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AIR QUALITY EXPERTS

BLACK ONYX BECKETTS LIMITED

CEDAR COTTAGE, SANDYGATE LANE, LOWER BEEDING,
WEST SUSSEX, RH13 6LR



AIR QUALITY EMISSIONS MITIGATION ASSESSMENT
JULY 2026



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CEDAR COTTAGE, SANDYGATE LANE, LOWER BEEDING,
WEST SUSSEX, RH13 6LR**

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JULY 2026**

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Prepared by:	Lucinda Pestana MEnvSc, MIAQM.
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Black Onyx Becketts Limited
Cedar Cottage, Sandygate Lane, Lower Beeding, West Sussex RH13 6LR.

Air Quality Emissions Mitigation Assessment

List of Contents

Sections

1	Introduction	1
2	Background	2
3	Assessment Methodology	3
4	Emissions Mitigation Calculations	5
5	Conclusions	7

Tables

Table 4.1	Mitigation Measures Provided by the Scheme and Associated Costs.....	5
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Appendices

APPENDIX A:	AQEMA Calculations Spreadsheet	
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1 Introduction

1.1 Air Quality Experts Ltd has been instructed by Black Onyx Becketts Limited to undertake an Air Quality Emissions Mitigation Assessment (AQEMA) in connection with a planning application for the demolition of the existing dwelling and the erection of 24 residential dwellings and associated works at Cedar Cottage, Sandygate Lane, Lower Beeding, West Sussex RH13 6LR.

1.2 The following AQEMA is divided up into the following sections:

- **Section 2** - Background;
- **Section 3** - Assessment Methodology;
- **Section 4** - Emissions Mitigation Calculations;
- **Section 5** – Conclusions; and
- **Appendix A** – AQEMA Calculations Spreadsheet.

2 Background

2.1 The site falls under the jurisdiction of Horsham District Council (HDC).

2.2 The planning application (Ref: DC/26/0640) was submitted to HDC and validated on 11th May 2026.

2.3 This AQEMA is being prepared in response to comments received by HDC's, as follows:

"The development will constitute major development and therefore an Air Quality Screening Assessment should be undertaken in accordance with the Air Quality and Emissions Mitigation Guidance for Sussex (2021). <https://www.sussex-air.net/wp-content/uploads/2022/09/Sussex-AQ-Guidance-V.1.2-2021.pdf>"

2.4 The purpose of this AQEMA is to:

- 1 Calculate the additional transport emissions associated with a development;
- 2 Determine the appropriate level of mitigation required to help avoid, minimise and/or off-set the impact on air quality;
- 3 Enable an evidence-based and proportionate approach.

3 Assessment Methodology

- 3.1 This AQEMA has been undertaken in line with the guidance and recommendations provided within the Air quality and emissions mitigation guidance for Sussex (2021)¹.
- 3.2 This AQEMA and any corresponding mitigation calculation has followed, where required, the following recommended process:
1. identify the trips/annum generated by the proposed development (this information will be available in the Transport Assessment, Transport Statement or TRICS database);
 2. assume an average distance travelled of 10km/trip;
 3. calculate the emissions of NO_x and PM_{2.5} (tonnes/annum) using the Emissions Factor Toolkit, and an assumption of an average speed of 50Km/h (Ref: DEFRA Emissions Factor Toolkit: <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html>);
 4. look-up the latest HM Treasury and Defra IGCB damage costs and multiply the outputs from 3. above to provide a value of the emissions health damage, for each pollutant. This can be found here: <https://www.gov.uk/guidance/air-quality-economic-analysis#damage-costs-approach>;
 5. multiply the calculated emissions health damage values by 5 to quantify emissions over a five-year period; and
 6. sum the NO_x and PM_{2.5} costs to provide a total health damage value.
- 3.3 In summary the Emission Mitigation Calculation should be: EFT output x Damage costs x 5 years = 5 year exposure cost value.
- 3.4 This AQEMA includes proposed development traffic associated with the proposed scheme.
- 3.5 The average distanced travelled has been assumed as 10km/trip (NTS UK Average) and the average speed has been kept at 50km/hr.
- 3.6 The baseline year has been assumed to be 2024, using the latest published damage costs (2025 prices).

¹ Sussex-Air. (2021) Air quality and emissions mitigation guidance for Sussex (2021). Sussex-Air. Downloaded 24/10/2024 from: [Sussex-air :: Promoting better Air Quality in Sussex :: sussexair.extrawebsites.co.uk :: Air Quality Guidance Planning](http://Sussex-air::Promoting better Air Quality in Sussex::sussexair.extrawebsites.co.uk::Air Quality Guidance Planning)

- 3.7 The proposed development site is located in a rural location and outside any Air Quality Management Areas (AQMAs) declared by Horsham District Council. As such, the Low Damage Costs should be applied.
- 3.8 Additionally, due to the rural location of the proposed development site, the Road Transport Rural source sector costs have been used in the emissions mitigation calculations.

4 Emissions Mitigation Calculations

- 4.1 The Sustainability & Energy Statement prepared by Bluesky Unlimited indicates that the associated energy strategy for the Proposed Development should include the installations of Air Source Heat Pumps (ASHPs), one in each of the proposed dwellings, which will to provide renewable space heating and hot water.
- 4.2 ASHPs are Low or Zero Carbon (LZC) technologies, and as such not directly associated with any NO_x or PM_{10/2.5} emissions.
- 4.3 Therefore, the only emissions considered within the calculation will be those associated with additional traffic generated by the operation of the proposed development.
- 4.4 A review of the proposed development traffic associated with the proposed scheme has been undertaken.
- 4.5 The Transport Consultants at Glanville have indicated within their Transport Statement (TS) that the operation of the completed proposed development would generate 101 net new daily trips.
- 4.6 This level of traffic impact does not meet the EPUK & IAQM criteria for requiring further or detailed assessment.
- 4.7 The mitigation measures currently being provided as part of the proposed scheme and their associated mitigation values/costs, are shown in **Table 4.1** below.

Mitigation Measure	Mitigation Cost
ASHP's	£15,000/dwelling
Electric Vehicle Charging Points	£1,200.00/dwelling
Secure Cycle Parking and Storage Lockers	£1,100.00/dwelling
Total (all 24 dwellings):	£415,200.00

Table 4.1 Mitigation Measures Provided by the Scheme and Associated Costs

- 4.8 The AQEMA calculations have been completed and the results are presented in **Appendix A**.
- 4.9 Due to the site being located in a rural location and outside any declared AQMA's the Low Damage Costs should apply. However, for completeness and to provide a sensitive test, the Medium and High damage costs have also been calculated and presented.
- 4.10 The total health damage cost associated with transport emissions from the proposed development as a result of the excess emissions for Particulate Matter (PM_{2.5}) and Oxides of Nitrogen (NO_x) combined are as follows:
- Low Damage Cost - £1,001.20
 - Central Damage Cost - £3,633.58
 - High Damage Cost - £11,606.32
- 4.11 It is important to note that the above values have been calculated as a worst-case scenario and without taking into account any mitigation measures that have already been included as part of the planning application, detailed in **Table 4.1**, i.e. cycle parking & storage, EV charging provision, ASHPs.
- 4.12 Hence, the cost of the mitigation measures already provided as part of the development (**Table 4.1**) should be used to offset the above damage cost calculated.

5 Conclusions

- 5.1 This AQEMA has demonstrated that the costs of the mitigation already being provided/offered as part of the development (**Table 4.1**) are much greater than the total damage health damage cost associated with transport emissions associated with the operation of the proposed development.
- 5.2 Furthermore, the development shall be implemented, and thereafter maintained, entirely in accordance with the measures set out in this Air Quality Emission Mitigation Assessment and no further mitigation measures are considered required.



APPENDIX A: AQEMA Calculations Spreadsheet

Air Quality Emissions Mitigation Assessment - Calculations - Cedar Cottage												Total - Central		Total - High		Total - Low	
Year	Daily Trips	Days in Year	Total annual (x365)	Av Trip Length	Speed	NOx Emissions Per Vehicle*	PM _{2.5} Emissions Per Vehicle*	PM ₁₀ Emissions Per Vehicle*	g to tonnes	Total annual NOX (Tonnes)	Total annual PM2.5 (Tonnes)	Damage cost NOx	Damage cost PM2.5	Damage cost NOx	Damage cost PM2.5	Damage cost NOx	Damage cost PM2.5
2024	101	365	36865	10	50	0.22379	0.01961	0.02992	1000000	0.0825	0.0072	£490.38	£355.58	£1,594.16	£1,112.53	£103.95	£124.06
2025	101	365	36865	10	50	0.19821	0.01899	0.02916	1000000	0.0731	0.0070	£434.33	£344.37	£1,411.93	£1,077.47	£92.07	£120.15
2026	101	365	36865	10	50	0.17676	0.01853	0.02860	1000000	0.0652	0.0068	£387.33	£336.10	£1,259.15	£1,051.58	£82.11	£117.26
2027	101	365	36865	10	50	0.15524	0.01814	0.02811	1000000	0.0572	0.0067	£340.18	£328.92	£1,105.87	£1,029.11	£72.11	£114.76
2028	101	365	36865	10	50	0.13440	0.01775	0.02760	1000000	0.0495	0.0065	£294.50	£321.89	£957.39	£1,007.13	£62.43	£112.31

Damage Cost Guidance (Updated 2025 Damage Costs)	
NOx - CENTRAL DAMAGE - (Road transport - Rural)**	£5,944.00
PM2.5 - CENTRAL DAMAGE - (Road transport - Rural)**	£49,192.00
Damage Cost Guidance (Updated 2025 Damage Costs)	
NOx - HIGH DAMAGE - (Road transport - Rural)**	£19,323.00
PM2.5 - HIGH DAMAGE - (Road transport - Rural)**	£153,912.00
Damage Cost Guidance (Updated 2025 Damage Costs)	
NOx - LOW DAMAGE - (Road transport - Rural)**	£1,260.00
PM2.5 - LOW DAMAGE - (Road transport - Rural)**	£17,163.00

Central Total:		High Total:		Low Total:	
£1,946.73	£1,686.85	£6,328.50	£5,277.82	£412.66	£588.54

Overall Total Central Damage Cost for NOx and PM2.5	£3,633.58
Overall Total High Damage Cost for NOx and PM2.5	£11,606.32
Overall Total Low Damage Cost for NOx and PM2.5	£1,001.20

* Source: [Emissions Factors Toolkit | LAQM \(defra.gov.uk\)](#)
**Source: [Air quality appraisal: damage cost guidance - GOV.UK \(www.gov.uk\)](#)

Damage Costs per tonne by source - 2025

Table 5: NOx source sector damage costs (2025 prices)

Pollutant emitted	Central damage cost (£/t)	Damage cost sensitivity range (£/t): low	Damage cost sensitivity range (£/t): high
NOx road transport rural	£5,944	£1,260	£19,323

Table 4: PM source sector damage costs (2025 prices)

Pollutant emitted	Central damage cost (£/t)	Damage cost sensitivity range (£/t): low	Damage cost sensitivity range (£/t): high	PM2.5/PM10 conversion factor
PM2.5 road transport rural	£49,192	£17,163	£153,912	0.570

