

APP2/KEH/2

**Town & Country Planning Act 1990
Section 78 Appeals**

**Proposed Sand and Gravel Quarry,
Lea Castle Farm**

Evidence of:

**Katrina Early Hawkins
Smith Grant LLP**

DUST and AIR QUALITY

On behalf of: NRS Aggregates Ltd

Planning Inspectorate Reference: APP/E1855/W/22/3310099

Local Authority Reference: 19/000053/CM

October 2024

LEA CASTLE FARM

PROOF OF EVIDENCE: DUST & AIR QUALITY

For: NRS Aggregates Ltd

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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 25 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 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 Worcester County Council (WCC) for the planning application submitted by NRS Aggregates Ltd ('the Appellant') in 2020 for a sand and gravel quarry with progressive restoration on land at Lea Castle Farm, Wolverley Road, Broadwaters, Kidderminster ('the Site').

1.2.2 NRS Aggregates Ltd is appealing the refusal (Appeal ref: APP/E1855/W/22/3310099).

1.2.3 I acted as an Expert Witness and prepared a Proof of Evidence for the original public inquiry held into the refusal. In preparing that evidence I reviewed the relevant documentation and guidance as set out in the Core Documents and appendices to my Proof. As part of that preparation I visited the site and surrounding area in 2023. In preparing this updated evidence for the re-determination of the appeal I have reviewed all the previous documentation, along with information relating to the proposed amended scheme and the associated submitted ES Addendum (CD15.01). I have re-visited the surrounding area in 2024.

1.2.4 My evidence briefly sets out the background information to the site and proposed operations. My Proof primarily deals with 'dust' (particulate matter) and potential impacts on local amenity. It addresses the original amenity related reasons for refusal that were raised by WCC.

1.2.5 My Proof also deals with other air quality matters in response to comments that have been previously raised by the Rule 6 Party SoC and other objectors.

1.2.6 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 impacts on local air quality associated with other aerial emissions;
- Section 7: summary and conclusions.

1.2.7 My evidence should be read in conjunction with the other evidence provided as part of the Appeal, including the Appellant's Revised Statement of Case and in particular the evidence on planning issues prepared by Mr Liam Toland.

1.3 Declaration

1.3.1 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 soil handling operations can give rise to releases of airborne particulate matter (PM) or '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. It ranges in size from a few nanometres to around 100µm and can give rise to both soiling effects through dust deposition and human health effects through suspended particulates.
- 2.1.3 Dust soiling will arise from the deposition of particulate matter in all size fractions but will be associated mostly with particulate matter greater than 30 µm. Particles below 10 µm (referred to as PM₁₀) 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. PM₁₀ includes both fine (those particles of less than 2.5 µm; referred to as PM_{2.5}) and coarse (diameter between 2.5-10µm; PM_{2.5-10}) fractions of airborne particulate matter which normally arise from different sources.
- 2.1.4 Haulage transport to and from the Site and non-road mobile machinery (NRMM) associated with on-site activities will also result in emissions of, primarily, oxides of nitrogen (NO_x; comprises nitrogen dioxide (NO₂) and nitric oxide (NO)) and PM₁₀. NO itself is not considered harmful to human health. However, on release to the atmosphere it usually oxidises rapidly to NO₂ which is associated with adverse effects on human health, causing inflammation of the lungs at high concentrations. Long term exposure to NO₂ can affect lung function and respiratory symptoms.

2.2 Legislation and Guidance

'Disamenity Dust' – Standards and Controls

- 2.2.1 This Proof is primarily concerned with dust deposition and potential resulting impacts on amenity ('disamenity dust'). 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.
- 2.2.2 Disamenity 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. Instead, a number of "custom and practice" thresholds are typically 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.

2.2.3 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.

Local Air Quality

2.2.4 Ambient air quality standards in the UK are 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 standards established under EU requirements remain in place having been enshrined in UK law.

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 established UK Air Quality Objectives (AQOs) must be declared an Air Quality Management Area (AQMA) and an Action Plan prepared and implemented, with the aim of achieving the UK AQOs. This process is referred to as Local Air Quality Management (LAQM). The LAQM process is supported by national statutory policy and technical guidance provided by Defra.

2.2.6 The full air quality objectives (AQOs) and other appropriate standards that were applicable at the time were provided in Table 2.1 of the EnviroCentre Air Quality Assessment report submitted within the application (CD1.08).

2.2.7 Since the original application new future standards have been established for PM_{2.5} as detailed in Section 6.1 of the ES Addendum (CD15.01). The current AQOs and other standards of specific relevance to the Site and Proposed Development with regards to protection of human health are summarised in Table 2.1 below.

Table 2.1: Air Quality Objectives, Standards and Target Values

pollutant	AQAL	Averaging period
Current standards		
NO ₂	40 µg/m ³	annual mean
	200 µg/m ³	hourly mean, not to be exceeded more than 18 times per annum
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
	target of 15% reduction in concentrations at urban background locations	annual mean

pollutant	AQAL	Averaging period
	variable target of up to 20% reduction in concentrations at urban background locations	annual mean
Future Standards		
PM _{2.5}	12 µg/m ³ (interim 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 (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.

2.2.8 Ambient air refers to the outdoor air and excludes workplaces where members of the public do not have regular access. Advice is given in Defra guidance as to where the UK AQOs should apply as summarised 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

2.3 Planning Policy, Best Practice and Guidance

National Planning Policy and Guidance

- National Planning Policy Framework (NPPF): in particular paragraphs 180, 191, 192 (CD11.07; extracts provided in Appendix KEH1);
- Planning Practice Guidance regarding Air Quality (nPPG-AQ) (CD12.27);
- Planning Practice Guidance on Minerals (PPG-M); in particular paragraphs 023-032; (CD12.24, extracts provided in Appendix KEH2);
- National Planning Policy for Waste (NPPW); in particular paragraph 7 and Annex B (CD11.02; extracts provided in Appendix KEH3);

Local Planning Policy

- The Worcestershire Mineral Local Plan 2018-2036 (adopted July 2022): in particular MLP 28: Amenity (paragraphs 6.31 and 6.32) and MLP 29: Air Quality (CD11.03; extracts provided in Appendix KEH4);
- Worcestershire Waste Core Strategy Development Plan Document 2012-2027: in particular Policy WCS 14: Amenity (CD11.04: extracts provided in Appendix KEH5);
- Wyre Forest District Local Plan 2016-2036; in particular Policy SP33 Pollution and Land Instability (CD11.05: extracts provided in Appendix KEH6);

National Best Practice and Guidance

- Institute of Air Quality Management (IAQM): Planning for Air Quality (CD12.26),
- Institute of Air Quality Management (IAQM): Guidance on the Assessment of Mineral Dust Impacts for Planning (CD12.24),
- Institute of Air Quality Management (IAQM): Guidance on the Assessment of Dust from Demolition and Construction (CD12.37),
- Defra, Local Air Quality Management, Policy Guidance LAQM PG(22), August 2022
- Defra, Local Air Quality Management, Technical Guidance, LAQM TG(22), August 2022

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 180 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, the Worcestershire MLP Policies 28 and 29 and Worcestershire WCS Policy 14 include the terms **unacceptable adverse effects** and **unacceptable adverse impacts** on amenity.

2.4.4 These policies do not therefore require that all adverse effects be prevented. They seek instead to avoid effects and impacts that are found to be unacceptable. 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. In determining what defines an *unacceptable* level or *significant adverse* impact 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.

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 impact would 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 It is also noted that the available planning policies refer to impacts on general amenity, the effect of an impact being to result in disamenity. 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.

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 (APP/LT/2) and in the Revised Statement of Common Ground. I refer here only to those matters of relevance to dust and air quality impacts.

3.2 Planning Application Submitted Information

3.2.1 The planning application was supported by an Environmental Statement (ES) prepared by Kedd Ltd (December 2019; CD1.03). The Statement included a section on Air Quality and Dust (Chapter 11) which was supported by a Technical Appendix (Technical Appendix E: CD1.08). The Technical Appendix comprised a Dust Impact Assessment prepared by Vibrock Ltd and a separate Air Quality Assessment prepared by EnviroCentre.

3.2.2 The Vibrock 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 assessment also considered potential impacts due to PM₁₀ and PM_{2.5} and concluded that air quality objectives (AQOs) would not be exceeded.

3.2.4 The separate EnviroCentre Air Quality 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 additional traffic would not result in significant changes in relevant pollutant concentrations at sensitive receptors.

3.2.5 The ES also included a Heath Impact Assessment Chapter (Chapter 20) and Cumulative Impact Assessment (Chapter 22).

3.2.6 The original ES was supplemented by three Regulation 25 responses. None of these included any further dust and / or air quality assessment in relation to amenity and human health impacts. The amended Non-Technical Summary ES submitted in July 2021 (CD5.16) did however include for a programme of dust monitoring.

3.3 Statutory Consultee Responses

Worcester Regulatory Services, Environmental Health and Licencing (provided shared services including for Wyre Forest District Council)

3.3.1 No technical objections to the proposals were raised by the Environmental Health & Licencing Department with regards to either dust or air quality. There were no requests for further information or assessment in relation to dust and amenity or local air quality and public health in response to the original submission (CD2.15, CD2.38 and CD2.39).

3.3.2 With regards to dust the Senior Technical Officer stated: *'WRS are satisfied with the methodology and conclusions of the dust impact assessment. With this in mind we would therefore recommend that the prevention strategies should be made conditional should the application be granted planning consent.'* The Officer also set out additional recommended mitigation measures to those set out in the Dust Impact Assessment.

3.3.3 Separately, with regards to the assessment of traffic impacts on local air quality, the Senior Technical Officer concluded: *'Results of appropriate modelling undertaken are presented. No adverse comments'*.

3.3.4 Subsequent responses were provided by the Officers following review of third-party objections and the Appellant's Regulation 25 submissions. These confirmed the WRS comments remained as previously with regards to air quality and dust with no objections or requests for further information in relation to dust and amenity or local air quality and public health during the determination of the application (CD4.06, CD4.21, CD4.27, CD4.28, CD5.03, CD5.16, CD6.30, CD6.42, CD6.44 and CD7.03).

Wyre Forest District Council (WFDC)

3.3.5 WFDC objected to the Proposed Development, including on the following grounds:

'The proposal will directly adversely impact on existing and future residential dwellings both in close proximity and further from the site; impacting on their amenity, through adverse noise, dust, and vibrations. It will also impact on the wider community reducing the ability to enjoy recreational routes and outdoor space.'

3.3.6 The response does not make any reference to the responses provided by WRS detailed above in paragraphs 3.3.1 and 3.3.4.

Environment Agency (EA)

3.3.7 The EA noted that a relevant Environmental Permit would be required to undertake the infilling operations as part of the restoration proposals (CD2.34). This would likely include requirements to undertake monitoring to assess any particular impacts on the environmental and local receptors. Dust was noted as a particular issue that the operator must be aware of during the landfilling phase. No objections to the Proposed Development were raised with regards to dust or air quality.

Kidderminster Town Council

3.3.8 Kidderminster Town Council objected to the Proposed Development, including on the following grounds:

ii) the development will have a detrimental impact on the quality of life especially local housing and schools;

iii) the committee are concerned that the development will pose a threat to the air quality in the neighbourhood.

3.3.9 No further information is provided in relation to these objections.

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, including concerns regarding silicosis.

3.5 Officer's Reports to Planning Committee

3.5.1 The May 2022 Officer's Report (CD10.01) notes that the main issues in the determination of the application included residential amenity where this includes dust, air quality and health impacts.

3.5.2 The Report includes a detailed consideration of the information presented in relation to dust and air quality matters in paragraphs 542-571. In paragraph 571 it states: *'Based on the above advise the Head of Planning and Transport considers that subject to the imposition of appropriate conditions, the proposed development would not have an unacceptable dust and air quality impact'.*

3.5.3 The Officer's Report concluded *'Based on the advice of Worcestershire Regulatory Services, Environment Agency, and the County Public Health Practitioner, the Head of Planning and Transport Planning considers that, subject to the imposition of appropriate conditions that there would be no adverse **air pollution**, noise, **dust**, vibration, odour or lighting impacts on residential amenity or that of human health, in accordance with Policy WCS 14 of the adopted Worcestershire Waste Core Strategy, and Policies SP.16 and SP.33 of the adopted Wyre Forest District Local Plan.'*

3.5.4 The Officer's Report included several recommended conditions. These included conditions 46-47 in relation to dust which required the pre-commencement submission and approval of a Dust Management Plan (DMP), to include dust monitoring.

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 (CD10.02) includes several Reasons for Refusal, including:

Reason 3: *Unacceptable impact on residential amenity and local schools*

Reason 8: *Unacceptable general impact on environmental and wildlife; and*

Reason 9: *Unacceptable impact on health of local population*

- 3.6.2 The information section sets out the location of several residential and commercial properties and schools to the site and states: *'Due to the close proximity of the proposal to these receptors, it is considered it would have an unacceptable impact on residential amenity and local schools particularly in terms of dust emissions.'*

3.7 Statements of Case

WCC Revised Statement of Case

- 3.7.1 Paragraphs 4.8 and 4.9 of the WCC SoC advise that the Council, as for the first inquiry, will not be defending the reason for refusal 8 (*'Unacceptable general impact on environmental and wildlife'*) or reason for refusal 9 (*'unacceptable impact on health of the local population'*). Officers concluded that, subject to the implementation of appropriate planning conditions, the proposal would not have a detrimental impact on the environment and wildlife or the health of the local population.
- 3.7.2 Paragraph 4.3 advises that the Council will also not be defending reason for refusal 3 (*'Unacceptable impact on residential amenity and local schools'*). In preparation for the original inquiry the Council initially proposed to defend reason for refusal 3. However, during the programme for the original inquiry additional information was submitted in February 2023 by the Appellant and paragraph 4.3 of the WCC SoC states: *'...on review, the Council concluded that the Appellant had provided sufficient information to determine that the proposals, in combination with other developments, would not cause amenity harm with regards to noise or dust impacts to residential dwellings or Heathfield Knoll School and First Steps Nursey, subject to the implementation of mitigation measures'*.
- 3.7.3 Hence, the WCC SoC advises that the Council is not defending any reasons for refusal in relation to dust or air quality matters.

Rule 6 Party - Stop The Quarry Action Group Revised Statement of Case (STQC SoC)

- 3.7.4 Paragraph 8.37 of the STQC SoC states *'STQC agrees with all the reasons for refusal and sets out the arguments for this below'*. However, no further information or explanation is provided in the SoC.
- 3.7.5 In paragraph 8.11 the STQC SoC states that STQC identified a number of matters where it considered harm could arise and that the local community consider these matters to have not been fully appreciated in terms of harm that could arise. In paragraphs 8.13-8.16 STQC SoC goes on to raise comments in relation to 'dust' under 'Other Harm' and the balancing exercise for inappropriate development in the Green Belt. The SoC makes note about the degree of weight being attached to harm caused by dust.

3.7.6 For completeness therefore I have referred to comments that were raised in the STQC SoC (CD13.23) for the original inquiry and considered there in my following proof.

3.7.7 In addition, during the original Public Inquiry an Air Quality Review report was referred to in the proof of evidence provided by Adrain Carloss for the Stop the Quarry Campaign (STQC) (Rule 6 Party). This Review report had been prepared by Air Pollution Services (APS) in March 2020 (CD12.31) on behalf of the STQC during the determination period of the application. However, the APS Report had not been located on the WCC planning portal or listed in any of the Core Document lists in preparation for that original Inquiry. A response to the APS report was therefore submitted to the inquiry. For completeness this response is included as Appendix KEH11 and is considered in my Proof.

3.8 Third Party Representations

3.8.1 In addition to the reason for refusal and the issues raised by WCC and the Rule 6 Party in their Statements of Case, a large number of third-party representations have been received. These include references to dust and air quality. These issues have therefore been dealt within my Proof.

3.9 Summary of Procedural Matters

3.9.1 In summary, the planning application was supported by an Environmental Statement which considered Air Quality and Dust impacts in detail.

3.9.2 The WRS Environmental Health Department did not raise any objections to the proposed development or request further information or assessment in relation to either dust or air quality.

3.9.3 At no stage during the determination process was there any request from WCC or WRS for additional assessment of potential impacts associated with dust and / or air quality in relation to the proposals. No suggestion was made that in-combination effects (i.e. cumulative effects) had not been adequately addressed. The Head of Strategic Infrastructure and Economy recommended approval subject to several conditions including in relation to dust and HGV movements.

3.9.4 No specific details were provided in the Decision Notice on the reasons for refusal.

3.9.5 I note that WCC are no longer defending any reasons for refusal in relation to dust or air quality issues. In addition, although STQC continues to agree with the reasons for refusal, no further details or explanation are provided.

3.9.6 For completeness I have therefore considered within my Proof comments previously raised by STGC in relation to the potential impacts of the Appeal Proposals on dust and local air quality. My proof also considers any potential impacts associated with the proposed amended scheme as detailed in the submitted ES Addendum.

4 Current Site Setting and Proposed Development

4.1 Full details of the existing site, site setting and proposed operations, including proposed phasing, are provided in the evidence presented by Mr Liam Toland (APP/LT/2), the Planning Statement, the Revised Statement of Common Ground and the ES. The ES Addendum includes a summary of any changes to the site setting that may have occurred since preparation of the original ES.

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

4.3 Site Location and Existing Surroundings

4.3.1 The application boundary is provided in plans included in the Planning Application Statement (CD1.17-1.32; in particular plan KD.LCF.014). The Site currently comprises open agricultural land within the historic parkland of Lea Castle. The site is located within the vicinity of several residential and commercial properties, with the closest to the application boundary including South Lodges and Broom Cottage on the southern boundary, 1-12 Castle Barns on the north-eastern boundary, The Bungalow on the northern boundary and properties off Brown Westhead Park close to the western boundary. It is noted that South Lodge is under the control of the applicant. Other properties within 250m of the application Site boundary include Keepers Cottage and Upper Lea Castle Cottages to the north and further dwellings to the south of Wolverley Road (B4189).

4.3.2 Since the original ES an additional 4 dwellings have been constructed on Brown Westhead Park to the west of the Site. These have been constructed between other dwellings that were existing at the time of the original ES, although are slightly closer to the proposed extraction boundary than these existing properties.

4.3.3 Two schools are located within 250m of the application boundary, Heathfield Knoll School and First Day Steps Nursery, both to the south of Wolveley Road.

4.3.4 Several leisure facilities lie within 250m of the application boundary including Lea Castle Equestrian Centre to the north, beyond which lies Keepers Cottage Strong Farm 1988 Equestrian Centre, along with an associated camping area, and Brown Westhead Park & Playing Fields to the west. Wolverley Camping and Caravanning Club site lies beyond the Brown Westhead Park & Playing Fields to the west.

4.3.5 The proposed extraction area does not extend to the limit of the application boundary as shown in plan KD.LCF.013A (CD5.03), providing buffer areas to the nearby properties as discussed above. The closest residential properties to the proposed extraction and processing areas are The Bungalow lying 70m north of the extraction area, and South Lodges and Broom Cottage, lying about 60m south of the extraction boundary. The accessible grounds of the two schools to the south lie 80m at their nearest point to the proposed extraction area.

4.3.6 Ground within the Site rises to a high point of 84m and falling to the valleys of the River Stour to the west and the A449, Wolverhampton Road to the east.

4.3.7 The site is crossed by two public footpaths / bridleways with a third running close to the western site boundary.

4.4 Potential Future Surroundings

4.4.1 Chapter 22 of the original ES identified two committed or proposed developments in the area which were considered to potentially lead cumulatively to adverse / unacceptable impacts upon local receptors.

4.4.2 An additional four planning applications have been submitted since preparation of the original ES for proposed developments in the area. Three of these are detailed in the Addendum ES and the potential implications cumulative adverse / unacceptable impacts are considered in that Addendum.

4.4.3 The fourth identified planning application was submitted on 29th August 2024 and hence was not considered in the Addendum ES.

4.4.4 For ease these are all summarised below in Table 4.

Table 4.1: Committed / Proposed Developments in the Locality

Planning ref:	Details	Location & Comments
Consented Developments at time of original ES		
17/0205/OUTL	Lea Castle Farm Hospital (Lea Castle Village) – mixed-use development including for up to 600 dwellings	extends to about 450m to east of proposed mineral extraction area; construction currently on-going with earthworks having commenced in all phases application supported by an Air Quality Assessment; decision notice includes requirement for a Construction Environmental Management Plan (CEMP) which was to include for measures for dust suppression
18/0163/FULL	Land off Stourbridge Road – residential development for up to 91 dwellings	about 660m to south-east of proposed mineral extraction area; development now complete
Applications submitted post preparation of the original ES (now consented)		
20/0217/FULL	Land at Brown Westhead Park, Wolverley Road – residential development for 4 dwellings	extends to within 85m to west of proposed mineral extraction area; lies between existing properties on Brown Westhead Park permission granted 23.07.20; construction completed and properties occupied

Planning ref:	Details	Location & Comments
Applications submitted post preparation of the original ES (awaiting determination)		
22/0404/OUT	Lea Castle Farm Hospital – further 800 dwellings	includes area to the west of the housing associated with 17/0205/OUT; extends to within 230m to the west of the mineral extraction area application supported by an Air Quality Assessment
22/0235/PIP	Wolverley Lodge – erection of 4 residential dwellings	extends to within 340m to northwest of Site boundary; located beyond Brown Westhead Park and Playing Fields
24/0564/FUL	Barn at Wolverley Road, Wolverley – erection of dwelling to replace existing agricultural building (<i>note: permission 23/0859/PNR previously granted for conversion of existing building to dwelling</i>)	lies to south of Wolverley Road; beyond Broom Cottage

4.4.5 The locations of these consented and proposed developments in relation to the Site are shown in Figure 1 of the evidence of Mr Neil Furber.

4.4.6 Of these the most relevant are those associated with Lea Castle Village.

4.5 Development Description

Original Proposed Scheme

4.5.1 Proposals are for the extraction of sand and gravel / solid sand over a 10-year period, with progressive restoration with imported inert material. Final restoration would take place across a further 1 year.

4.5.2 Access to the Site would be provided directly off Wolverley Road (B4189) via a newly constructed and purpose-built access point. This is to be located in the south-east of the Site between South Lodges and Broom Cottage.

4.5.3 Key elements of the proposals are:

- works to be progressed in a phased manner; with Initial Works being undertaken in the central area to create a suitable platform for processing;
- works to then progress across Phases 1 to 5 from the northwest corner in an anti-clockwise manner;
- soil and overburden removal to be carried out in annual blocks, up to 8 weeks duration;
- extraction to be carried out using an hydraulic excavator and loading shovel;

- as-dug material to be transported via internal haulage and conveyor from Phases 1, 2 and 3 to the processing area; material from Phases 4 and 5 to be transported to the processing area by internal haulage;
- siting of processing plant within the initial void at a floor base of c.63.5m aod compared to surrounding ground level of c.70m aod; ground to immediate east rises to c.80m aod;
- processing to involve crushing, screening and sorting; understood that investigations have determined there is only a small proportion of oversized (large gravel boulders) within the deposit and therefore a large crusher section is not required within the plant;
- all stripped soil and overburden to be retained on site for use in restoration; all bunds to be retained for over 3 months or over winter to be grass seeded;
- provision of soil screening bunds to northern, western and southern edges of plant site prior to the commencement of extraction (referred to as Bunds 1-4); to be retained throughout the development until final restoration;
- planting of woodland block in northeast corner with enhancement to existing hedgerows;
- creation of temporary soil storage bunds as works progress across Phases 1-5;
- progressive restoration with imported material and retained soils;
- removal of processing plant and final restoration.

4.5.4 Extraction rates are predicted at 300,000 tonnes per annum (tpa) with an import for restoration of 60,000 m³ per annum. The sizes and duration of the phases are detailed below:

Table x: Summary of Phases

Phase	Area (ha)	Soils / Overburden (m3)	Mineral tonnages	Anticipated Extraction Duration (years)
Initial works	3.3	45,800	450,000	2.5
Phase 1	4.65	57,400	225,000	0.75
Phase 2	3.78	37,000	300,000	1
Phase 3	4.45	54,500	375,000	1.25
Phase 4	5.97	62,400	975,000	3.25
Phase 5	3.83	52,700	675,000	2.25
Total	25.98	309,800	3,000,000	10

4.5.5 A short tunnel conveyor (60m length) would be used to transport material from Phases 1-3 in the western area underneath the access road that leads to the Bungalow and Lea Castle Equestrian Centre to the processing area. As-dug material would be transported to the feed hopper from the working faces by dumper.

4.5.6 All imported material for restoration would comprise inert waste materials, primarily clays and sands with reclaimed construction materials. The imported material would be tipped straight into the void minimising the requirements for any stockpiling of material and hence the likelihood of

such material becoming dry and subject to wind blow. Following placement within the void the materials will be compacted, further reducing the potential for dust emissions generation.

Proposed Amended Scheme

4.5.7 As detailed in the ES Addendum an amended scheme is now proposed in relation to soil placement and processing plant. Full details are provided in the ES Addendum but key changes of potential relevance to the air quality and dust assessments are:

- reduction in processing plant height from 12m to 6.334m;
- reduction in processing plant footprint from 2,752m² to 451m²;
- reduction in height of several bunds (Bunds 3, 7, 13, 14, 16 and 19);
- reduction in the duration in time for Bund 7;
- Bunds 6, 11 and 18 no longer required; and,
- placement of a stretch of hedgerow / hedgerow trees adjacent to the eastern margin of Phase 4 during the Initial Works (Year 1) as opposed to the Final Works (year 10). Bunds 1-4 however remain proposed for the duration of the scheme.

4.5.8 As for the original scheme Bunds 1-4 are all to be seeded and construction and maintained. The revised scheme does not result in any changes to the length of time of mineral extraction, its cessation or the final restoration of the site. Similarly, it does not result in any changes to the proposed extent of extraction or the methods of working.

4.6 Regulatory Controls

4.6.1 The Officer's Report recommended several conditions to be included in any planning permission that may be granted. Those provided specifically in relation to dust are summarised below:

- **Condition 46** requires the submission and approval of a Dust Management Plan. The plan should be based on the submitted Dust Impact Assessment and set out and require compliance with good practice mitigation measures; the plan should be reviewed every 6 months and updated accordingly in light of good practice and developing evidence; the plan should include dust monitoring;
- **Condition 47** sets out several measures that shall be undertaken to suppress dust emissions on the site. These include provision of a water bowser, use of a road sweeper, minimisation of drop heights and establishment of a site maximum speed limit.

4.6.2 In addition, several other recommended conditions are of relevance to dust and air quality matters, including:

- **Condition 19** requires submission and approval of an HGV Management Plan; this should include measures to ensure that vehicles leaving the site do not deposit mud on the highway; details of HGV routing and requirement that HGV accessing the site only travel left out and right in;

- **Condition 20** requires provision of full details of the proposed wheel wash to the LPA and implementation and operation in accordance with the approved details;
- **Condition 21** requires all HGVs entering the public highway from the site to be cleaned in the wheel wash;
- **Condition 22** requires all loaded vehicles leaving the site to be sheeted;
- **Condition 23** requires all HGVs leaving the site to turn left along Wolverley Road to Wolverhampton Road;
- **Condition 45** requires internal roads to be maintained such that surfaces are free of potholes and other defects;
- **Condition 50** requires heights of stockpiles of sand and gravel and inert restoration materials to not exceed 5m;
- **Condition 71** requires that there shall be no crushing, screening, sorting or processing of any waste material on the site.

4.6.3 In addition, the acceptance and handling of 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 (as amended).

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 Activities not controlled under the Permit, and hence solely controlled under the planning permission 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.

4.6.6 These controls would remain applicable to both the original proposed scheme and the amended scheme.

5 Dust Impact Assessment

5.1 Introduction

5.1.1 Chapter 11 of the ES included a summary of the detailed dust assessment undertaken by Vibrock which was included as Appendix E to the ES. I have reviewed the assessment and its findings focusing on the overall scope, methodology, results and conclusions. 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.

5.1.2 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. To inform the cumulative dust assessment I have initially summarised key salient points of the original dust assessment below. For detail reference should be made to Chapter 11 of the ES and Technical Appendix E.

5.1.3 Where additional information is now available to that presented in the original ES, this is presented in the ES Addendum and highlighted below.

5.2 Baseline Conditions

Baseline Deposition Dust Conditions

5.2.1 The site is located on the outskirts of the urban area of Kidderminster in a mixed-use locality, including residential, leisure and agricultural activities. The existing dust deposition levels are likely to be mainly influenced by agricultural activities. The Dust Assessment included reference to some monitored dust deposition data for several locations on the Site perimeter for the period 24.07-18-15.08.18. The data reports the measured dust deposition levels to be in the range 34-63 mg/m²/day. Full details of the monitoring exercise and locations are not provided. However, these results are consistent with expectations for the locality, guidance providing a median (50th percentile) level of 56 mg/m²/day for 'residential areas and town outskirts'.

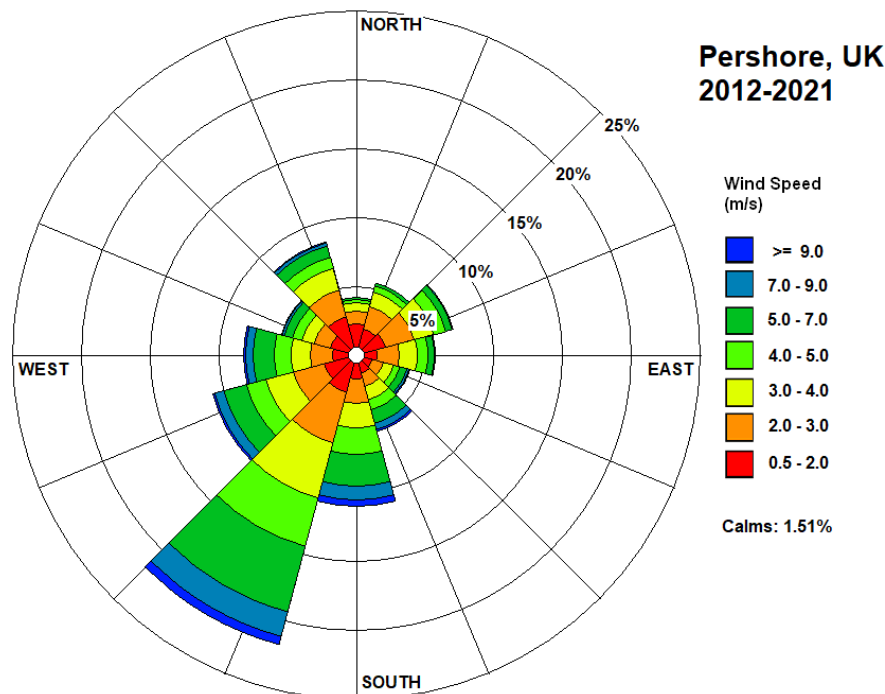
Meteorological Conditions

5.2.2 The prevailing wind direction has been determined through a review of meteorological data provided by the Met Office for Pershore, Worcestershire. The monitoring location is about 30km to the south-southeast of the Site. The station is located at an elevation of about 17m aod. Although differences will exist in conditions locally, the data for Pershore is expected to be broadly representative of that for the Site. The use of this data is considered appropriate for the dust assessment.

5.2.3 The windrose for the period 2012-2021 is reproduced below; this depicts average wind speeds and directions over the relevant total monitoring period

5.2.4 The prevailing wind direction is south-westerly (i.e. from the south-west), consistent with typical UK conditions.

Figure 5.1: Pershore Windrose 2012 to 2021



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*.

5.3.2 The assessment presented in the ES considered the potential *residual source emissions* taking into account the controls that are to be incorporated into the design of the Proposed Development, as recommended in the IAQM guidance (CD12.24). The assessment therefore takes into account both the in-built design measures, such as the siting of the processing plant at depth within the void, as well as the proposed outline management and control measures that would be applied and be subject to continual improvements as deemed necessary.

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.

Potential Sources

5.3.4 Key points in relation to potential dust generating sources are:

Table 5.1: Sources of Dust

Source of Dust	Dust Source Potential	Comment
soil stripping / bund formation	<i>small / medium</i> - of short duration; soil stripping to be limited to area required for subsequent 12 months extraction	soils must be handled in an unsaturated condition, but maybe damped down to minimise dust; subsequent stabilising by grass seeding of bunds; risks similar to those of typical agricultural practices
extraction	<i>small / medium</i> – to be undertaken using a low-energy extraction method via a single excavator; decrease as excavations deepen and moisture content of mineral increases	typically contained within the void except near-surface workings; 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
loading / tipping	<i>small</i> – as-dug material of high moisture content; use of one loading shovel; can increase in prolonged dry conditions if stockpiles dry out	short-lived and typically contained within the void; as-dug materials loaded at working face; sales materials loaded within void in processing area; minimisation of drop-heights
internal haulage	<i>small</i> – use of up to 2 dump trucks to transport as-dug material to processing area	damping down of internal haul road surfaces may be need under prolonged dry conditions; establishment of internal speed limit (15 mph)
mineral processing	<i>small</i> - located with base of quarry in processing area; static plant; wet process; larger crusher not required due to expected size of excavated material	cleaning of plant and conditioning of stockpiles with water sprays may be required in damp conditions
external road transport	<i>small</i> - wheel wash to be provided of all HGVs departing the Site; graded road of about 90m length from wheel wash to public highway; ~10-20 departing HGVs per day	internal road surfaces to be maintained in good running order; off-site road surfaces to be swept as necessary
restoration – inert waste material	<i>medium</i> – material placed within void to minimise stockpiles; compacted after placement	additional controls under Environmental Permit
restoration - soils	<i>small</i> – of short duration in final restoration phase; to be seeded shortly after placement	
wind-blown dust (from stripped / bare surfaces)	<i>small</i> - source potential increase during periods of prolonged dry weather; managed through limiting area of soil stripping on annual basis	surfaces may be damped down or have stabilisers applied if necessary

Source of Dust	Dust Source Potential	Comment
wind-blown dust (from stockpiles / bunds)	<i>small</i> - stockpiles located within base of quarry; bunds will be stabilised by grass seeding	

Potential Pathways

- 5.3.5 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, CD12.24). The levels of particles in the air available for deposition at further distances will have been reduced through deposition and dispersion.
- 5.3.6 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. 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.
- 5.3.7 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.
- 5.3.8 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).
- 5.3.9 Winds with speeds to more than 5 m/s are more likely to give rise to wind-blown dust from exposed surfaces. Equally however higher windspeeds increase dispersion.
- 5.3.10 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).
- 5.3.11 The assessment methodology is consistent with that advised in the IAQM guidance (Appendix 3 CD12.24).

Potential Receptors

5.3.12 Receptors considered in the original Dust Impact Assessment comprise those nearest the Site boundary, including the Bungalow, South Lodges, Broom Cottage, properties on Brown Westhead Park and Castle Barns and Heathfield Knoll School and First Day Steps Nursery. Other receptors such as Lea Castle Equestrian Centre, Keepers Cottage and Strong Farm are effectively subsumed by these closer receptors.

5.3.13 Additional properties have also now been constructed on Brown Westhead Park to the west of the Site under a planning permission granted in 2020 as detailed in Table 4.1.

5.3.14 The gardens of the nearest properties to the proposed extraction areas (the Bungalow, Broom Cottage and South Lodges) extend to within 65m, 35m and 50m of the boundary at the closest points respectively. The fields used for paddocks at Lea Castle Equestrian Centre extend within about 20m of the extraction boundary.

5.3.15 As detailed above in Section 5.2 the prevailing wind direction is from the south-west. The properties on Brown Westhead Park, South Lodges, Broom Cottages and Heathfield Knoll School and First Schools therefore all lie upwind of the prevailing wind direction across the Site. Castle Barns lie downwind with the Bungalow lying downwind of Phases 1–3.

Assessment

5.3.16 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 restoration, in the nearest phases to the properties. The initial works to create the platform for processing and subsequent infilling for restoration would comprise a short-period of soil stripping (expected up to an 8-week period) with creation of landscape screening bunds. The potential for dust generation from this activity would be as associated with typical construction earthworks and agricultural activities and can be readily mitigated using standard industry techniques. The screening bunds are to be seeded and thereafter would provide screening to the subsequent mineral extraction and then processing activities.

5.3.17 As extraction within this Initial Works area deepens, the risk of off-site dispersion and resulting adverse impacts due to dust diminishes. Processing, stockpiling and handling of material for off-site despatch will occur within the void, serving to reduce the risk of adverse impacts at receptors.

5.3.18 During the restoration phase in the Initial Works area the risk of adverse dust impacts at nearby properties would increase again as placement approaches near-surface levels. This would again be managed through the employment of standard industry mitigation measures, with the screening soil bunds only being removed towards the end of the restoration.

5.3.19 Similarly for other phases the greatest risk of any dust deposition at the nearest properties would be during the initial soil stripping and other near-surface activities, including restoration, in the nearest phases. Again, as extraction deepens the potential risks diminish.

5.3.20 As noted above the Bungalow and properties at Castle Barns lie downwind of the prevailing wind direction across the Site. The assessment concluded, taking account of the designed-in mitigation measures, there is a risk of *moderate adverse* effects, at most, arising from fugitive dust at the Bungalow. As the screening bunds establish and quarrying activities move away from the boundary and deepen within the quarry potential impacts would fall to *slight* to *negligible* at this property.

5.3.21 This is also of relevance with respect to the properties at Castle Barns, where the assessment concludes *slight adverse* effects at most. Potential impacts and resulting effects will reduce to *negligible* throughout the works that are further away from these properties.

5.3.22 The assessment concluded *negligible* effects at all other considered receptors, including South Lodges, Broom Cottage, Heathfield Knoll School and First Steps, Brown Westhead Park and the Bungalow.

5.3.23 The Site access point lies between South Lodges and Broom Cottage and would form about 95m of unpaved roadway to / from the processing / despatch area. The road would be graded and maintained in good running condition and be subject to the Site speed limit. All HGVs leaving the Site would pass through a wheel wash prior to exit onto this access road. This services to minimise the likelihood of track out onto the access road and the public highway which can be subsequently raised to create dust.

5.3.24 The newly constructed properties on Brown Westhead Park are slightly closer to the proposed extraction boundary than the existing properties. However, they are well screened by existing trees and topography and are located upwind of the Site. Resulting effects are *negligible* as for the existing properties.

Additional Comments

5.3.25 As set out in Section 6.3 of the ES Addendum there have not been particular changes to planning policy, legislation or guidance that would affect the Original ES dust assessment.

5.3.26 The revisions to the proposed processing plant and spoil placement scheme would also not significantly affect the potential for the proposed operations to give rise to dust or result in off-site migration. At a lower height the proposed processing plant would have increased shielding from the wind potentially resulting in a reduced source potential to that originally assessed although this would not affect the results of the original assessment.

5.4 Mitigation Measures

5.4.1 As noted above and within the Vibrock Dust Assessment the quarry would be operated in accordance with the dust suppression measures detailed within the assessment report and in Appendix 3 of that report. The recommended conditions by WCC that would be imposed on the grant of any planning permission included conditions mandating that the Site be operated in accordance with a Dust Management Plan (DMP).

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 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:

- regular visual inspections of the site and local road network;
- regular maintenance of haul roads;
- maintenance of Site speed limit;
- use of a road sweeper as and when required;
- minimisation of drop heights during loading / unloading of dump trucks;
- provision of wheelwash for all departing HGVs;
- use of dust suppression as and when required;
- mobile plant exhausts and cooling fans to point away from ground;
- maintenance of complaints log and response procedure.

5.4.4 In addition, the draft Condition 46 in relation to the DMP included reference to 'dust monitoring'. This typically includes for the carrying out of visual inspections of any dust generating activities and site boundaries. It is additionally proposed that physical dust deposition monitoring is included as noted in the amended ES NTS submitted in 2021. The detailed scope of the dust monitoring would be subject to agreement with the MPA.

5.4.5 A standard requirement is that additional measures are implemented immediately in the event of adverse conditions developing which cause, or risk causing, visible dust escaping the site. These could include the modification, reduction or suspension of any activities causing the dust until such time as the situation has been resolved. This may require for example moving site activities to a suitable location until suitable weather conditions return or additional use of water suppression.

5.4.6 The draft Condition includes for a formal review of the DMP every 6 months from the date of planning permission. 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.

- 5.4.7 The above is consistent with the essence of 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 (CD12.24) dust mitigation is a dynamic process involving the review and regulation of the mitigation applied as per the conditions on site.

5.5 Cumulative Disamenity Assessment

Lea Castle Village (referred to as the 'core' site)

- 5.5.1 As noted above construction is currently on-going of the consented part of the Lea Castle Village to the east of the Site. It appears construction may have commenced in 2019. On the basis of an original projected timescale of 10 years to complete the development there could therefore be an overlap of several years when mineral extraction could be on-going at the Site and construction works completing at the core Lea Castle Village development. However, it is noted the site visit in July 2024 identified the built development across the Lea Castle Village development to appear largely complete.
- 5.5.2 The core Lea Castle Village site lies over 250m from the proposed development, i.e. beyond the standard screening distance for considering disamenity dust effects from sand and gravel quarries (see paragraph 5.3.4 above). Hence, the risk of adverse dust effects from the Site on the new receptors being introduced as part of the core Lea Castle Village site is *negligible*.
- 5.5.3 Any existing receptors present within the relevant disamenity dust assessment screening distances for both sites could however be subject to cumulative impacts and effects. Previous IAQM guidance on construction dust (CD12.25; Box 1) provided a screening distance for 350m from the boundary of construction dust. The most recent IAQM guidance on construction dust that was issued in January 2024 (CD12.37; Box 1) however provides a revised and reduced screening distance of 250m. Beyond this it can be concluded any risk is *negligible*. This distance is deliberately conservative because, as for mineral sites, the airborne concentrations and rate of deposition of dust declines exponentially with distance from the dust generating source with larger particles typically being deposited within 100m. The IAQM recommended construction assessment process takes this into account. For example, where there are >100 residential properties between 50m-100m of a construction site then the area sensitivity may be deemed 'medium'. Where there are fewer than 100 properties located between these distances then the sensitivity is deemed 'low'.
- 5.5.4 The planning permission for the core Lea Castle Village development requires the submission and agreement of a Construction Environmental Management Plan (CEMP) prior to commencement. This was to include measures for dust suppression. As such the risk of potential fugitive dust being generated during the construction phases should be managed and controlled

in accordance with standard industry methods, reducing the potential for adverse effects locally from these activities.

5.5.5 However, there are no relevant sensitive human receptors that lie within 250m of the Site and within 250m of the core Lea Castle Village development as shown in Figure 1 in Appendix KEH7. Hence, the potential for cumulative adverse effects on any receptors should these developments be on-going simultaneously is considered *negligible*.

5.5.6 The access / egress points to the two developments are about 800m apart on different public highways. In light of this, and the various mitigation measures to be employed by the two developments for departing HGVs, cumulative effects due to track-out would be *negligible*.

Lea Castle Village (referred to as the 'wider' site)

5.5.7 An application for development of a subsequent phase of the Lea Castle Village development is currently under determination. If granted the western most part of this development would extend to within 240m of the mineral extraction area of the Site as shown in Figure 2 in Appendix KEH7. Hence this could introduce sensitive relevant receptors to just within the screening distance, with the majority located beyond this distance. This would only occur if Phases 4 and 5 were ongoing when the western part of the Castle Lea Village development was completed and occupied.

5.5.8 If this did occur winds could blow across Phases 4 and 5 up to 11% of dry days (*moderately frequently*), if the phases were operational concurrently (i.e. extraction in Phase 5 occurring whilst infilling in Phase 4). The properties would however be located at least 240m away. With reference to the assessment methodology employed by Vibrock the resulting pathway effectiveness (as defined above in paragraph 5.3.10; i.e. a measure of likelihood of dust being propagated towards that receptor) would be *ineffective* (receptors 'distant' from the extraction area). For a medium residual source emission the resulting dust impact risk would be *negligible*, with resulting *negligible* effects. As discussed in paragraphs 5.3.14 and 5.3.16, risks would further reduce as activities deepen within the void.

5.5.9 Hence in the event of works occurring simultaneously in Phases 4 and 5 of the proposed development when the western most part of the wider Castle Lea Village development is built and occupied, the resulting effects of any dust generated by the proposals on those properties would be *negligible*.

5.5.10 Hence, the Proposed Development is not predicted to have any significant adverse effects on the proposed wider Lea Castle Village development.

5.5.11 Castle Winds would also lie within the relevant screening distances of both the Site and the wider Castle Village development and may therefore be subject to cumulative impacts. No other such receptors have been identified as shown in Figure 2 of Appendix KEH7. The risk of any such cumulative impacts would only occur if extraction and restoration activities occurred in Phases 4

and 5 of the proposed development at the same time as construction activities in the western area of the wider Lea Castle Village development.

5.5.12 The Air Quality Assessment provided with the wider Castle Lea Village planning application included a construction dust assessment and provided recommended mitigation measures to be implemented during the construction phase to ensure construction dust effects were negligible. It is presumed such measures would be agreed as part of Reserved Matters if permission is granted such as within a CEMP, as for the core Castle Lea Village development.

5.5.13 Castle Barns is located upwind of the prevailing wind direction across the Lea Castle Village development. It comprises several properties and hence spans a distance of 160m. Gardens of the westernmost properties extend to <100m of the proposed extraction boundary and 170m of wider Lea Castle Village boundary. Gardens of easternmost properties extend to 100-200m of the proposed extraction boundary and <100m of wider Lea Castle Village boundary.

5.5.14 Winds may blow from the south-south-west through to the west-south-west across Phases 4 and 5 of the Site, representing about 8.7% of dry windy days (*moderately frequent*). Winds may blow from the east through to the south-south-east across the wider Lea Castle Village development, representing a further 2.7% of dry windy days, hence providing a total of 11.4% (*moderately frequent*) from the combined developments.

5.5.15 Distances from each development area to the receptors at Castle Barns vary although the resulting pathway is *moderately effective* at all locations. With *medium* residual source emissions this results in a *low* dust impact risk and *slight adverse* effect.

5.5.16 The potential contribution of dust impacts that may arise during the wider Lea Castle Village development are not therefore considered to result in significant adverse effects at Castle Barns. In addition, as noted above, such cumulative impacts may only occur if development occurs on the eastern part of the quarry at the same time at the western part of the wider Castle Lea Village development.

Other Sites

5.5.17 Of the other sites considered with regards to potential cumulative impacts the following observations can be made:

- Land at Stourbridge Road:
 - lies 660m distant and hence beyond the screening distance of potential disamenity dust impacts from the proposed development;
 - development is now complete and hence no cumulative impacts on other receptors should both developments occur simultaneously;
- Land at Brown Woodhead Park:

- is of a small nature (4 dwellings) and is now complete; and hence no cumulative impacts on other receptors as both developments would not occur simultaneously;
- is represented by existing properties on Brown Woodhead Park and hence additional assessment of risks of proposed development to these new properties not required;
- Land at Wolverley Lodge:
 - lies 340m distant and hence beyond the screening distance of potential disamenity dust impacts from the proposed development;
 - is of a small nature (4 dwellings) and hence no cumulative impact assessment deemed necessary of risks on other receptors.

5.5.18 No further consideration of these is deemed necessary with regards to potential cumulative impacts in relation to disamenity dust.

6 Other Air Quality Matters

6.1 Fine Particulate Matter Assessment

Baseline PM₁₀ / PM_{2.5} Concentrations

- 6.1.1 WFDC has not identified any areas of concern in relation to PM₁₀ or PM_{2.5} in the Air Quality Annual Status Reports (ASRs) submitted under its LAQM duties. This includes the 2024 ASR which detailed the local air quality status and monitoring data for up until the end of 2023.
- 6.1.2 At the time of the original ES, WFDC did not undertake any monitoring for PM₁₀ nor PM_{2.5} within its area. The PM₁₀ and PM_{2.5} concentrations provided in the Vibrock Dust Impact Assessment report 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.
- 6.1.3 The latest maps were issued in 2020 and the predicted data is based on 2018 ambient monitoring and meteorological data. This therefore updates the data presented in the Dust Assessment report. The current available data for 2024 and a future year, 2029, for the grid squares in which the Site and surroundings are located are provided in Table 6.3 of the ES Addendum.
- 6.1.4 The maximum average background PM₁₀ and PM_{2.5} concentrations for the grid squares in which the Site is located are predicted to be substantially below the relevant existing objectives, at 30% and 38% of the objectives in 2024. These are predicted to fall slightly over time. Predicted background concentrations of PM_{2.5} are also below the interim (non-legal) target for 2028 of 12 µg/m³.
- 6.1.5 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 A449.
- 6.1.6 As detailed in the ES Addendum in 2022 WFDC commenced monitoring for PM₁₀ and PM_{2.5} (and NO₂) at a location within the Horsefair AQMA in Kidderminster using a Zephyr Air Quality Monitor. This is a low-cost continuous analyser that provides 'indicative' monitoring data; it is not approved by Defra for reference against Air Quality Standards and Objectives and the results have been included in the 2023 ASR by WFDC for information only.
- 6.1.7 The measured annual mean concentrations of PM₁₀ and PM_{2.5} at the Zephyr analyser are each well below the relevant existing AQOs (noting though that these results are 'indicative' and not be directly compared to the AQOs). It is also noted however that in 2022 the measured PM_{2.5}

concentrations are the same as PM_{10} at $14.0 \mu\text{g}/\text{m}^3$. However, $PM_{2.5}$ would only form a proportion of PM_{10} and hence there is a degree of uncertainty regarding these results.

Assessment

- 6.1.8 As noted above the fugitive dust (particulate matter) that could be generated by the proposed operations will include a proportion of 'fine particulate matter' (as PM_{10} and $PM_{2.5}$). The original Dust Impact Assessment carried out by Vibrock accordingly also included a PM_{10} Assessment. This assessment assumed an additional load of $1 \mu\text{g}/\text{m}^3$ PM_{10} and $0.5 \mu\text{g}/\text{m}^3$ $PM_{2.5}$ attributable (as annual means) to the proposed operations to the existing background levels (CD1.08). With the respective combinations of $1 \mu\text{g}/\text{m}^3$ and $0.5 \mu\text{g}/\text{m}^3$ to the background concentrations the resulting total PM_{10} and $PM_{2.5}$ annual average concentrations would remain well below the relevant AQOs.
- 6.1.9 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 (CD12.24, section 2.3) there does not appear to be any firm evidence that such a distance is applicable to all mineral developments, and particularly those with less dust generating activities than 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 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, CD 12.24).
- 6.1.10 The IAQM Guidance on mineral dust (CD12.24; section 5.2) advises that where the long-term background PM_{10} concentration is less than $17 \mu\text{g}/\text{m}^3$ 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. This is conservative as this guidance is provided for all mineral sites.
- 6.1.11 With reference to the ES Addendum the latest issued Defra data predicts annual mean background PM_{10} concentrations of $11.05\text{--}11.88 \mu\text{g}/\text{m}^3$ in the locality, i.e. well below the recommended screening value of $17 \mu\text{g}/\text{m}^3$. On this basis no further consideration of potential PM_{10} impacts from Proposed Development would be required.
- 6.1.12 Annual mean PM_{10} concentrations may 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 those at Castle Barns for example, are set back at least 40m from the roadside of the A449. Others are closer to Wolverley Road, but with measured traffic flows of $<10,000$ AADT (9,840 AADT provided for 2020 baseline) these would not be expected to be subject to high levels of PM_{10} .

6.1.13 The proposed dust mitigation measures would also serve to reduce potential PM₁₀ emissions. Hence, taking into account the nature of the sand and gravel quarry, the proposed mitigation measures, location and orientation of receptors and background air quality, as discussed above with regards to disamenity dust, no further assessment is deemed necessary. Contributions of PM₁₀ from any fugitive dust from the proposed development to local air quality at relevant receptors is not therefore considered to result in significant adverse effects.

Additional Comments

6.1.14 As detailed in the ES Addendum new future targets for PM_{2.5} have been introduced. Current predicted background PM_{2.5} concentrations in the area are well below both the interim target established for 2028 and legal target established for 2024. Assuming a contribution of 0.5 µg/m³ to background concentrations total PM_{2.5} concentrations remain well below these targets.

Cumulative Assessment

6.1.15 Cumulative contributions to PM₁₀ concentrations from the proposals and other developments in the area may also require consideration as discussed above in relation to disamenity dust. Fine particulate matter may travel longer distances than larger dust particles. However, as for the larger particles the concentrations reduce rapidly from source through deposition and dispersion. As for the proposed quarry, standard dust mitigation measures that would be implemented at the Lea Castle Village development would serve to reduce potential PM₁₀ emissions.

6.1.16 The IAQM guidance on construction dust (CD12.37) provides a screening distance of 250m from the source. The guidance however further defines an area being of *low* sensitivity where the background PM₁₀ concentration is less than 24 µg/m³, except where there are >100 high sensitive receptors within 20m of the source when it would be defined as of *medium* sensitivity. With reference to paragraph 6.1.11 above the background PM₁₀ concentrations are well below all screening thresholds and there are no sensitive receptors that lie within close proximity, and downwind of, of both the Proposed Development and the wider or core Lea Castle Village developments.

6.1.17 In the worst-case scenario of extraction and restoration taking place in Phases 4 and 5 of the proposed development simultaneously with construction of the western part of the wider Lea Castle Village, PM₁₀ concentrations are predicted to remain well below the relevant AQOs.

6.2 Vehicle Emissions Assessment

Baseline Conditions

6.2.1 The HGV movements to and from the Proposed Development would result in NO_x / NO₂ and PM₁₀ emissions and hence potential adverse impacts on local air quality. A detailed assessment of such emissions and potential impacts was accordingly submitted with the ES (CD1.08). This included atmospheric dispersion modelling of vehicle exhaust emissions and assessment of potential impacts at receptors near the affected local road network.

- 6.2.2 The EnviroCentre Air Quality Assessment made reference to Defra predicted background NO₂ concentrations along with some ambient monitoring carried out by WFDC.
- 6.2.3 The current available data for 2024 and 2029 for the grid squares in which the Site and surroundings are located are set out in Table 6.3 of the ES Addendum.
- 6.2.4 The maximum average background NO₂ concentrations for the grid squares in which the Site is located are predicted to be substantially below the relevant objectives, at 20% of the objective in 2024 and falling to 17% by 2029.
- 6.2.5 As noted in section 2.2.4 of the Air Quality Assessment WFDC has declared an AQMA within Kidderminster which lies about 1.7km to the south of the Site (AQMA plan provided in Appendix KEH8). The area of this AQMA has not been revised since the assessment. However, as discussed in Section 6.2 of the ES Addendum it is understood that construction of a new road layout in this area was completed in 2021 and is expected to significantly improve air quality. The latest WFDC Air Quality ASR (2024 ASR) reports that the latest results indicate these measures have had a significant reducing benefit, with all measured annual mean NO₂ concentrations within the AQMA being below the AQO (CD12.38).
- 6.2.6 The assessment also referred to monitoring data for a diffusion tube located on Stourbridge Road (SBR121). The latest WFDC ASR also reports monitoring data for several additional diffusion tubes located along Chester Road North to the south of the site (see plans in Appendix KEH9). Monitoring at these commenced in 2019 and full details and results for 2019-2023 are presented in Table 6.4 of the ES Addendum.
- 6.2.7 The annual mean NO₂ concentrations at these locations in 2019 were all well below the AQO. Concentrations were typically lower in 2020 and 2021 consistent with expectations due to reduced traffic movements in this time due to the impacts of the Covid-19 pandemic affecting travel patterns and behaviour. Annual concentrations have risen in 2022 and 2023, when compared to 2020 and 2021, again consistent with expectations of increasing traffic movements following the easing to the Covid-19 restrictions.
- 6.2.8 However, irrespective of this the results for 2023 remain broadly similar to 2019 with all locations were well below the AQO of 40 µg/m³ (<75% of the AQO).

Assessment

- 6.2.9 The proposals (both the original submitted and the amended schemes) would result in an additional 116 HGV movements (58 in / 58 put) per day (as Annual Average Daily Traffic (AADT)) and 17 LGV movements per day (as AADT). Allowing for 25% of sand and gravel exports being transported on a back-haul basis, the number of HGV movements would reduce to 96 per day.
- 6.2.10 All movements to / from the Site would be via Wolverley Road to the east of the access road.

- 6.2.11 It is predicted that 60% of the development HGVs would travel to / from the north and 40% to / from the south. Of those travelling to / from the north these would be distributed via the A449 Wolverhampton Road (north of Wolverley Road) and Park Gate Road / A451 Stourbridge Road.
- 6.2.12 Of those HGVs travelling to / from the south 60% are predicted to travel via the A449 Chester Road North / to the east of Kidderminster and 40% via the A451 Stourbridge Road / Ring Road close to the Kidderminster town centre. The potential distribution of HGVs is shown in plan 3 in Appendix KEH9.
- 6.2.13 IAQM guidance on air quality and planning (CD12.26; 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 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.
- 6.2.14 The greatest number of HGVs would be experienced along the access road and Wolverley Road to / from the junction with the A449. Thereafter the movements would be dispersed as shown on Figure 6.1. At 116 HGV AADT movements along Wolverley Road are above the screening criteria of +100 HGV AADT provided in IAQM guidance as indicating a need for an air quality assessment. However, as noted above this assumes no back-haul; if a portion of back haul is assumed then flows are below the screening criteria.
- 6.2.15 The only receptors along this stretch of road would be Broom Cottage and Four Winds. The façade of Broom Cottage is within 2.5m of the roadside, whereas that of Four Winds is set-back at least 23m. Greatest potential impacts may therefore be expected at Broom Cottage, as pollutant concentrations fall rapidly from source, including road traffic. Traffic flows along this road for 2018 - 2024 are given as <10,000 AADT. Given the nature of this stretch of road (no traffic lights, bus stops or other sources of congestion and idling traffic) and based on air quality monitoring data for roads in Kidderminster itself as discussed above, pollutant concentrations would be expected to be well below the relevant AQOs (<75%).
- 6.2.16 The additional contributions of NO₂, PM₁₀ and PM_{2.5} to façade concentrations from the 116 HGV AADT would not be expected to result in significant adverse impacts at these properties, as determined through the Air Quality Assessment carried out for the planning application.
- 6.2.17 HGV movements would be dispersed on the wider road network with all movements beyond the Wolverley Road / A449 junction being less than the IAQM screening criteria for where outside an AQMA.
- 6.2.18 It is predicted that 19 HGVs (as AADT) would travel along Stourbridge Road to / from Kidderminster itself, and hence potentially through the Kidderminster AQMA (assuming no back-

haul). This is also below the more stringent screening value of +25 HGV AADT that is provided in IAQM guidance as indicating a need for an air quality assessment.

6.2.19 Potential quarry related LDV movements are well below the relevant IAQM screening criteria of +500 LDV AADT where distant from an AQMA and +100 LDV AADT where within or close to an AQMA.

6.2.20 The EnviroCentre Air Quality Assessment comprised detailed assessment of the potential impacts of the emissions generated by these vehicle movements on the local road network. The assessment concluded no significant changes NO₂, PM₁₀ or PM_{2.5} concentrations at any modelled sensitive receptors due to the development. All resulting ambient air concentrations are predicted to remain well below the relevant AQOs.

6.2.21 On this basis it is considered that the contribution of the proposed quarry related HGV exhaust emissions to the local air quality would **not be significant**, as determined through the submitted air quality assessment.

Cumulative Assessment

6.2.22 With reference to Section 4.3 above, the only other developments of relevance to a cumulative assessment for vehicle emissions are those of the Castle Lea Village. The planning application for the recent wider Castle Lea Village application included an air quality assessment which included atmospheric dispersion modelling of vehicle emissions and assessment of changes in NO₂, PM₁₀ and PM_{2.5} concentrations at a large number of receptor points (CD12.28). This modelled traffic flows on the wider local road work for 2018 as 'baseline' and for 2024 'with and without' development, 2024 being the project first year of occupation. The assessment states that the traffic data includes potential traffic flows from the Lea Castle Quarry.

6.2.23 Proposals are for the wider Lea Castle Village development to be provided with 6 access points. This would serve to distribute the development-related traffic movements extensively on the wider local road network, with reported resulting decrease on some roads and higher on others. The modelled predicted changes in annual mean NO₂ concentrations were 0% of the AQO at all modelled receptor points other than at one location. This was located on Birmingham Road within Kidderminster where a 1% change was predicted. With reference to the IAQM guidance (CD12.26) all predicted impacts due to the wider Lea Castle Village development were therefore predicted to be *negligible*. Predicted changes in both annual mean PM₁₀ and PM_{2.5} concentration were 0% at all receptors, with resulting *negligible* impacts.

6.2.24 The assessment predicted all resulting concentrations of NO₂, PM₁₀ and PM_{2.5} to be comfortably below the relevant AQOs at all modelled receptor locations.

6.2.25 Taking this into account, and the comments above in paragraphs 6.08-6.20 in relation to the proposed quarry development, cumulative impacts due to traffic emission and impacts on local air quality are not predicted to be significant.

6.3 Other Matters – Respirable Crystalline Silica (RCS)

6.3.1 The SoC provided by the Rule 6 Party for the original Public Inquiry made reference to potential harmful effects of silica sand and silicosis. This matter is no longer raised in the current Rule 6 Party SoC. However for completeness I have provided further information here in relation to the proposed development.

6.3.2 Crystalline silica is a naturally occurring substance found in varying amounts in most rocks, sand and clay and in building products such as bricks and mortars. The mechanical breaking of silica containing materials, particularly cutting, sanding carving etc can give rise to fine dust which can include respirable crystalline silica (RCS).

6.3.3 Long-term inhalation of RCS may give rise to silicosis, although extremely high exposures can also give rise to acute silicosis more quickly. Risks of exposure to RCS is greatest for construction workers working on materials such as concrete, mortar and sandstone that contain higher quantities of silica.

6.3.4 There are no standards in relation to RCS in ambient air, such as exists for PM₁₀ and PM_{2.5}. The respirable dust fraction equates broadly to an environmental particle size fraction of PM₄. However, any RCS would only form a proportion of PM₄ (and hence also PM_{2.5}); these particles in the ambient air **would not** comprise solely of RCS. It must also be noted that PM₁₀, PM₄, PM_{2.5} and RCS all exist naturally at background levels in ambient air.

6.3.5 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 excavating and haulage, crushing and dry screening detailing recommended measures to reduce workers' exposure to RCS. A workplace exposure limit (WEL) is established of 0.1 mg/m³ (8-hour time weighted average) for RCS, along with other WELs that are provided for respirable dust and total inhalable dust.

6.3.6 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 in such environments.

6.3.7 The HSE advice notes in relation to crushing and dry screening advise 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.

6.3.8 There is no UK established or recommended ambient air quality standard for RCS. HSE advice is that *'No cases of silicosis have been documented among members of the general public in Great Britain, indicating that environmental exposures to silica dust are not sufficiently high to cause this occupational disease'* (extract from HSE website provided in Appendix KEH10).

6.3.9 There is no recommended methodology for the assessment for potential RCS emissions to ambient air or potential off-site impacts. However, RCS will potentially form a proportion of any PM₁₀ (and PM_{2.5}) generated. All the outlined mitigation measures described above in section 5.4, and that would be implemented through a DMP, would serve to reduce dust, PM₁₀ and also any potential RCS emissions.

6.3.10 The proposals are for sand and gravel / sand extraction with no blasting or other significant breaking activities. Processing will involve the use of water and is understood to not require the use of large crushing plant. The implementation of dust suppression measures in accordance with a DMP would all serve to minimise the risk of any RCS emissions from the site. There is no evidence therefore that the proposed development would pose a potential significant risk to the local population due to RCS.

7 Overall Conclusions

- 7.1 In preparation for the original Inquiry WCC advised that the Council was defending Reason for Refusal 3 with regards to *unacceptable impact on residential amenity and local schools*. In WCCs SoC it stated that there had not been satisfactory consideration of cumulative impacts with other developments in the area and made reference to dust and air quality. Additional information was however submitted by the Appellant during the Inquiry preparation and the Council concluded that the proposed development, in combination with other developments, would not cause amenity harm with regard to noise or dust impacts to residential dwellings or Heathfield Knoll School and First Steps Nursery. WCC has therefore advised in the revised SoC for this re-determination it will not be defending Reason for Refusal 3.
- 7.2 As for the initial Inquiry WCC will also not be defending Reasons for Refusal 8 with regards to *unacceptable general impact on environment and wildlife* or 9 with regards to *unacceptable impact on health of local population*. As such WCC is not defending any reason for refusal that could potentially relate to air quality or dust matters.
- 7.3 The Rule 6 Party states it maintains agreement with the original reasons for refusal including 3, 8 and 9 although no further information is provided. The Rule 6 Party SoC also states that other matters have not been appreciated in terms of harm that would arise. This could include reference to air quality and dust matters as raised during the original Inquiry. I have therefore considered these matters in my Proof.
- 7.4 In preparing this proof I have therefore reviewed the original Dust Impact Assessment prepared by Vibrock and submitted with the planning application, and other relevant information and consultee responses.
- 7.5 The Vibrock Dust Impact Assessment considered the potential impacts from fugitive dust on local receptors, both with regards to dis-amenity dust and PM₁₀. The assessment also included recommended outline mitigation measures that would be incorporated within any future consented operations. The assessment was reviewed by WRS who did not request any further information or raise any objections to the proposals with regards to dust and air quality.
- 7.6 I have carried out further assessment of the potential cumulative impacts of the proposed developments with other consented / allocated development in the area where the consent/allocation post-dates the publication of the original ES. This specifically considers the core and wider Lea Castle Village development to the east. I have considered both the potential impacts of any dust generated by the proposed development on any new sensitive receptors to be introduced by the Lea Castle Village, and the potential cumulative impacts on any existing receptors that may be affected by these developments should they occur concurrently.

- 7.7 I have also reviewed any changes to the local site setting since the original ES, along with any changes to legislation, policy and guidance that may affect the original assessment. I have additionally considered the implications of the amended proposed scheme.
- 7.8 In undertaking this assessment I have also considered the proposed mitigation measures and the recommended planning condition that would require the operation of the facility in accordance with an agreed DMP, as in standard best practice, and other relevant proposed conditions. Further regulatory control would be provided through the Environmental Permit that would be applicable to the material import aspects of the development.
- 7.9 I conclude that the Appeal proposals would not result in significant adverse impacts or unacceptable impacts on local amenity either alone or in-combination with the Lea Castle Village development.
- 7.10 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.
- 7.11 Overall, from my review of the information and results of the assessment, I conclude that, with the incorporation of appropriate mitigation as already employed at the site, 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 2023

15. Conserving and enhancing the natural environment

180. 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;
 - 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.
181. 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 Framework⁶²; 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.
182. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty 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

⁶² 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. The availability of agricultural land used for food production should be considered, alongside the other policies in this Framework, when deciding what sites are most appropriate for development.

Ground conditions and pollution

189. 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.
190. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.
191. 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 life⁶⁹;
 - 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.
192. 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.

⁶⁹ See Explanatory Note to the *Noise Policy Statement for England* (Department for Environment, Food & Rural Affairs, 2010).

193. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.
194. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

APPENDIX KEH2

Extract of PPG-M



[Home](#) > [Housing, local and community](#) > [Planning and building](#)
> [Planning system](#)

Guidance

Minerals

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

From: [Department for Levelling Up, Housing and Communities \(/government/organisations/department-for-levelling-up-housing-and-communities\)](#) and [Ministry of Housing, Communities & Local Government \(/government/organisations/ministry-of-housing-communities-and-local-government\)](#)

Published 17 October 2014

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Related content

[Strategic environmental assessment and sustainability appraisal \(/guidance/strategic-environmental-assessment-and-sustainability-appraisal\)](#)

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
\(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/579117/minerals1_033.pdf\)](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/579117/minerals1_033.pdf)

PDF, 200 KB, 1 page

This file may not be suitable for users of assistive technology.

► [Request an accessible format.](#)

Paragraph: 032 Reference ID: 27-032-20140306

Revision date: 06 03 2014

APPENDIX KEH3

Extract of National Planning Policy for Waste (NPPW)



Department for
Communities and
Local Government

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 1/2003⁵) 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 Worcester Mineral Local Plan: MLP 28 and MLP 29



Worcestershire

Minerals Local Plan 2018-2036

Find out more online:
www.worcestershire.gov.uk/minerals

Policy MLP 28: Amenity

Contributing to:

Objectives MO4, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development, including associated transport, will not give rise to unacceptable adverse effects on amenity or health and well-being.

A level of technical assessment appropriate to the proposed development will be required to demonstrate that, throughout its lifetime and taking into account the cumulative effects of multiple impacts from the site and/or a number of sites in the locality, the proposed development will not cause unacceptable harm to sensitive receptors from:

- a) dust;
- b) odour;
- c) noise and vibration;
- d) light;
- e) visual impacts; and/or
- f) contamination.

Reasoned justification

6.26 Mineral sites can cause concern to local communities because of possible disturbance or harmful effects on people's amenity, health and well-being, and living and working environments. Securing a high standard of amenity is fundamental to creating well-designed development⁴⁶⁴ and policy MLP 28 seeks to ensure that minerals developments are planned, managed and restored in a way that protects people and other sensitive receptors from unacceptable effects on amenity or health and well-being. The method, phasing and lifespan of mineral workings, their distance to sensitive receptors, and their relationship to their locality will influence the nature and likelihood of such impacts.

6.27 Policy MLP 28 addresses a broad range of issues which should be considered to ensure there are no unacceptable adverse effects on the amenity or health of communities. The policy requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should be proportionate to the nature, location and

size of the proposed development and the significance of its effects. The assessments will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. For each of the issues identified in policy MLP 28, the assessment(s) should:

- identify the sensitive receptor(s)⁴⁶⁵ which may be affected by the proposed development;
- quantify the extent of potential impacts at each stage of the proposed development in relation to the baseline conditions, taking account of how the local context (such as topography, watercourses and water features, and man-made structures and infrastructure including roads, railways and waterways) will influence any potential impacts or pathways for effects;
- consider the potential for cumulative impacts from the development itself and/or from other existing or approved development;

⁴⁶⁴ Ministry of Housing, Communities and Local Government (July 2021) *National Planning Policy Framework*, paragraph 130(f).

⁴⁶⁵ Sensitive receptors are defined in the glossary.

- demonstrate the measures which would be implemented to ensure adverse impacts would be avoided at source or, where this is not possible, outline the proposed management and mitigation measures to reduce effects to an acceptable level; and
- identify the significance of any residual effects.

- 6.28 The form which such technical assessments should take will depend on the scale and nature of the proposed development, and in some cases issues may be addressed through an Environmental Impact Assessment. Where there are expected to be significant health impacts,⁴⁶⁶ a Health Impact Assessment (HIA)⁴⁶⁷ can be a useful tool to enhance the positive aspects of a proposal through assessment, while avoiding or minimising any negative impacts, with particular emphasis on disadvantaged sections of communities that might be affected.
- 6.29 Developers are expected to proactively monitor impacts and emissions throughout the life of the site to enable issues to be addressed swiftly. Close liaison with communities can help to identify issues and enable feedback and dialogue on the need for and effectiveness of any mitigation measures.
- 6.30 A wide range of amenity impacts can be mitigated through appropriate site design and layout and the use of the surrounding topography. Complementing the existing features of the natural environment can also deliver wider multifunctional benefits. A common approach to mitigating amenity impacts is to include tree planting or natural screening; this can deliver landscape, biodiversity, and water environment benefits where proposals are influenced by the local context, and should be incorporated in a way which responds to the relevant strategic corridor priorities (see MLP 7 to MLP 12). Other mitigation measures could be realised through considerate site design and working practices including, but not limited to, locating working areas, plant, machinery or haulage routes away from sensitive receptors; fitting plant with silencers; sheeting of lorries and cleaning of wheels before vehicles exit the site; or limiting working hours.

Dust

- 6.31 Dust can arise from extraction activities, the operation of processing plant, haulage vehicles and conveyors, and the storage of minerals and soils, where dust can be windblown from stockpiles. There may be temporary impacts from some phases of development, such as site preparation works, soil stripping, or restoration works. If not properly controlled at source, dust can cause nuisance to people and businesses, and harm through deposition on property.
- 6.32 A dust assessment will be required where dust emissions are likely to arise from a development. The assessment should take account of the location of the source of dust and the surrounding land uses as well as local factors that might affect the dispersal of dust, including topography, the nature of the landscape, and local wind patterns. Atmospheric dispersion modelling may be required to determine whether there is a risk of health effects due to dust emissions. Where necessary, mitigation proposals should be outlined. These might include the design, layout and phasing of operations to increase the distances between sources of pollution and potential receptors, locating dusty operations downwind of receptors, or using planting and screening to absorb pollutants. Working practices such as wheel washing, damping haul roads and sheeting of lorries can also be effective.

Odour

- 6.33 Mineral sites are unlikely to be a source of odour. However, there is some potential for odours to arise from on-site water bodies, such as settlement and silt lagoons, or areas of water that are poorly designed or managed. Applications should identify any potential odour sources and demonstrate how they will be managed effectively to prevent unacceptable effects occurring.

⁴⁶⁶ Worcestershire County Council (March 2016) *Health Impact Assessments in Planning Toolkit* advocates undertaking health impact screening to determine whether significant health impacts are likely to arise, prior to scoping the extent of any assessment which may be required. The toolkit is available at http://www.worcestershire.gov.uk/info/20122/joint_strategic_needs_assessment.

⁴⁶⁷ Health Impact Assessment (HIA) is a process to predict the health implications on a population of implementing a plan, policy, programme or project, aiding the decision-making process.



Wheel washing facility at Clifton Quarry

Noise and vibration

6.34 The introduction of sources of noise or vibration can impact on the use, enjoyment and tranquillity of a locality, and can cause an intrusion that can adversely impact on quality of life, health and well-being.^{468 469}

6.35 Potential sources of noise within typical mineral operations include extraction activities and the operation of processing plant, haulage vehicles and conveyors. Activities such as soil-stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, the construction of new permanent landforms, and aspects of site road construction and maintenance may also be noisy in the short term. Each source of noise might have a different characteristic and intensity, and could be capable of causing significant impacts if not properly controlled. After-uses also have the potential to introduce or alter the source, type or level of noise arising from the site.

6.36 Vibration associated with mineral operations is principally caused by vehicle movements, particularly over uneven surfaces. Blasting can be used at some crushed rock workings and can cause both ground vibration and air overpressure.

6.37 An assessment will be required where there are likely to be impacts from noise or vibration. This should identify potential sources of noise and vibration, their general character and the location of noise-sensitive or vibration-sensitive receptors, including properties. Reference should be made to the types and levels of noise or vibration, the time of day noise or vibration will occur, whether they will be continuous or intermittent and the pattern and duration of their occurrence, as well as the prevailing acoustic environment and local factors such as topology and topography.⁴⁷⁰

6.38 Where noise or vibration impacts are identified, mitigation measures should be incorporated to ensure that effects are managed to an acceptable level. This might include appropriate design, layout and phasing of operations to increase the distances between the source of noise and potential receptors or to minimise noise transmission through the use of screening by natural barriers, planting or purpose-built features. Setting noise limits at sensitive properties, controlling working hours, and/or monitoring of noise conditions at mineral workings could also safeguard against disturbance from the site.⁴⁷¹

⁴⁶⁸ Defra (2010) *Noise Policy Statement for England*.

⁴⁶⁹ Tranquil areas which have remained relatively undisturbed by noise, and are prized for their recreational and amenity value for this reason, may be identified and protected. At the time the Minerals Local Plan was submitted to the Secretary of State, there were no designated tranquil areas within Worcestershire but it is possible that such areas may be identified for protection during the life of the plan.

⁴⁷⁰ Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Noise* (Revision date: 06 03 2014) and Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals* (Revision date: 17 10 2014).

⁴⁷¹ Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals* (Revision date: 17 10 2014).

Policy MLP 29: Air Quality

Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development, including associated transport, will not give rise to unacceptable adverse effects on air quality, and will help secure net improvements in overall air quality where possible.

A level of technical assessment appropriate to the proposed development will be required to demonstrate that, throughout its lifetime, and taking into account the cumulative effects of multiple impacts from the site and/or a number of sites in the locality, the proposed development will:

- a) not cause unacceptable harm to sensitive receptors, sensitive habitats, or designated sites of importance for biodiversity from air quality. Particular consideration will need to be given to air quality impacts in or impacting upon areas where air quality is known to be poor, such as designated Air Quality Management Areas (AQMAs) or areas that are at risk of designation; and
- b) deliver improved air quality even when legally binding limits for concentrations of major air pollutants are not being breached, unless it is clearly demonstrated that this is not possible.

Reasoned Justification

6.49 Increases in air pollutants can have harmful effects on human health and the environment. Mineral sites can cause concern to local communities because of possible impacts on air quality. Air quality impacts from mineral development are most likely to arise as a result of emissions from plant and processing equipment or from the impact of associated transport movements. There may also be temporary impacts from some phases of development, such as site preparation or restoration and plant construction.

6.50 Policy MLP 29 seeks to ensure that minerals developments are planned, managed and restored in a way that protects people and other sensitive receptors⁴⁷⁷, sensitive habitats,⁴⁷⁸ and designated sites of importance for biodiversity⁴⁷⁹ from unacceptable effects on air quality. The method, phasing and lifespan of mineral workings, their distance to sensitive receptors and land uses, and their relationship to their locality will influence the nature and likelihood of such impacts.

6.51 Policy MLP 29 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should be proportionate to the nature, location and size of the proposed development and the significance of its effects. Assessments should:

- Establish the baseline local air quality, including the identification of any locations where air quality is or is likely to be a concern.
- Identify likely changes to air quality throughout the life of the development, including any changes in vehicle-related emissions resulting from the development, and any new point sources of air pollution during all phases of development. Where impacts are likely to result from transport movements this should consider traffic impacts in the immediate vicinity of the proposed development site and further afield.

477 Sensitive receptors are defined in the glossary.

478 Sensitive habitats are those habitats that are sensitive to changes in air quality. There is no definitive list or map of such habitats, as they must be identified on a case-by-case basis at the time of the planning application, taking account of non-designated habitats as well as those on any designated sites. Evidence used in the assessment required under policy MLP 31 (Biodiversity) should also help to identify such habitats for the purposes of policy MLP 29, and relevant guidance should be followed such as Institute of Air Quality Management (2019) *A guide to the assessment of air quality impacts on designated nature conservation sites* and Chartered Institute of Ecology and Environmental Management (2021) *Advice on Ecological Assessment of Air Quality Impacts*.

479 Designated sites of importance for biodiversity are those sites of international, national, or local importance, as defined in the glossary under the headings of Natura 2000 sites, Special Areas of Conservation, Ancient Woodland, Aged or veteran trees, Sites of Special Scientific Interest, and Local Wildlife Sites.

- Identify the sensitive receptors, sensitive habitats, and designated sites of importance for biodiversity⁴⁸⁰ that may be affected by the proposed development. Particular consideration will need to be given to air quality impacts in or impacting upon areas where air quality is known to be poor, such as designated Air Quality Management Areas (AQMAs) or areas that are at risk of designation. Where relevant, reference should be made to the Worcestershire Air Quality Action Plan⁴⁸¹ and corresponding action plans of surrounding areas.
- Assess the likely air quality impacts and their significance, including the potential for cumulative impacts from the development itself and/or from other existing or approved development, and clearly state the methods adopted to reach these conclusions.
- Where negative effects are identified, set out acceptable mitigation measures to remove these effects or reduce them to acceptable levels.
- Set out measures to deliver improved air quality where possible, and quantify the contribution these measures will make to securing net improvements in overall air quality. This must be considered even when legally binding limits for concentrations of major air pollutants are not being breached. Measures to deliver improved air quality may include multifunctional green infrastructure measures. Where applicants consider that air quality improvements cannot be delivered as part of the proposed development, the reasons for this should be clearly demonstrated.

6.52 The assessment will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. In some cases, air quality impacts may be addressed through an Environmental Impact Assessment. Where there are expected to be significant health impacts,⁴⁸² a Health Impact Assessment (HIA)⁴⁸³ can be a useful tool to enhance the positive aspects of a proposal through assessment, while avoiding or minimising any negative impacts, with particular emphasis on

disadvantaged sections of communities that might be affected.

6.53 Some potential air quality impacts may be able to be mitigated through appropriate site design and layout and the use of the surrounding topography. Air quality mitigation measures should be influenced by the local context, and should be incorporated in a way which responds to the relevant strategic corridor priorities (see MLP 8 to MLP 12). Other mitigation measures could be realised through considerate site design and working practices including, but not limited to, locating working areas, plant, machinery or haulage routes away from sensitive receptors, or limiting working hours.

6.54 Opportunities to secure overall improvements in air quality may be realised through measures such as traffic and travel management and green infrastructure provision and enhancement. Green infrastructure measures that complement the existing features of the natural environment can also deliver wider multifunctional benefits.

480 The requirements of Policy MLP 31 (Biodiversity) will be relevant to considering particular impacts on sensitive habitats and designated biodiversity sites.

481 Worcestershire's Air Quality Action Plan, together with information about Air Quality Management Areas in Worcestershire, can be found at www.worcsregservices.gov.uk/pollution/air-quality.aspx.

482 Worcestershire County Council (March 2016) *Health Impact Assessments in Planning Toolkit* advocates undertaking health impact screening to determine whether significant health impacts are likely to arise, prior to scoping the extent of any assessment which may be required. The toolkit is available at http://www.worcestershire.gov.uk/info/20122/joint_strategic_needs_assessment.

483 Health Impact Assessment (HIA) is a process to predict the health implications on a population of implementing a plan, policy, programme or project, aiding the decision-making process.

APPENDIX KEH5

Extracts of Worcestershire Waste Core Strategy Development Plan

Waste Core Strategy

for Worcestershire

ADOPTED WASTE LOCAL PLAN 2012-2027



**Worcestershire
Waste Core Strategy
Development
Plan Document**

November 2012



Policy WCS 13: Green Belt

Waste management facilities will be permitted in areas designated as Green Belt ¹¹⁷ where the proposal does not constitute inappropriate development, or where very special circumstances exist.

Explanatory text

Green Belt

6.64 Large areas to the north of the County are designated as Green Belt (see **Figure 16**). There is a presumption against inappropriate development in the Green Belt in national policy¹¹⁸ and in such cases applicants must clearly justify the very special circumstances why permission should be granted. Very special circumstances, individually or cumulatively, will not exist unless the harm to the Green Belt by reason of inappropriateness and any other harm is clearly outweighed by other considerations.

6.65 Some types of waste management development have particular locational needs. It would be expected that these locational needs, together with the wider environmental and economic benefits of sustainable waste management, are material considerations that will be given significant weight in determining whether proposals for waste management facilities should be given planning permission. When considering development proposals, the Council will have regard to the cumulative effect of development.

Policy WCS 14: Amenity

Waste management facilities will be permitted where it is demonstrated that the operation of the facility and any associated transport will not have unacceptable adverse impacts on amenity. This must consider impacts on or of:

- i. air quality, including any fumes, dust, odours or bioaerosols. Where relevant, the issues identified in the Herefordshire and Worcestershire Air Quality Management Plan, and those of adjoining authorities, must be taken into account; and
- ii. planned or unplanned fires; and
- iii. noise and vibrations; and
- iv. insects, vermin and birds; and
- v. litter and windblown materials; and
- vi. visual intrusion and light pollution; and
- vii. health

Cumulative effects must be considered. Details of any mitigation or compensation proposals must be included; this may be through enclosing operations or through other appropriate measures.

Where there will be unacceptable adverse impacts on amenity, proposals will only be permitted where it is demonstrated that the benefits of the development at the proposed site clearly outweigh any unacceptable adverse impacts.

¹¹⁷ Inappropriate development is defined in the *National Planning Policy Framework (2012)*.

¹¹⁸ Currently the *National Planning Policy Framework (2012)*.



Explanatory text

Amenity

6.66 Relevant assessments should be undertaken to demonstrate that the proposals will not have unacceptable adverse impacts on amenity or health¹¹⁹. This should include consideration of any impacts from transport. The issues to be considered will depend on the nature, scale and location of the proposed development. Distances from residential and recreation areas, waterways, waterbodies and other agricultural or urban sites should also be considered where appropriate and should always be taken into account where the proposal relates to landfill¹²⁰.

6.67 Where amenity impacts are likely applicants should discuss proposals and mitigation measures with the relevant Environmental Health Officer. Where health impacts are likely applicants should discuss proposals and mitigation measures with Environment Agency and the health protection authorities. Possible amenity and health impacts should be identified before applications for planning permission are submitted.

6.68 In the case of air quality, special attention should be given where the processes could affect:

- national or international sites designated for nature conservation;

- Worcestershire's Air Quality Management Areas (AQMAs), or those of neighbouring authorities, or other areas where air quality is likely to be poor (including the consideration of cumulative impacts of developments on air quality); or
- listed heritage façades through damage or soiling as a result of emissions from point or mobile sources.

6.69 In most cases, waste management operations are expected to be enclosed. However, the appropriateness of this as a method of mitigating amenity impacts will depend on the nature and scale of the operation. For some processes it may be appropriate to consider techniques such as dust suppression or sheeting of vehicles.

6.70 Other facilities may need to be located at a suitable distance from sensitive receptors; for example the Environment Agency requires a bioaerosol risk assessment for development managing biodegradable waste within 250 metres of sensitive receptors. Any such assessment should be included as part of the planning application.

¹¹⁹ Health issues are a material consideration in determining applications for planning permission. The Environment Agency regulates waste management activity in order to prevent harm to human health and the environment from pollution and emissions, currently through Environmental Permitting.

¹²⁰ In accordance with the *Waste (England and Wales) Regulations 2011*.

APPENDIX KEH6
Extracts of Wyre Forest District Local Plan 2016-36
SP33 Pollution and Land Instability



Wyre Forest
District Council

Local Plan 2016 - 2036

April 2022

Wyre Forest House, Finepoint Way, Kidderminster, DY11 7WF

Policy SP.33 - Pollution and Land Instability

1. Development proposals must be designed in order to avoid any significant adverse impacts from pollution, including cumulative ones, on any of the following:
 - Human health and wellbeing.
 - Biodiversity.
 - The water environment.
 - The effective operation of neighbouring land uses.
 - An existing or proposed Air Quality Management Area (AQMA) ⁽²⁰⁾
2. Development proposals will not be permitted where the land is contaminated ⁽²¹⁾ and not capable of appropriate remediation without compromising development viability or the delivery of sustainable development. For sites where land contamination is suspected, an adequate site investigation survey will need to be prepared (by a competent person) to demonstrate that land contamination issues have been fully addressed or can be addressed through the development.
3. C. Development proposals will not be permitted in locations where there are risks from land instability. Development proposals within areas known or suspected to be at risk of slope instability or poor ground conditions will need to demonstrate the following:
 - a. Its structural integrity will not be compromised by slope instability;
 - b. The development does not exacerbate any instability on the site or elsewhere;
 - c. The development can tolerate ground conditions by special design; and
 - d. There is long term stability of any structures built on filled or mined land.

For sites suspected of land instability, an adequate site investigation survey will need to be prepared (by a competent person) to demonstrate that land instability issues have been fully addressed.

Reasoned Justification

15.1 The NPPF⁽²²⁾ clearly sets out, in broad terms, that pollution and land instability are material planning considerations.

15.2 Pollution can and does have detrimental impacts on the environment and human health. In the absence of a robust local plan policy, both the quality of life of local residents and the ecology of the area would be compromised.

20 The countywide Worcestershire Air Quality Action Plan (September 2013) includes maps of the AQMA in the plan area and is available at <http://www.worcsregservices.gov.uk/media/486190/Final-AQAP-Whole-Doc-v23b-adopted.pdf>

21 As defined under Part IIA of the Environmental Protection Act 1990

22 NPPF Paragraphs 183, 184, 185, 186

15.3 Pollution can take many forms, e.g. chemical, dust, light, noise, fumes, smell, vibration, all of which can have detrimental impacts on the environment and the quality of life. These potential adverse effects must be carefully considered in the assessment of any planning application and can be the basis for the refusal of a planning application if not adequately addressed. Developers are encouraged to have pre-application discussions with the Council to be advised on the specific requirements.

15.4 Assessments should:

- Identify the sensitive receptor(s) which may be affected by the proposed development, including residents, businesses, land users and sensitive environmental assets;
- Consider the potential for cumulative impacts with other existing or approved development;
- Demonstrate the measures which would be implemented to ensure adverse impacts would be avoided at source or, where this is not possible, outline the proposed management and mitigation measures to reduce effects to an acceptable level; and identify the significance of any residual effects.

15.5 Developers are expected to proactively monitor impacts and emissions to enable issues to be addressed swiftly. Close liaison with communities can support this approach, enabling feedback and dialogue on the need for and effectiveness of any mitigation measures.

15.6 The Wyre Forest District overlies a principal aquifer of regional strategic importance in terms of water supply and there are a number of Source Protection Zones (SPZs) to protect public water resources. For proposed developments that will have an impact on or are affected by groundwater, the Environment Agency's Groundwater protection position statements should be considered to help provide appropriate control measures, especially in areas designated as Source Protection Zone 1 (SPZ1).

15.7 The term 'poor ground conditions' referred to in Policy SP.33 may include, but is not limited to the following:

- Poorly consolidated made ground and fill material;
- Soft, weak and wet natural soils;
- Areas of shallow mine-workings and mineshafts; or
- Colliery spoil mounds.

Minerals

15.8 At present, minerals policy and proposals for the County of Worcestershire are set out in the policies of the Minerals Local Plan (1997) that were "saved" by the Secretary of State in September 2007. These "saved" minerals policies will be replaced by the revised Worcestershire Minerals Local Plan upon its adoption (currently anticipated in spring 2021) which will form part of the overall Development Plan for Wyre Forest District.

15.9 Most of the north-west of Worcestershire consists of Old Red Sandstone. Carboniferous strata occur in the western parts of Wyre Forest Area where they form a western continuation of the South Staffordshire Coalfield. These strata contain layers of sandstone and shales, ironstone and coal deposits. The NPPF states that permission should not be given for the

APPENDIX KEH7

Plans of Site and Lea Castle Village Development

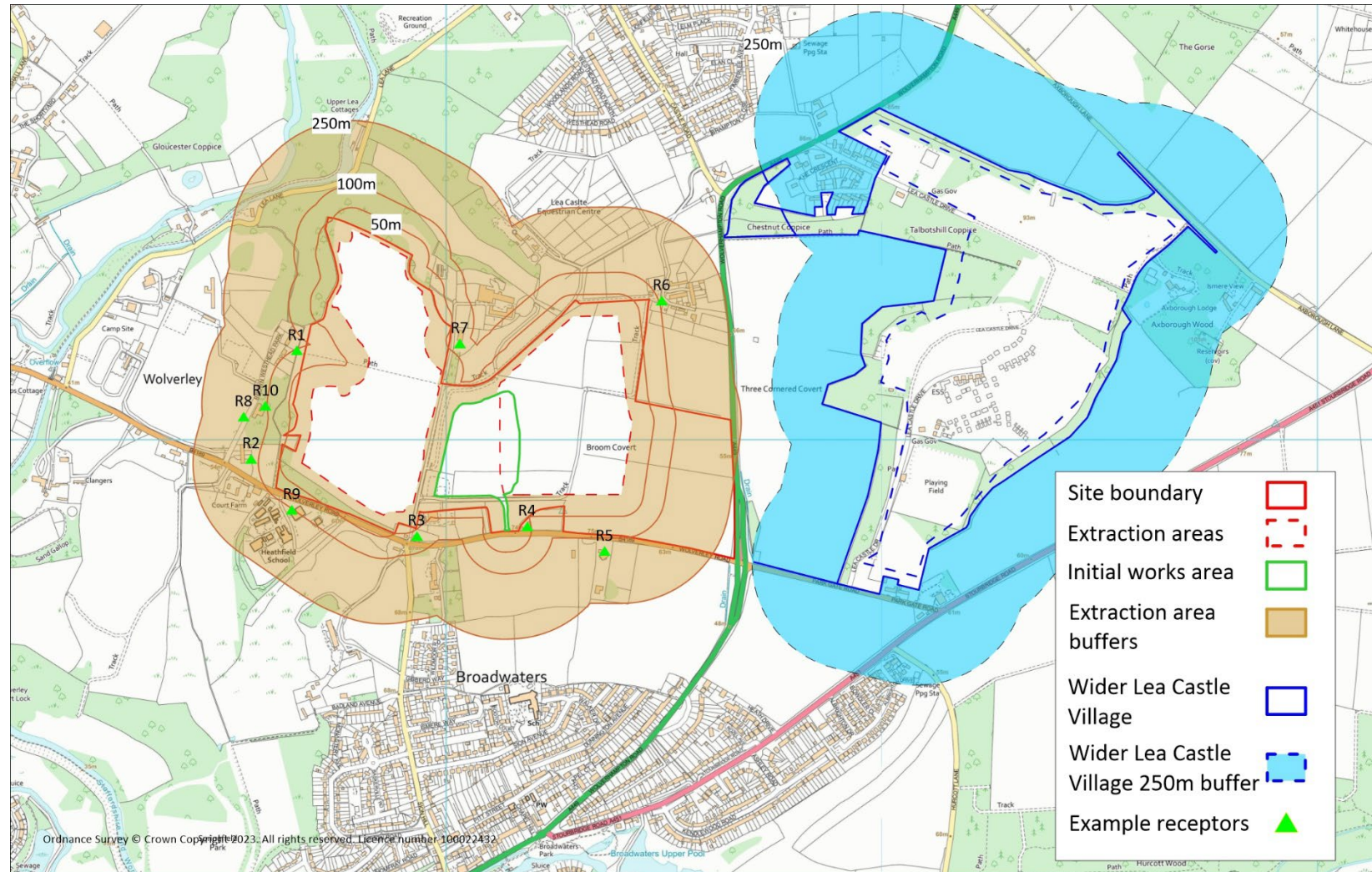


Figure 1: Location of Site and proposed Extraction area in relation to build development part of core Lea Castle Village development

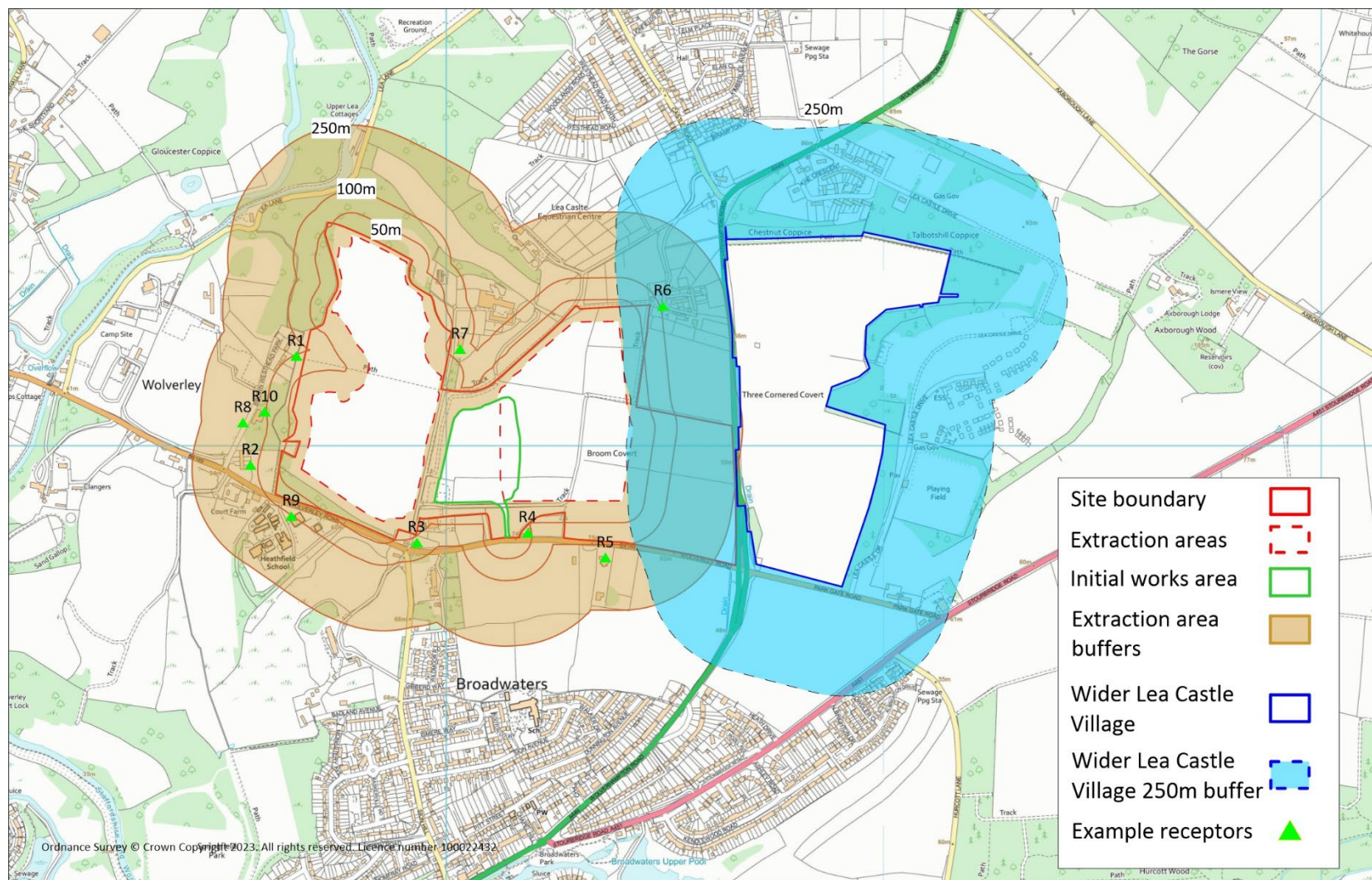
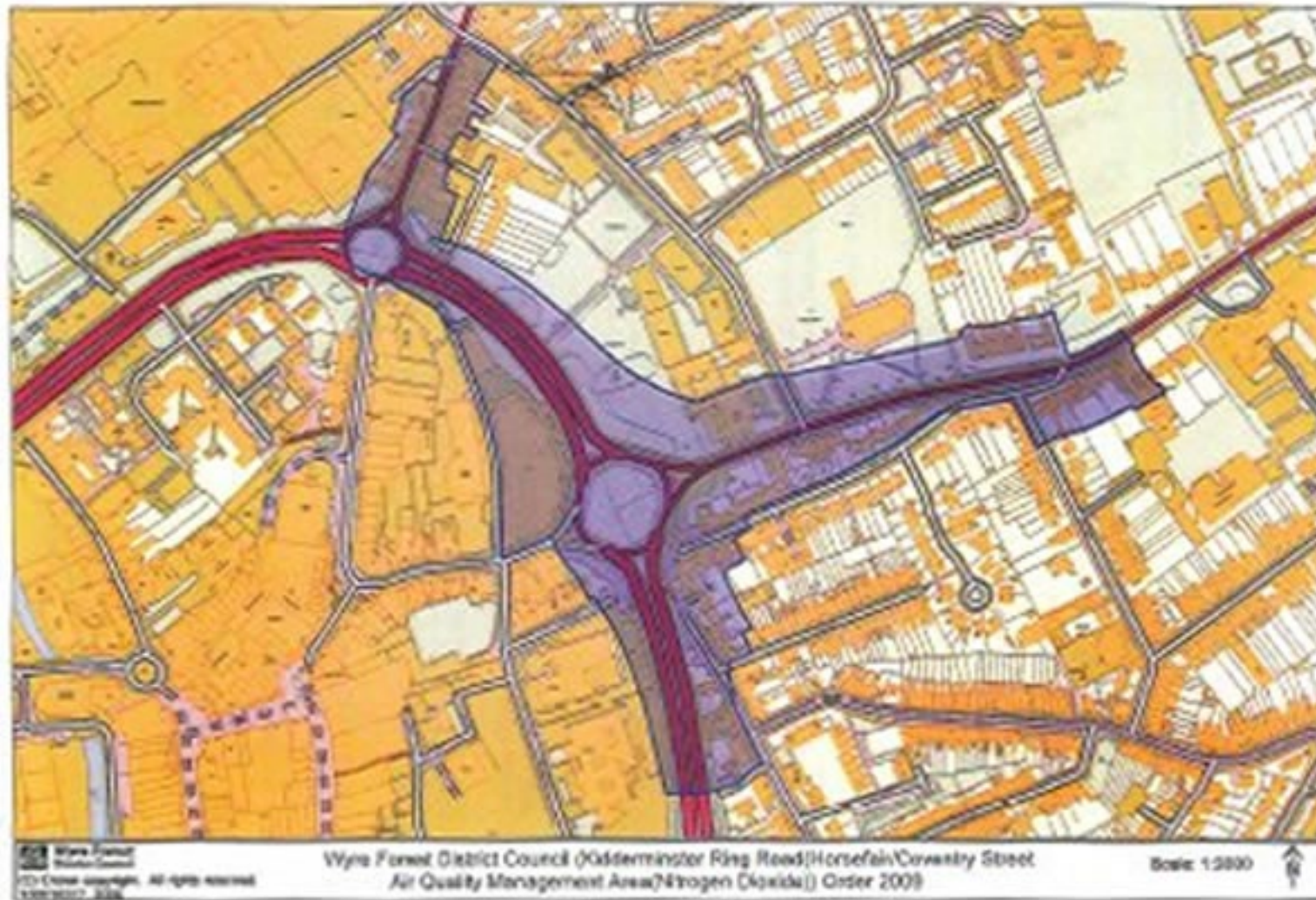


Figure 2: Location of Site and proposed Extraction area in relation to western part of wider Lea Castle Village development

APPENDIX KEH8

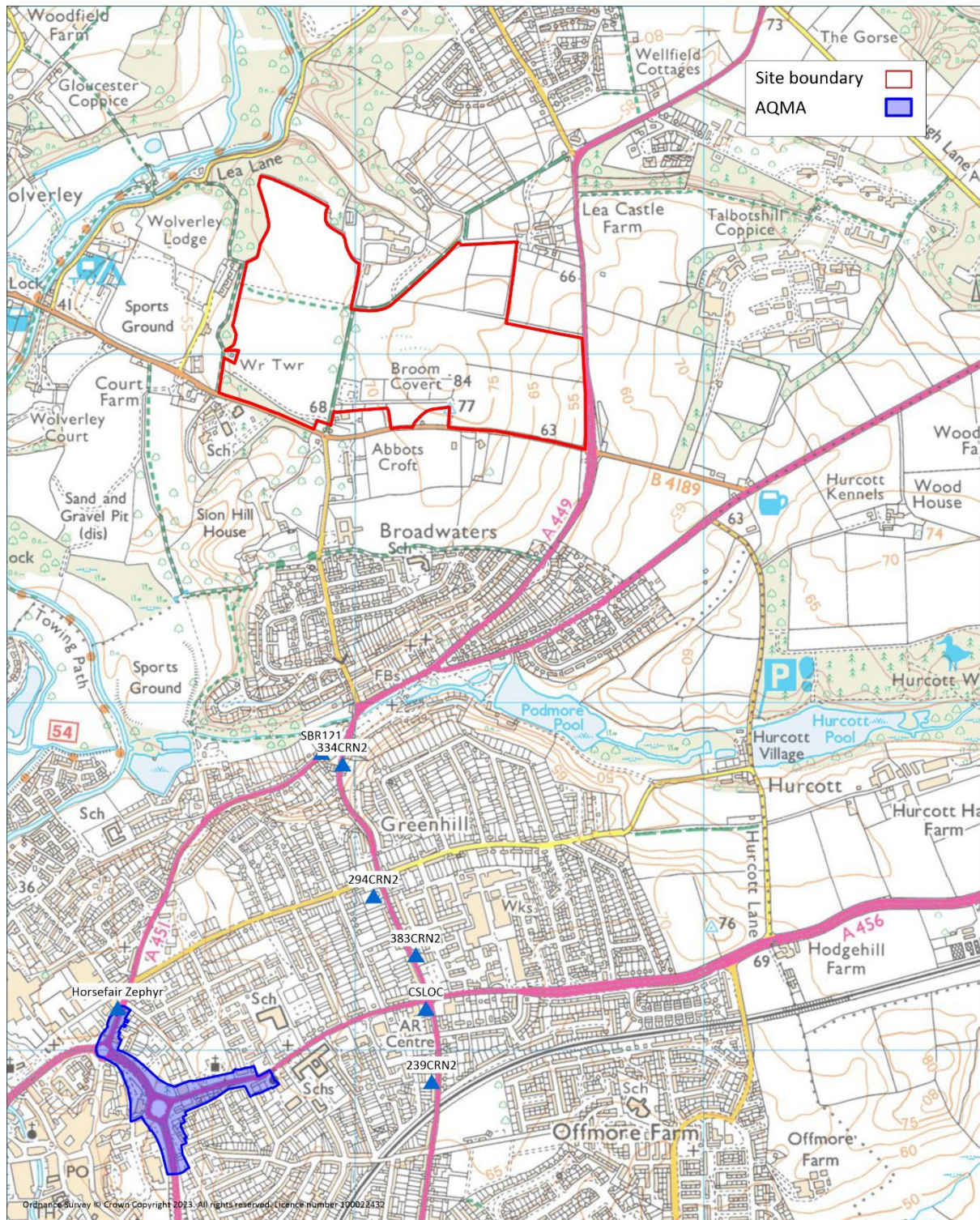
Kidderminster Road AQMA

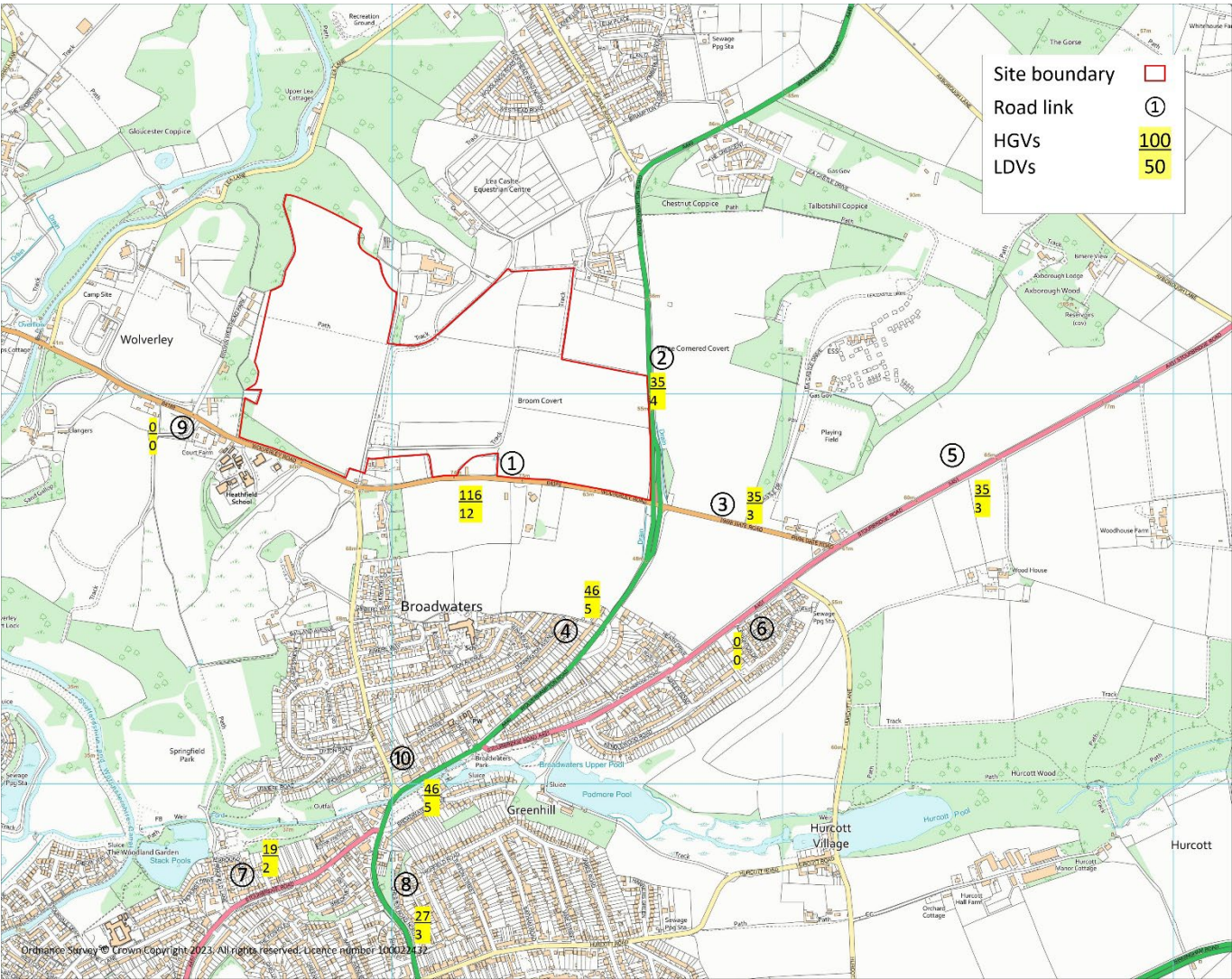


Plan of Kidderminster Ring Road AQMA (as extracted from Defra website)

APPENDIX KEH9

Plans of Site and Kidderminster AQMA and Site related HGV movements





Plan of predicted development-related traffic changes

APPENDIX KEH10

HSE Guidance in relation to Quarries and RCS

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Silica

One of the health risks from working in the quarry industry is that of exposure to fine dust containing crystalline silica (otherwise known as *quartz*). Quartz is found in almost all kinds of rock, sands, clays, shale and gravel. Workers exposed to fine dust containing quartz are at risk of developing a chronic and possibly severely disabling lung disease known as "silicosis". It usually takes a number of years of regular daily exposure before there is a risk of developing silicosis. Silicosis is a disease that has only been seen in workers from industries where there is a significant exposure to silica dust, such as in quarries, foundries, the potteries etc. No cases of silicosis have been documented among members of the general public in Great Britain, indicating that environmental exposures to silica dust are not sufficiently high to cause this occupational disease.

In addition to silicosis, there is now evidence that heavy and prolonged workplace exposure to dust containing crystalline silica can lead to an increased risk of lung cancer. The evidence suggests that an increased risk of lung cancer is likely to occur only in those workers who have developed silicosis.

It should also be noted that excessive long term exposures to almost **any** dust, are likely to lead to respiratory (breathing) problems.

Detailed reviews of the scientific evidence on the health effects of crystalline silica have been published by HSE in the following Hazard Assessment Documents [EH75/4](#)^[23] and [EH75/5](#)^[24]. These documents are available from HSE Books.

[COSHH essentials in quarries: Silica](#)^[25]

[HSE guidance on Silica](#)^[26]

[↑ Back to top](#)

Related content

[Health and safety at quarries. Quarries Regulations 1999](#)^[27]

[Competence in health and safety](#)^[28]

[RIDDOR](#)^[29]

[Explosives](#)^[30]

Link URLs in this page

1. **Quarries**
<https://www.hse.gov.uk/quarries/index.htm>
2. **Who we are**
<https://www.hse.gov.uk/quarries/who.htm>
3. **Overview - How we work**
<https://www.hse.gov.uk/quarries/how.htm>
4. **Program of work**
<https://www.hse.gov.uk/quarries/programme.htm>
5. **Legislation**
<https://www.hse.gov.uk/quarries/legislation.htm>
6. **Competence**
<https://www.hse.gov.uk/quarries/competence.htm>
7. **Health and safety topics**
<https://www.hse.gov.uk/quarries/causes.htm>
8. **RIDDOR and the quarrying industry**
<https://www.hse.gov.uk/quarries/riddor.htm>
9. **Overview - Resources**
<https://www.hse.gov.uk/quarries/resources.htm>
10. **Publications and guidance**
<https://www.hse.gov.uk/quarries/information.htm>
11. **Safe operation of mobile jaw crushers**
<https://www.hse.gov.uk/quarries/crushing.htm>
12. **Overview - Quarrying related degree courses**
<https://www.hse.gov.uk/quarries/education/index.htm>
13. **Introduction to health and safety in industry**
<https://www.hse.gov.uk/quarries/education/topic1.htm>
14. **Accident prevention**
<https://www.hse.gov.uk/quarries/education/topic2.htm>
15. **Accident Aetiology**
<https://www.hse.gov.uk/quarries/education/topic3.htm>
16. **Health and safety management**

<https://www.hse.gov.uk/quarries/education/topic4.htm>

17. **Risk assessment and risk management**

<https://www.hse.gov.uk/quarries/education/topic5.htm>

18. **Health assessment and surveillance**

<https://www.hse.gov.uk/quarries/education/topic6.htm>

19. **Accident and incident investigation**

<https://www.hse.gov.uk/quarries/education/topic7.htm>

20. **Managing the health and safety contractors**

<https://www.hse.gov.uk/quarries/education/topic8.htm>

21. **The quarry health and safety document**

<https://www.hse.gov.uk/quarries/education/topic9.htm>

22. **Useful links**

<https://www.hse.gov.uk/quarries/links.htm>

23. **EH75/4**

<https://www.hse.gov.uk/pubns/books/eh75-4.htm>

24. **EH75/5**

<https://www.hse.gov.uk/pubns/books/eh75-5.htm>

25. **COSHH essentials in quarries: Silica**

<https://www.hse.gov.uk/pubns/guidance/qyseries.htm>

26. **HSE guidance on Silica**

<https://www.hse.gov.uk/pubns/chan35.htm>

27. **Health and safety at quarries. Quarries Regulations 1999**

<https://www.hse.gov.uk/pubns/books/l118.htm>

28. **Competence in health and safety**

<https://www.hse.gov.uk/competence/index.htm>

29. **RIDDOR**

<https://www.hse.gov.uk/riddor/index.htm>

30. **Explosives**

<https://www.hse.gov.uk/explosives/ammonium/index.htm>

Glossary of abbreviations/acronyms on this RIDDOR page

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

APPENDIX KEH11

Response on STQC 'Air Quality Review' Report

Proposed Sand and Gravel Quarry, Lea Castle Farm

Planning Inspectorate ref: APP/E1855/W/22/3310099

Response on Rule 6 Party 'Air Quality Review' Report

Introduction

The proof of evidence provided by Adrian Carlross for Stop the Quarry Campaign (STQC) (Rule 6 Party) makes reference to an Air Quality Review report prepared by Air Pollution Services (APS), dated 2 March 2020 (ref: S1003_A_1) that had been commissioned by the STQG (hereafter referred to as the 'APS Report').

This APS Report has not been located on the WCC planning portal or in any of the previous provided Core Document lists. It had not therefore been available for review prior to preparation of evidence for the Appellant for submission to the inquiry.

The APS Report was provided to the Appellant's team by Mike Lord, STQG on 8th February 2023.

The APS Report has now therefore been reviewed and brief notes are provided below.

Context of the APS Report

- Comprises a review of the dust and transport / air quality assessments undertaken by Vibrock and EnviroCentre and provided within the original Lea Castle Farm Quarry Environmental Statement (CD1.03, CD1.08);
- Provides commentary on issues identified by APS with the assessments, such as assessment methodologies, presentation of air quality information and uncertainty of the overall assessment;
- 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.

Response to Key Comments

The key comments raised in the APS report are summarised below along with a response, where deemed applicable.

	APS Comments	Response
Local Air Quality		
3.1 Importance of Air Quality	ES downplays potential health impacts from air pollution; refers to medical studies from over 2 decades ago	Applicable air quality standards and information were presented in the dust and air quality assessment reports; further commentary on air pollution concerns provided in my Proof

	APS Comments	Response
		highlighting the importance of air quality and current planning and legal context and standards.
3.2 Local Air Quality Conditions	Little consideration is given to local air quality conditions; data only provided for single monitoring site.	<p>The Site is distant from any existing air quality monitoring locations.</p> <p>The EnviroCentre report reported data for one air quality monitoring site for the purposes of enabling verification of the vehicle emissions model. Additional monitoring sites near this site were established in Kidderminster in 2019; EC report was dated August 2019 at which point the new 2019 monitoring data would not have been available for verification purposes.</p> <p>This new data is fully presented in my Proof.</p>
	Little consideration give to the Air Quality Management Area (AQMA) in Kidderminster.	Kidderminster Ring Road AQMA was briefly discussed in the EnviroCentre report; additional information on the current status of the AQMA provided in my Proof.
Dust Risk Assessment		
4.1 Receptors	Additional low and medium sensitivity receptors should have been included such as neighbouring agricultural land	Additional receptor locations such as neighbouring fields used for paddocks and residential garden areas are discussed in my Proof
Potential Emission Magnitude	The assessment may have underestimated the source emission magnitude from on-site transportation and stockpiles when comparison is made to the example provided in the IAQM guidance on mineral dust	<p>The text in the IAQM guidance is an example of on-site transport and stockpile scenarios. The assessment of potential source emissions magnitude is ultimately based on professional judgement taking into account several factors.</p> <p>I have provided further detail of the assessment of source emission magnitude in my Proof and ultimately concur with Vibrock's magnitude.</p> <p>Of note, alternative source emission magnitudes not provided by APS</p>
Pathway Effectiveness	Assessment has assumed that dust effects can only occur when wind speed is greater than 5 m/s, when they can	The Vibrock dust assessment follows the approach provided as an example in the IAQM guidance. I have also considered lower wind

	APS Comments	Response
	occur at lower thresholds.	speeds and ultimately reach the same conclusions.
Risk Assessment Conclusions	ES concludes there would be adverse effects at several properties with mitigation; ES understates the number of affected properties	<p>WRS required additional mitigation to that outlined in the Vibrock assessment including provision and agreement of a Dust Management Plan (DMP); WRS additionally required that the DMP includes for a programme of dust monitoring.</p> <p>In my Proof I have provided further commentary on the risks at different properties as activities progress. I have provided further information on the 'enhanced' mitigation given the predicted effects taking into account in-built design and 'standard' mitigation. The proposals include for provision and agreement of a written DMP, to include physical deposition dust monitoring. The DMP would be subject to regular review and update as necessary in agreement with the MPA.</p>
Road Traffic Assessment		
Assessment Methodology	Issue raised with the assessment methodology, including the road network assessment, chemistry, met data used and model verification	<p>In my Proof I have primarily considered the predicted development related HGV movements providing further detail of the predicted routing. These movements have been considered in comparison to the screening criteria provided by the IAQM. These criteria are referred to in order to indicate the need for some form of an air quality assessment – not necessarily to indicate that there would be significant adverse impacts.</p> <p>These predicted movements are based on the information provided by the transport consultants and assessment, and differ to those presented in the EnviroCentre and APS Report.</p> <p>Predicted HGV movements, including within the Kidderminster AQMA, are all below the relevant screening criteria other than on the stretch of Wolverley Road between the proposed Site entrance and the A449. Further consideration of</p>

	APS Comments	Response
		<p>this is provided in my Proof.</p> <p>It is also of note, as highlighted in my proof, that air quality within the Kidderminster AQMA is expected to improve following the establishment of a new road layout.</p> <p>It is also of note that vehicle emissions modelling undertaken for the wider Lea Castle Village development on behalf of that application included the predicted Site development traffic and did not identify any local air quality concerns</p>

Overall Summary

Several comments are raised in the APS Report in relation to the methodologies of the dust and air quality assessments provided in the Environmental Statement. As noted above many of these have been superseded by information provided in my Proof.

Of note the APS Report did not present an alternative assessment or conclusions to those presented in the ES.

The comments raised by APS do not alter my overall conclusions that the proposed development would not result in significant or unacceptable adverse impacts.

Name:

K. Hawkins, Partner

BSc MSc MIAQM MEnvSci CEnv

Signature:



Date:

20.02.23