing of imported restoration material to be undertaken; material to be stockpiled at Plant Site and placed at working face immediately on transfer to area for backfilling; progressive restoration in each phase using standard bulldozer; greatest dust generation risk

Source of Dust	Residual Dust Source Potential	Comment
		associated with handling of stockpiled restoration material if dried out; screening bunds to be retained in each area until near completion of restoration
restoration - soils	*medium*	source potential increase during periods of prolonged dry weather; risks similar to those of typical agricultural practices; use of single standard bulldozer; undertaken on phased basis
wind-blown dust (from stripped / bare surfaces)	*medium*	phased nature of works minimises areas of exposed surfaces at any one time; surfaces may dry out during prolonged period of dry weather; bunds provide degree of screening to wind-blow across surfaces
wind-blown dust (from stockpiles / bunds)	*medium*	bunds to be seeded with limited potential for dust generation as-raised minerals, processed material and restoration material stockpiles to be sited at Plant Site; continuous use throughout year but limited handling using a loading shovel; ground provided with compacted hardcore; heights up to 7m, other than as-raised stockpile which is to be up to 10m high during Phase 1
external road transport	*medium*	departing HGVs only travel between Plant Site and public highway – no transport further on site; stretch of access road from wheelwash to public highway (at least 160m stretch) to Plant Site to be provided with paved asphalt surfacing; remainder of internal route around Plant Site to be provided with compacted hardcore; wheel wash to be provided for all departing HGVs; daily average of 37 departing HGVs / day whilst export and import undertaken in combination over period of 4 years

3.1.8 In light of the nature of the material, proposed phasing and in-design mitigation measures, the principal sources of dust are likely to be initial soil stripping and bund creation, and internal haulage and handling stockpiled material with *medium* Residual Dust Source Potential. For other sources the residual source potential is typically *small* although may increase to *medium* if the material is dries out during storage prior to handling.

3.2 Disamenity Impact Assessment

3.2.1 The AQAs considered the potential impacts of dust on representative receptors within 250m of the Site boundary.

3.2.2 The representative receptors considered in the AQAs are listed below in Table 3.2 and shown in Figure 3.1.

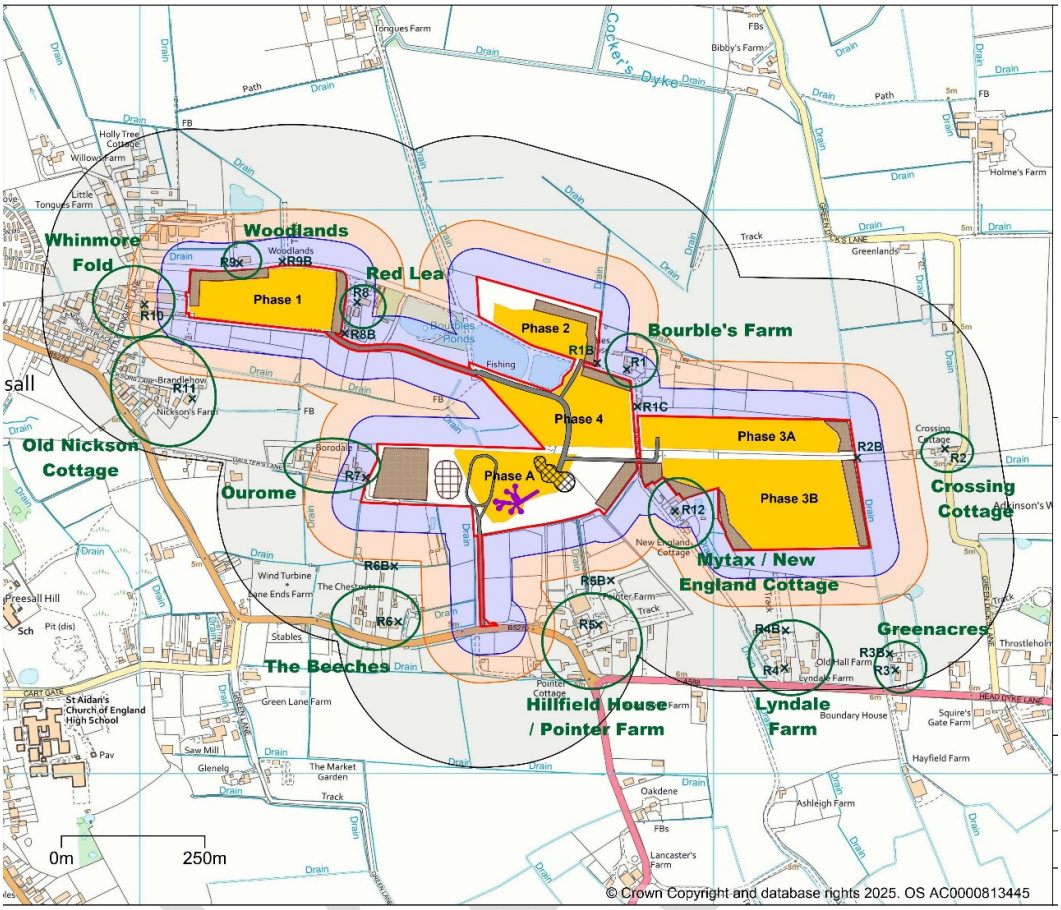
Table 3.2: Representative Receptors

ID	Location	Type	Nearest Potential Source	Distance from Nearest Source	Screening (following bund creation)
R1	Bourble's Farm	Residential	Phases 2, 3A & 4	5m	Screening Bund
R2	Crossing Cottage	Residential	Phases 3A & 3B	85m	Screening Bund
R3	Greenacres	Residential	Phase 3B	165m	None
R4	Lyndale Farm	Residential	Phase 3B	140m	None
R5	Hillfield House / Pointer Farm	Residential	Phase A & Access	160m	None
R6	The Beeches	Residential	Phase A & Access	110m	None
R7	Ourome	Residential	Phase A	5m	Soil Storage Bund
R8	Red Lea	Residential	Phase 1 & Internal Haul Road	5m	Screening Bund
R9	The Woodlands	Residential	Phase 1	5m	Screening Bund
R10	Whinmore Fold	Residential	Phase 1	90m	Screening Bund
R11	Old Nickson Cottage	Residential	Phase 1	140m	None
R12	Mytax / New England Cottage	Residential (Outbuilding)	Phases A & 3B	80m	Screening Bund

Note: Distances quoted are to property facades and / or garden areas and to nearest 5m

3.2.3 These receptors were selected to be representative of nearby receptors and may therefore represent several actual properties, or a 'community'. In addition, the gardens / associated open areas of some properties may extend closer to the proposed extraction area than property facades, along with fields used for paddocks. These locations are represented by suffix's to the receptors IDs above.

Figure 3.1: Representative Receptors



3.2.4 The AQAs took into account the nature of the proposals and in-design mitigation measures. These include:

- the phasing nature of the works with progressive restoration following behind the mineral extraction as quickly as possible;
- nature of the mineral deposits which will be ‘wet’ or ‘damp’ on extraction’;
- the provision of soil storage bunds on perimeters of the individual phases, which would be seeded as soon as possible on construction;
- separate HGVs to be used for on-site and off-site haulage which serves to prevent trackout;
- provision of a wheel wash;
- construction of a purpose-built access to be provided with paved surfacing between the wheel wash and public highway; this would provide at least 160m of paved surfacing from the wheel wash prior to exit to the public highway;
- provision of concrete surfacing to the processing plant;
- provision of compacted hardcore surfacing to the internal haul roads;

3.2.5 Outline management and operational mitigation measures were also provided in the AQA to ensure the minimisation of dust emissions from operations.

3.2.6 It is concluded a possible *slight adverse* effect remains during the initial soil stripping, and subsequent final bund removal and soil placement activities. However, it must be noted these are a very short-lived activities with soil stripping / bund creation being of 4-6 weeks duration per phase.

3.2.7 The maximum residual adverse effect predicted during the subsequent extraction, processing and restoration activities (other than bund removal) in the absence of further mitigation is *slight*. This is only predicted at Mytex / New England Cottage due to the proximity of the as-raised stockpile, which is up to above the height of the screening bund, and which would be worked throughout the year and hence may dry out. Damping down the stockpiles during periods of prolonged dry and windy weather would reduce the likelihood of adverse effects. Residual adverse effects at all other receptors are *negligible* through the implementation of site-specific dust mitigation measures.

3.2.8 The above is subject to the maintenance of dust mitigation measures and hence adverse effects may occur if there is failure of these measures.

3.2.9 However key point is the relatively short-lived duration of the extraction activities in any particular area of the site, in combination of the campaign nature of those activities, further reducing the likelihood of adverse impacts and effects associated with these activities.

3.2.10 At all other properties the resulting likely disamenity dust effects at the nearest human receptors from the processing and restoration activities, with the incorporation of appropriate mitigation, is *negligible*.

4 Control of Dust Emissions

4.1 General Requirements

4.1.1 The objective of the scheme is to specify the management measures to control the likely sources of dust during normal and abnormal operations. The following measures incorporate the requirements and recommendations set out in current guidance. The essence of the guidance is that any impacts can be controlled be effective site management.

4.1.2 In addition, the Site would be operated in accordance with an Environmental Management System (EMS) as would be required under the Environmental Permit. Day to day operations at the facility would be managed using the EMS. The DMP would form an integral part of the EMS.

4.2 Management Controls

4.2.1 The Site Manager will exercise, either personally or by delegation to suitably trained and responsible staff, day to day control of the site. The Site Manager will be responsible for ensuring full compliance with any planning permission and this DMP.

4.2.2 A flexible, proactive approach is central to effective site management. This facilitates high standards without prescriptive controls. Consequently, the site manager will be empowered to use available methods as seen fit to control potential dust emissions.

4.2.3 Specifically, the Site Manager, or delegated personnel, will be responsible for:

- Monitoring weather forecasts and current / imminent wind direction on site;
- Routine visual observation monitoring;
- Coordination of application of dust suppression;
- Completion of dust event forms;
- Activation of contingency action plans;
- Liaison with public, regulator(s), and other interested parties;
- Coordinating reviews and updates of the DMP.

4.2.4 Regular briefings will be held to ensure staff are aware of their responsibilities. The briefings will include any environmental issues that may require consideration including dust.

4.2.5 Staff at all levels will receive the necessary training and instruction in their duties relating to control of all operations and the potential source of dust emissions. Particular emphasis will be given to dealing with plant malfunctions and abnormal operations.

4.2.6 Any member of staff who fails to comply with the provisions of DMP will be liable to disciplinary action. Any external hauliers who fail to observe the requirements in respect of vehicle operations will be barred from the site.

4.2.7 The Site Manager will ensure that a high standard of housekeeping is maintained at all times.

4.3 Specific Site Activities

4.3.1 As an over-riding requirement, if any operations are identified as causing or likely to cause visible dust emissions across the site boundaries, then those operations will be immediately modified or suspended until either effective remedial actions can be taken or the weather conditions giving risk to the emissions have moderated.

4.3.2 The main principles for preventing dust emissions are avoidance of the generation of dust, then the containment of dust and then by suppression. General matters and the management of the site can affect the likelihood of significant dust emissions.

4.3.3 The following operational measures and techniques will be implemented to minimise airborne dust arising from site activities:

Table 4.3: DMP – Operational Measures and Techniques

General Matters	• implementation of high standards of housekeeping to minimise track-out and wind-blown dust; • a preventative maintenance programme, including readily available spares, to ensure efficient operation of equipment; • effective staff training in respect of the causes and prevention of dust; • provision on site of a water bowser equipped with a spray bar to be used when necessary, particularly during dry periods; • use of clean water for dust suppression, to avoid re-circulating fine material.
Soil Stripping and Bund Creation	• soil stripping is generally a short-term seasonal activity. Care should be taken to ensure soil stripping does not take place in conditions (i.e., very dry and windy) that could result in dust generation or movement towards nearby properties; • suspension of soils handling will therefore occur near any site boundaries when the wind conditions appear likely to result in visible dust being carried towards off-site sensitive receptors; • grading of all soil mounds to minimise raising of dust through wind scour and seeding and watering to be undertaken at the earliest opportunity.
Site Access and External Road Transport	• provision of an effective wheel wash, requirement that all departing HGVs pass through the wheel wash; • provision of a surfaced road between the wheel wash and site exit to the public highway; • all imported and exported loads to be sheeted or otherwise contained; • even loading of vehicles to avoid spillages on the public highway; • regular sweeping of the access road to ensure any build-up of mud and debris are removed and to minimise track-out; in the event track-out is

	carried onto the public road a road sweeper will be promptly deployed to clean the road.
Internal Vehicle and Mobile Plant Movements	• maintenance of other internal trafficked routes in good condition with good smooth running surfaces; • damping down of the haul road under period of prolonged dry conditions; by regular spraying by pressurised bowser; • clear demarcation of the vehicle circulation routes within the site; • implementation of a speed limit of 10 mph on all internal haul roads; signage to be installed at the site entrance and other prominent locations on site as considered appropriate; • avoid abrupt changes in horizontal and vertical alignment; • equipping of all site vehicles and plant with upswept exhausts and radiator fan shields where practical; • regular removal / sweeping of spilled material from trafficked surfaces.
Material Handling Operations	• minimisation of drop heights of materials onto ground or to dump truck; • immediate transfer of extracted material to the Plant Site and minimisation of stockpiling within the extraction areas; • immediate placement of transferred restoration materials within the void and minimisation of any stockpiles of such materials within the restoration areas; • immediate compaction of placed materials within restoration areas ; • dumper trucks will be loaded within the capacity guidelines based on manufacturer recommendations. Trucks to be evenly loaded to ensure no spillages of materials along the site haul roads; • damping down of imported and on-site processed materials if required using a rain gun or other appropriate equipment attached to a pressurised water bowser, and particularly during prolonged dry and windy conditions.
Mineral Processing (Washing and Screening)	• processing activities to be undertaken within the designated area as shown on the Proposed Plant Site plan; • maintenance of all processing plant in good condition and operation within design capacity; • clearance of any spilled material to avoid accumulation of loose dry material around plant; • minimisation of drop heights at loading, discharge and material transfer points.
Restoration Soil Placement	• soil restoration is generally a short-term seasonal activity and there is considerable flexibility as to its timing. Care should be taken to ensure soil placement does not take place in conditions (i.e. very dry and windy) that could result in dust generation or movement towards the site boundaries; • suspension of soils handling will therefore occur near any site boundaries when the wind conditions appear likely to result in visible dust being carried towards off-site sensitive receptors.
Wind Scouring Exposed Surfaces and Stockpiles	• provision and maintenance of grass seeded bunds on site boundaries as detailed in the working plans to minimise off-site wind blow;

	• minimisation of stockpiles on site though regular off-site export of processed product and placement of import material in void; • formation of any stockpiles within clearly designated areas as marked on the Proposed Plant Site plan; • maintenance of the edges of the stockpiles to minimise trafficking through stored materials; • all stockpiles to be profiled with a smooth surface to minimise exposure to the effects of windblow; • conditioning of stockpile surfaces and damping down of loose bare surfaces with the water bowser as necessary in dry and windy conditions.

4.3.4 The above standard practices will be supplemented by a programme of review of weather forecasts and visual monitoring and inspection.

Abatement Equipment

4.3.5 A pressurised water bowser with a fitted rain gun, spray bar or spinner is to be permanently retained on site for use for dust suppression, particularly in working areas and haul roads.

4.4 Maintenance

4.4.1 Effective control of airborne dust emissions requires the maintenance and proper use of all plant and equipment. A programme of planned maintenance will be carried out on all plant in accordance with the manufacturer's recommendations to ensure that it operates at optimum efficiency. Stocks of essential spares and consumable items will be kept on site and readily available for use at short notice.

4.4.2 Any malfunction or breakdown leading to abnormal dust emissions will be dealt with promptly and operations will be modified or suspended until normal working can be restored. All such malfunctions will be recorded in the site logbook.

4.4.3 There are no constraints on the availability of water at the Site.

4.5 Abnormal Conditions

4.5.1 The above controls include for reasonably foreseeable events and conditions that may result in dust generation and off-site migration. This includes for:

- abnormal weather conditions including prolonged dry periods and / or windy periods;
- accidental spillages or releases;
- malfunction of plant and machinery;
- failure of water recirculation and dust suppression system.

4.5.2 Where key plant cannot be repaired / replaced within 24 hours; other failure of dust suppression equipment occurs, e.g., freezing of water; or significantly abnormal weather conditions, then

additional contingency provisions will be considered involving cessation of relevant processing operations and diverting scheduled deliveries away from site, as appropriate.

5 Monitoring

5.1 Weather Conditions

5.1.1 The prevailing weather conditions, particularly wind and rainfall, significantly affect the risk of dust generation and dispersion from a mineral site. Trigger conditions likely to give rise to an increased risk of wind-blown dust are during periods of little or no rainfall (typically taken as <0.2 mm rainfall per day) which coincide with winds of sufficient strength to raise dust (typically taken as about 5.5 m/s, moderate breeze where dust and loose paper may be raised).

5.1.2 Weather forecasts will be reviewed on a daily basis to determine the likelihood of those conditions that may give rise to a greater risk of dust generation (i.e., <0.2mm rainfall per day and / or winds >5 m/s). If such conditions are predicted then requirement for additional mitigation measures such as enhanced visual inspections, dust suppression and / or relocation of activities would be assessed as set out in Section 6.

5.2 Visual Dust Monitoring

5.2.1 The Site Manager, or delegated member of staff, will carry out inspections at least once a day during operations. Additional inspections will be undertaken during the day as necessary and particularly during:

- any occurrences of dust emissions potentially migrating towards the western, southern and eastern site boundaries;
- during dry or windy conditions (i.e., when <0.2 mm rainfall per day and / or winds of >5.5 m/s as per Section 4.4).

5.2.2 The inspections will include visual assessment of:

- prevailing weather conditions and likelihood for increased risk of dust generation;
- potential dust generating activities;
- sensitive site boundaries;
- areas where soil stripping, extraction, processing, landfilling, and restoration activities are occurring.

5.2.3 All observations and findings will be recorded daily in a site record kept specifically for the purpose. Information recorded will include the weather conditions, current site activities, any off-site activities with a potential for dust generation and observation of any dust travelling beyond the site boundary. In addition, site staff will be instructed to inform the Site Manager whenever visible dust emissions are observed crossing, or extending towards, the site boundaries as a result of any operation or process.

5.2.4 The following graded scale of dust occurrences, and responses, will be referred to:

Table 5.1: Visual Grading of Dust Occurrences

score	condition	action required
0	no visible dust	none
1	visible dust travelling up to 5m from the source	• damp surfaces down, • review operations and weather conditions, • take further preventative actions as appropriate
2	visible dust travelling reaching the sides of the quarry void, or edge of stripped areas during restoration	• damp down and reduce / relocate any operations causing the release; • review operations and weather conditions and take further preventative actions as appropriate to prevent further release
3	visible dust crossing the site boundary *(unacceptable emissions)*	• immediately modification, reduction or cessation of operations; • carry out emergency damping down and treatment of source areas; • carry out inspection at site boundary to ascertain extent and amount of dust migrations; • review processes and provide plan for any modification to operations to prevent recurrence

5.2.5 In the event an occurrence of unacceptable emissions occurs (score 3) a Dust Event Form will be completed as detailed in Section 6.

5.3 Quantitative Dust Monitoring

5.3.1 The proposed dust monitoring scheme has been designed taking into account the layout of the site and the progressive nature of the works. Monitoring is proposed for dust deposition and soiling.

5.3.2 Monitoring would be undertaken for at least a 3-month period ('Baseline Period') prior to the onset of the soil stripping and bund creation activities in Phase A to be undertaken as part of the Site Enabling Works.

5.3.3 Monitoring would continue during the operational period until the completion of restoration in the relevant areas or as otherwise agreed with the MPA.

Monitoring Methodology

5.3.4 Monitoring would be undertaken using combined deposition / directional dust gauges; these comprise 'Frisbee-type' dust deposition samplers with an adhesive 'sticky pad' directional dust sampler around the collection bottle.

5.3.5 All gauges will be installed by a suitable qualified and experienced supplier under supervision of an environmental consultant.

5.3.6 Samples would be collected on at least a monthly basis and submitted for analysis at an UKAS-accredited laboratory. Analysis would be undertaken for the following:

- Mass of dissolved and undissolved solids to determine the deposition rate as mg/m^2/day using Method No. FD01: *The determination of Fugitive Dust* based on BS 872:2005 (mass of dust (mg) is the UKAS accredited test); and

- % Effective Area Covered (%EAC) to determine surface soiling and direction of impact using Method No.FD05: *The determination of reflectance values using a smoke stain reflectometer (% reflectance is the* UKAS accredited result reported).

Monitoring Locations

5.3.7 The proposed Baseline and subsequent Post Commencement monitoring locations are as summarised below and provided in Figure 5.1.

5.3.8 The actual locations would be determined by conditions at the time of monitor deployment. This would take into account factors such as access, health and safety, physical constraints and security. These factors are particularly relevant during the short-lived soil stripping works when access to some areas may be restricted.

5.3.9 A report would be provided to LCC within 2 weeks of the initial deployment of the Baseline Monitoring confirming the actual monitoring locations and analytical laboratory utilised.

Table 5.2: Proposed Dust Monitoring Locations

Monitor	Location	Comments	Requirement
D1	Western edge of Phase A	Upwind of Phase A, close to Ourome	Baseline Monitoring and from start of soil stripping through to completion of restoration
D2	Eastern edge of Phase A / Western edge of Phase 3	Downwind of Phase A / upwind of Phase 3; close to Mytax / New England Cottage	Baseline Monitoring and from start of soil stripping through to completion of restoration
D3	Northwestern corner of Phase 1	Upwind of Phase 1, closest to properties on Little Tongue Lane	Baseline Monitoring and from start of soil stripping in Phase 1 through to completion of restoration of Phase 1
D4	Eastern edge of Phase 1	Downwind of Phase 1, close to Red Lea	Baseline Monitoring and from start of soil stripping in Phase 1 through to completion of restoration of Phase 1
D5	Eastern edge of Phase 2	Downwind of Phase 2, close to Bourbles Farm	3-months prior to start of soil stripping in Phase 2 through to completion of restoration of Phase 4
D6	Eastern edge of Phase 3	Downwind of Phase 2	3-months prior to start of soil stripping in Phase 3 through to completion of restoration of Phase 3

5.3.10 The monitoring locations would be reviewed as part of the regular DMP review discussed below. During the development it may be possible to cease monitoring at a given location, providing no exceedances of the trigger levels have been recorded and no issues due to dust emissions have arisen, subject to written agreement with the MPA.

Assessment Criteria

5.3.11 There are no UK statutory or recommended dust deposition rates which constitute an acknowledged nuisance. Consequently, the deposited and directional dust data obtained would refer to current 'custom and practice' benchmarks as indicative thresholds for possible nuisance derived from Government sponsored best practice guidance[10], Institute of Air Quality Management Guidance[11] and Environment Agency[12], as follows:

- Deposited dust:
  - 200 mg/m^2/day (based upon standard 'custom and practice' limit)[2];

[10] MIRO, Management, mitigation and monitoring of nuisance and PM10 emissions arising from the extractive from extractive industries: an overview, Report to the Mineral Industry Research Organisation (MIRO), AEAT/ENV/R3141 Issue 1, February 2011
[11] Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites, 2018

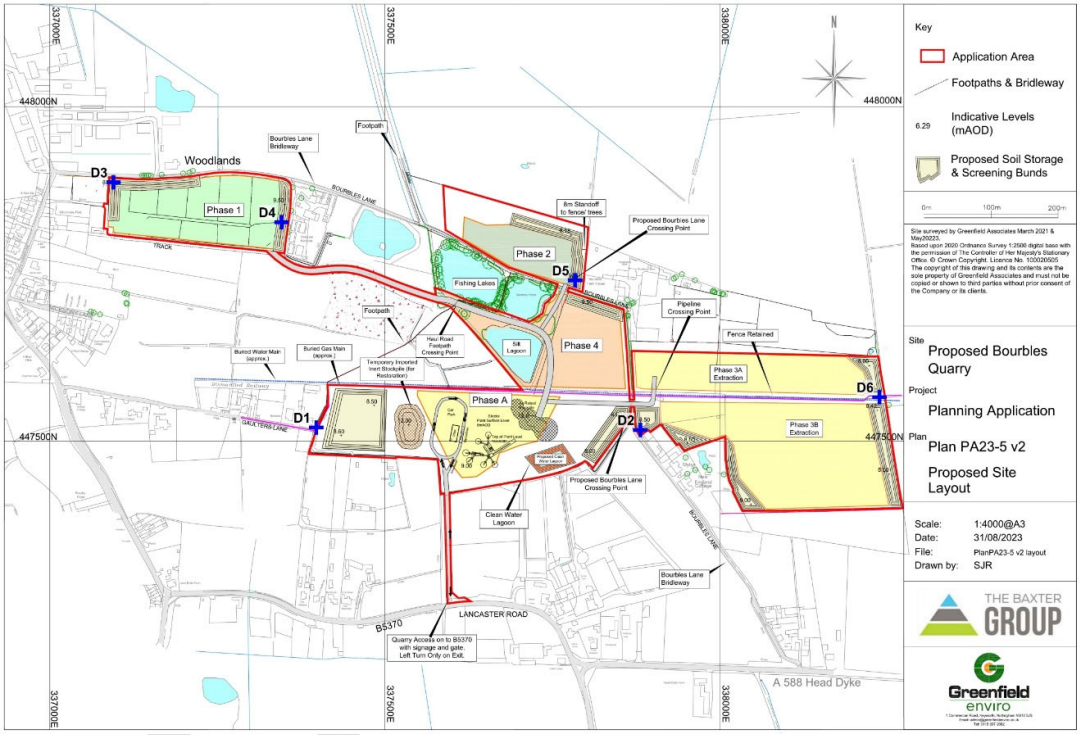
[12] Environment Agency, Monitoring of particulate matter in ambient air around waste facilities, M17, 2014

- Soiling: 0.5% EAC/day per sector.

5.3.12 These would be applied as 'trigger' thresholds for investigation to identify the likely dust source(s), taking account of the direction data and sampling location, and using site records. However, it is anticipated that any significant dust event would be identified via the routine daily visual assessments as would be set out in the DMP, with the corrective action referred to.

5.3.13 It should be noted the locations are all proposed within the site boundary and not necessarily at receptor locations. The results should therefore be interpreted accordingly and should additionally take into account any screening provided.

Figure 5.1: Proposed Dust Monitoring Locations



Indicative proposed monitoring locations: final locations dependant on site access, physical constraints and security

Reporting and Review

5.3.14 A summary report would be provided to LCC on completion of the 3-month Baseline Monitoring. This would detail the dust deposition and soiling results over the baseline period and would include any recommendations for alterations to the initial monitoring locations, methodology and assessment criteria based on the findings.

5.3.15 The quantitative monitoring results would subsequently be reported to the site operator and collated and reported to LCC on a monthly basis. The monthly reports would detail the dust deposition and soiling results (in a tabular form) and would include commentary of any

exceedances identified of the above trigger thresholds and what remedial actions or contingencies were put in place.

5.3.16 A summary report would be produced to form part of the first DMP Review 6 months after the commencement of the development. This would include a review of the monitoring programme, including locations, duration and frequency of on-going monitoring and reporting frequency, taking into account phasing and operational areas.

5.3.17 Subsequent monitoring locations, along with duration and frequency of monitoring, would be subject to review on the basis of the results obtained as part of the DMP periodic review.

5.3.18 The dust monitoring results would be used to identify any increase or trend in dust deposition rates, verify (or otherwise) any complaints from neighbours, and provide a further basis for future remedial action / mitigation measures.

5.3.19 Any proposed alterations to the dust monitoring methodology to be employed and reporting regime, including locations, duration and frequency, would be submitted in writing to LCC and agreement obtained from WCC in writing prior to implementation. This may be carried out either as per of the regular DMP review or if necessary due to circumstances at other times.

6 Contingency Measures

6.1 Complaints

6.1.1 All complaints received at the Site will be recorded and reported to the Site Manager, who will investigate the circumstances and ensure that any necessary corrective measures are taken.

6.1.2 An informed response will be made to the complainant within 24 hours (or other such period as may be agreed) including information on remedial actions that will be taken to mitigate dust nuisance or impact or risk to human health.

6.1.3 A written record will be maintained, including copies of all correspondence and telephone file notes. Information to be recorded includes date and time of the complaint, location and nature of complaint, name of person handling the complaint, details of the investigation into the complaint and corrective and preventative actions to be undertaken where necessary.

6.1.4 Investigations may include, but will not be limited to:

- visit by a member of Site management to location of complainant to verify the issue *(if complaint is made after the event this may not be possible)*;
- a review of site activities in operation at the time of the incident;
- a review of dust event forms for the period of the incident, if applicable;
- a review of control measures and dust suppression in place at the time of the incident (i.e., application of water, frequency of water bowser on internal haulage routes, drop heights during transfer);
- a review of the meteorological conditions at the time of the incident (i.e., recorded wind direction and wind speed recorded in the Site logbook).

6.1.5 The MPA will be advised, in writing within one week of the date of any dust complaint received together with the findings of the investigation, and of any actions or corrective measures taken Good records shall be kept at the site office throughout the life of the development and be made available to the Council upon reasonable request such as when visiting the site to investigate a complaint from the public.

6.1.6 In the event of any substantiated complaint, the DMP will be reviewed and any necessary amendments to the document submitted for the prior written approval of the MPA.

6.2 Contingency Action Plan

6.2.1 A contingency action plan has been defined to react to situations whereby visual monitoring of dust indicates that a potential dust source is not being mitigated effectively, appropriate control measures are not in place or that an adverse impact has / may occur.

6.2.2 This includes incidents or accidents which could result in the loss of control of potential dust sources and have the potential to cause an unacceptable impact on the environment, as well as an actual occurrence of an event. The contingency action plan therefore includes both pro-active and re-active actions to events. Example measures are provided in Table 6.1.

Table 6.1: Example Contingency Measures

Event	Example Contingency Measures
Forecast of high winds (>5m/s) and / or dry weather (<0.2mm rainfall per day)	• Implement additional dust mitigation measures and dust suppression on any high-risk activities near the site boundary; • Implement additional dust suppression measures such as damping down internal haul roads; • Consider cessation of any high-risk activities near the site boundary until weather changes.
Malfunction of water suppression techniques	• Undertake repairs as appropriate; • Obtain replacement / additional dust suppression equipment; • Use alternative on-site available dust suppression techniques; • Review expected weather conditions; • Consider modification, reduction, or cessation of operations for which dust suppression isn't available.
Visible dust crossing the site boundary *(unacceptable emissions)*	• Determine likely source of dust; • Immediately modify, reduce or cease operations considered to pose the source; • Carry out emergency damping down and treatment of source areas; • Carry out inspection at site boundary to ascertain extent and amount of dust migration; • Review processes and provide plan for any modification to operations to prevent recurrence; this may include relocation of the activities or cessation until dust can be effectively controlled.

6.2.3 In the event of an incident occurring the event, its cause and the action taken will be recorded in the site record. This will be on the basis of i) there is an unacceptable visual emission of particulate matter from the site (i.e., observed crossing the boundary by Site Manager or on-site personnel as described above in Section 4)) or ii) a substantiated complaint is received in relation to emissions to air. An example dust record form for use when a score of 3 (see Table 5.1) is obtained or complaint received is included in Appendix B.

6.2.4 If is established that the emissions are attributable to the site, then action will be undertaken to control the emissions. If necessary, the Site Manager will immediately instruct the modification,

reduction or suspension of any operation or process causing visible dust emissions crossing the site boundary until such time as the situation has been resolved.

6.3 Communication / Engagement with Local Community

6.3.1 The site manager (or nominated representative) shall act as a liaison with relevant interested parties, including the local community, in relation to concerns relating to dust emissions off-site.

6.3.2 Maintaining good communications with the local community will help to alleviate any anxieties that may occur. Key issues that can be communicated to the local community including, but not limited to, the following:

- update on the working scheme of the Site and when / where future operations will be;
- summary of the dust controls on Site and any updates / improvements undertaken / planned;
- provision of liaison contact details for the Site should any issues arise; and
- observe and alleviate any anxieties or complaints member of the public have experienced.

6.3.3 A community liaison meeting would be held in advance of the onset of the initial major works associated with the consented development. Appropriate mechanisms for on-going community liaison will be reviewed.

6.4 Record Keeping

6.4.1 The site operator will keep records of all observations, investigations, and complaints for a minimum period of 3 years. All records will be made available within a reasonable time to the MPA (LCC) on request.

7 Implementation, Review and Update

7.1 The DMP will be updated as required on finalisation of the determination of both any planning permission and Environmental Permit that may be granted and implemented as approved.

7.2 The effectiveness of the DMP would initially be reviewed within 6 months of the on-set of operations at the Site. Thereafter, the continued effectiveness of the DMP will be subject to on-going periodic review, and at least every 12 months or as deemed necessary, in consultation with LCC.

7.3 The review process will take into account aspects such as the complaints history of the site, observations of dust, any potentially sensitive developments on neighbouring land and changes in site operations and processes. The DMP will be updated and revised as appropriate.

APPENDIX A

Phasing Plans

(Plans Appx3-A/24-Appx3-5/24, 16/10/2024 – Regulation 25 Revised Phasing Plans)

APPENDIX B

Plant Site Plan

(Plan PA26-6, 16/10/2025 – Regulation 25 Revised Plans)

APPENDIX C

Example Dust Event Form

Dust Event Form	
Name of Author:	
Date / Time / Period:	
Description of Event[1]:	
Activities taking place on site during time / period of event:	
Dust control employed at the time of the event:	
Summary of weather conditions leading up to and during the event:	
Details of corrective action:	
Notes:	
1: e.g. visible dust seen crossing eastern site boundary	