



PLANNING STAGE AIR QUALITY ASSESSMENT

LAND ADJACENT TO LITTLE MEADOW, YAPTON

NOVA PLANNING

MAY 2021

**PLANNING STAGE AIR QUALITY ASSESSMENT
LAND ADJACENT TO LITTLE MEADOW, YAPTON**
Our Ref: 5020_003R_2-0_AG



Client: Ann Taylor
C/O 66 Flansham Lane
Felpham
Bognor Regis
West Sussex
PO22 6AH

Report by: Anderson Acoustics Limited
3 Trafalgar Mews
15-16 Trafalgar Street
Brighton
BN1 4EZ

Date: 25 May 2021

Project No: 5020

Status: Second issued version

Author	Adam Glass Principal Environmental Consultant	25 May 2021
---------------	--	--------------------

Reviewed	Peter Akhurst Senior Consultant	25 May 2021
-----------------	---	--------------------

Approved	Adam Glass Principal Environmental Consultant	25 May 2021
-----------------	--	--------------------

This document has been prepared using all reasonable skill and care. Anderson Acoustics Ltd accepts no responsibility or liability for any third-party data presented in this report, or used for the basis of drawing any conclusions. This document is confidential to the named client above and Anderson Acoustics Ltd accepts no responsibility or liability resulting from third party use of this document or for a purpose other than for which it was commissioned.

REVISION HISTORY

Version	Comments	Changes made by	Approved by
1.0	First issued version	-	AG
2.0	Second issued version	AG	AG

PAGE LEFT INTENTIONALLY BLANK

CONTENTS

1	INTRODUCTION	6
2	AIR QUALITY POLICY AND CRITERIA	7
3	SITE DESCRIPTION	10
4	AIR QUALITY ASSESSMENT	13
5	DUST RISK ASSESSMENT	17
6	EMISSIONS MITIGATION ASSESSMENT	22
7	CONCLUSIONS	23

Executive Summary

Air Quality assessment for site suitability, air quality impact assessment, emissions mitigation assessment and dust risk assessment have been conducted and demonstrate the site, at Land adjacent to Little Meadow, Yapton, and proposals are suitable and air quality policy compliant.

1 INTRODUCTION

Anderson Acoustics Ltd was commissioned by Nova Planning on behalf of Ann Taylor to undertake an air quality assessment to inform the design and planning application for the proposed development at Land at Little Meadow, Yapton.

The proposed development is in a semi-rural area, consisting mainly of agricultural land with residential properties, and a small commercial estate. The plot of land proposed for development is located to the east of Bilsham Road. The site borders residential properties, a small commercial estate towards the north, as well as agricultural land and local roads (Bilsham Road and Grevatt's Lane West). The A259 runs east to west towards the south of the proposed development, at a distance of approximately 300m.

The proposed development includes the construction of a mixed-use commercial and residential development for 73 no. dwellings (1-4 bed, a mix of 26 apartments and 47 houses) and the extension of the existing employment site to accommodate 3 no. new units. The wider proposals include amenity and 4250 m² area of public open space, a new access road with new junction from Bilsham Road and 34 new allotments. As part of the design, a new junction with Bilsham Road located south of the existing Grevatt's Lane West junction will be created to provide access to the commercial estate, and the proposed residential development. The junction of Bilsham Road with Grevatt's Lane West will remain, however will only provide access to existing houses.

Assessment of the potential effects of existing air quality on the future receptors is achieved through assessing the location of the development against modelled NO₂ and PM₁₀ concentrations in the context of the air quality objectives and limit values. Screening of the emissions of the proposed development to

Air quality emission mitigation assessment and dust risk assessments have been conducted to demonstrate compliance of the development with the "Air quality and emissions mitigation guidance for Sussex (2020)" and also the Institute of Air Quality Management "Guidance on the assessment of dust from demolition and construction".

Air quality policy and criteria relevant to the assessment have been presented and briefly discussed in Section 2 of this report. A brief description of the Site and proposed development is given in Section 3. The air quality assessment is presented in Section 4. The dust risk assessment is presented in Section 5 and air quality neutral assessment in Section 6. The conclusions are provided in Section 7.

2 AIR QUALITY POLICY AND CRITERIA

2.1 Air Quality – Pollutants for Consideration

The pollutants for consideration in the Arun District Council (ADC) area are nitrogen dioxide (NO₂) and particulate matter (PM). There are no Air Quality Management Areas in the ADC area.

PM₁₀ is the fraction of Particulate Matter that is 10 microns or less in size and PM_{2.5} is the fraction of PM that is 2.5 microns or less in size. Both can be drawn into the lungs and can cause respiratory illness, cardiovascular illness and mortality. Oxides of nitrogen include nitric oxide (NO) and nitrogen dioxide (NO₂). NO₂ can cause inflammation of the lung and can lead to shortness of breath, coughing and can reduce immunity to infections of the lung such as bronchitis.

2.2 Air Quality Policy and Guidance

2.2.1 European and National Air Quality Standards

Air Quality Directive 2008/50/EC¹ introduced legally binding “limit value” targets for the member governments to reduce air pollution to concentrations at which minimal effects on health are likely to occur. The directive was transposed into law through the Air Quality (England) Standards Regulations² with air quality objectives and dates they were to be achieved by. The sensitive locations, at which the standards and objectives apply, are places where the population is expected to be exposed to the various pollutants over the averaging period in question. For objectives to which an annual mean standard applies, the most common sensitive receptor locations used to measure concentrations are areas of residential housing, since it is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time. For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time. The annual mean objectives are not relevant for the building facades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

Table 2.1: Air Quality Objectives for PM₁₀, PM_{2.5} and NO₂

Pollutant	Air Quality Objectives for Particulates and NO ₂		Date to be Achieved By
	Concentration	Measured as	
PM ₁₀	50 µg/m ³ not to be exceeded more than 35 times a year	24 hour mean	31 December 2004
	40 µg/m ³	Annual mean	31 December 2004
PM _{2.5}	25 µg/m ³	Annual mean	2020 (but not in UKAQS)
	15% reduction urban background	Annual mean	2010-2020
NO ₂	40 µg/m ³	Annual mean	31 December 2005
	200 µg/m ³ not to be exceeded more than 18 hours in a year	Hourly mean	31 December 2005

¹ Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe

² Defra. 2010. The Air Quality Standards (England) Regulations.

The Environment Act 1995³ introduced the requirement for local authority management of air quality. Part IV of this Act details the duties of local authorities in carrying out their local air quality management (LAQM) to tackle poor air quality. Part of the requirements is for the Review and Assessment of air quality and production of Updating and Screening Assessments (USA) and Status Reports. Where exceedance of these objectives is shown or anticipated the local authority is required to produce an Air Quality Action Plan to reduce emissions and pollutant concentrations.

2.2.2 National and Regional Planning Policy and Guidance

The NPPF⁴ presents the Government's planning policies for England and how these are expected to be applied, with the development of local and neighbourhood plans under the framework.

Paragraph 170 e) of the NPPF identifies that the planning system should aim to conserve 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..."*

Paragraph 181 states *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan"*.

Planning Practice Guidance⁵ for air quality has been produced that gives indication of details the local authority may want to consider when there are concerns about air quality and special requirements such as the height of chimneys and securing mitigation measures through planning conditions and obligations. The PPG considers that dust can also be a planning concern for effects on local amenity. The guidance considers that assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality. The mitigation of air quality impacts and effects is to depend on the proposed development and should be proportionate to the likely impact.

2.2.3 Sussex Guidance

Arun Local Plan

The ADC local plan, adopted 2018, presents the policies and guidance for development until 2031. Relevant policies include:

ALP Policy QE DM3 *"all major development must assess the likely impacts of the development on air quality and mitigate any negative impacts by ensuring that development is accessible by public transport, by foot & cycle, installing electric charge points and improving the local highway network. In addition, that industrial development which creates dust, smell, fumes, smoke, heat, radiation, gases, steam or other forms of pollution) must be located in such a position which ensures that the health, safety and amenity of users of the site or surrounding land is not put at risk and the quality of the environment would not be damaged or put at risk"*.

Sussex Authorities Emissions Mitigation Guidance

³ Office of the Deputy Prime Minister. 1995. The Environment Act.

⁴ Ministry of Housing, Communities & Local Government. 2019. National Planning Policy Framework.

⁵ Department for Communities and Local Government. 2014. Planning Practice Guidance – Air Quality. Revision date November 2019

The Sussex Authorities have produced emissions mitigation guidance⁶ to:

- provide clarity to how authorities intend interpreting relevant Local Plan policies.
- provide advice for developers and their consultants on how to assess and mitigate the impact that new developments may have on local air quality. detail a consistent approach by developers and Local Planning Authorities (LPAs) to:
 - i. address impacts on local air quality
 - ii. ensure optimum scheme design to reduce emissions and/or exposure and
 - iii. avoid unnecessary delays in the planning process.

⁶ Sussex Authorities. Air quality and emissions mitigation guidance for Sussex (2020)

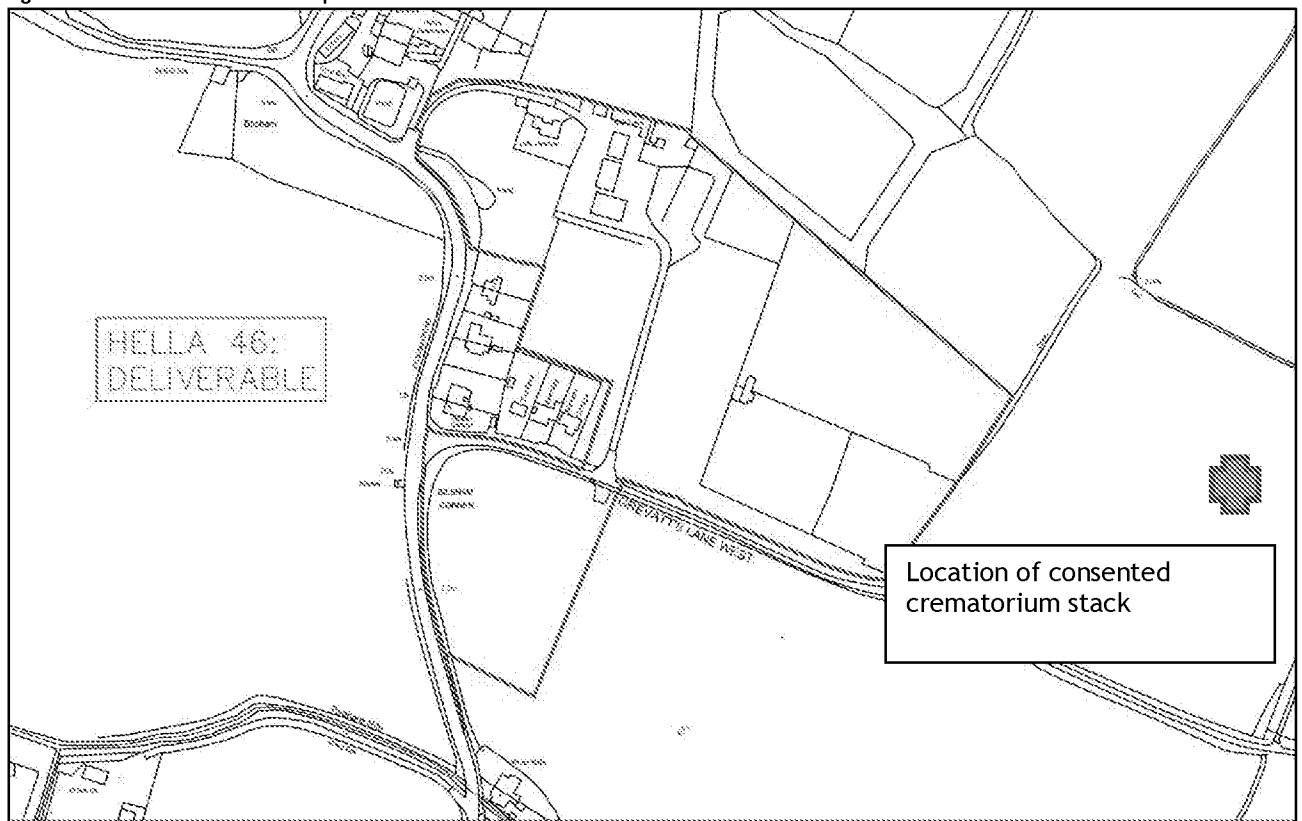
3 SITE DESCRIPTION

3.1 Land at Little Meadow, Yapton

The proposed development is located to the east of Bilsham Road, on unused agricultural land. The site location and boundary of the site (highlighted in red). It is understood a crematorium has been consented on appeal for a single chapel crematorium at 10 Acre Field North of Grevatt's Lane West, Yapton (planning application reference Y/103/18/PL).

The site location and the immediate surrounding area is shown in Figure 3.1.

Figure 3.1 Land at Little Meadow Yapton.

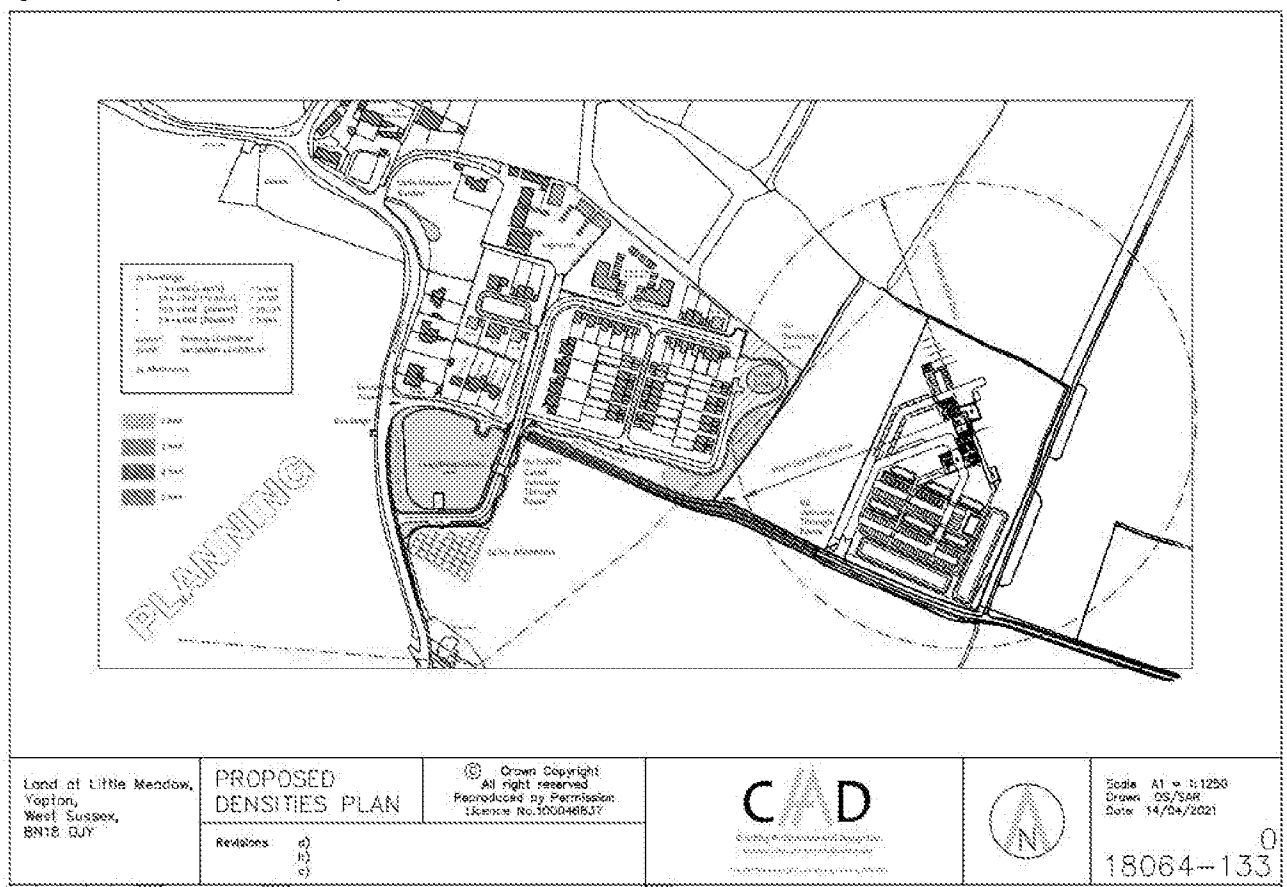


3.2 Development Proposal

The proposed development is a mixed-use commercial and residential development comprising the construction of a mixed-use commercial and residential development for 73 no. dwellings (1-4 bed, a mix of 26 apartments and 47 houses), 34 allotments and the extension of the existing employment site to accommodate 3 no. new units. As part of the development, it is proposed that the western end of Grevatt's Lane West will remain, however only to provide access to existing houses along the road. A new access road located to the south of Grevatt's Lane West will provide access to the new development, and commercial estate. The proposed development has B1(c) land uses which are described as "Industrial processes". The industrial processes are similar uses to those in the existing industrial estate. These processes are:

The proposed development will have water and space heating through electrical heaters powered by supplies through the national grid. The number of car parking spaces associated with the proposed development is yet to be established. The Transport Statement⁷ (TS) presents TRICS data for similar sized residential and E(g) developments that give a 12 hour (07:00-19:00) flow of 378. Of this 40 are associated with the E(g) land use and the rest from the proposed residential development. The layout of the proposed development is shown in Figure 3.2 and the traffic calculations in Table 3.1.

Figure 3.2 Land at Little Meadow site plan



⁷ Nick Culhane. Transport Statement. Application for a Residential Development of 73 Units and 34 Allotments Land at Little Meadow, Bilsham Road, Yapton, West Sussex BN18 0JY. 2021

Table 3.1 Development Traffic Flows from Transport Statement

	AM (0800 – 0900)	PM (1700 – 1800)	Daily (12 Hour)
B1c Development	5	2	40
Residential Scheme	42	40	338
Net Impact	47	42	378

4 AIR QUALITY ASSESSMENT

4.1 Introduction

The impact of the development on the local area is considered, along with the impact of existing sources of pollution in local area on the proposed development.

The proposed development does not meet the criteria (within the “*Land-use Planning & Development Control: Planning for Air Quality*”⁸ guidance) for the need to assess the impact of the development on air quality in the local area for the change in traffic flows of 500 Annual Average Daily Traffic (AADT). The proposed development has a 12-hour traffic flow of 378 and with a worst case assumption of an additional 20% of flow out side of the 12 hour period the AADT would be 442. As such the screening criteria for detailed assessment. The use of electrical heaters with no site emissions means the building emissions of the proposed development are minimal and .

The proposed development is not in an Air Quality Management Area (AQMA). The 2020 ASR⁹ presents measurements from the YAP19 NO₂ diffusion tube giving an annual mean NO₂ concentration of under 20µgm⁻³ during the past 3 years.

4.2 Methodology

The air quality assessment uses a worst case concentration of 20µgm⁻³, based on the YAP19 NO₂ diffusion tube, for sensitive receptors introduced by the development and also for existing sensitive receptors near the proposed development.

These concentrations have been evaluated using the “Simple” assessment procedure in the “Planning for Air Quality” guidance using the modelled concentrations. The receptors considered are the office users introduced by the proposed development. The criteria in Table 4.1 has been used to describe the impact of introduction of receptors by the proposed development.

Table 4.1 Assessment Criteria Impact Descriptors for Individual Receptors

Annual Mean pollutant concentration in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL) – NO ₂ and PM ₁₀ annual mean			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% or less of AQAL	Negligible	Slight	Moderate	Moderate
95-102% or less of AQAL	Slight	Moderate	Moderate	Substantial
103-109 % or less of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Note: Where the predicted change is less than 0.5% the impact descriptor is negligible.

⁸ Institute of Air Quality Management. Land-Use Planning & Development Control: Planning For Air Quality. 2017.

⁹ Arun District Council. 2020 Air Quality Annual Status Report.

4.3 Impacts

With an AADT of under 500 and the absence of energy and heating plant the development is considered to result in a predicted change in NO₂ concentrations of less than 0.5% and so the impact of the proposed development is considered as “**Negligible**”.

The ASR 2020 shows the area of the proposed development is not in exceedance of the annual mean NO₂ objective of 40µgm⁻³ with the YAP19 NO₂ diffusion tube giving an annual mean NO₂ concentration of under 20µgm⁻³. The impact descriptor for the individual sensitive receptors introduced by the development proposal is “**Negligible**”.

With an AADT change of under 500 and no industrial processes with significant sources of particulate emissions for the E(g) use there is predicted change in PM₁₀ concentrations of less than 0.5% and so the impact of the proposed development is considered as “**Negligible**”.

The impact descriptor for the individual sensitive receptors introduced by the development proposal is “**Negligible**”. As the PM₁₀ concentrations are greater than 5% below the annual mean PM₁₀ objective and the daily mean PM₁₀ objective is unlikely to be exceeded.

4.4 Significance of Air Quality Impacts and Effects

The effect of the introduction of the human health sensitive receptors (office users) through the proposed development is considered as a **“Not Significant”** as concentrations are not predicted to exceed the annual mean NO₂ or PM₁₀ objective.

The effect of the impact of the development on existing receptors is considered as **“Negligible”** as the proposed development does not use combustion plant and there are no parking spaces associated with the development and so the building and transport emissions are below the scoping criteria for assessment.

4.5 E(g) Emissions

The E(g) units are part of the E class which is described as “Uses which can be carried out in a residential area without detriment to its amenity”. It is considered that the potential emissions from the E(g) would be such that amenity is not harmed. The proposed E(g) uses are not yet confirmed and will be subject to tenancy agreements. The existing uses are also subject to tenancy agreements.

4.6 Crematorium Emissions

There is a consent for the development of a single chapel crematorium at 10 Acre Field North of Grevatt’s Lane West. Emissions regulations for crematoria are presented in Process Guidance Note 5/2 (12)¹⁰ and cover emissions limits for crematoria. The emissions from crematoria include:

- oxides of nitrogen (NO_x)
- sulphur dioxide (SO₂)
- fine particulate matter (PM₁₀)
- carbon monoxide (CO)
- hydrogen chloride (HCl) and
- mercury (Hg)
- organic compounds
- dioxins and furans

An air quality assessment including a dispersion model of the stack emissions was produced to inform the planning application for 10 Acre Field¹¹. The assessment does not have the proposed development as a receptor but the assessment includes pollutant concentration contour plots that include the area of the proposed development. The contour plots show the process contribution and demonstrate that the with emissions from the stack of the crematorium at the emissions limit the maximum concentrations are within the relevant air quality standards and guidance.

There is a 183m separation zone between the proposed flue for the crematorium and the closest premises.

¹⁰ Defra. Process Guidance Note 5/2 (12) Statutory Guidance for Crematoria. 2012.

¹¹ Entran. Proposed Crematorium, Grevatts Lane, Yapton, West Sussex. Air Quality Assessment. 2019.

Figure 4.1 Crematorium annual mean NO₂ process contribution μgm^{-3} .

Figure 5.1: Predicted Annual Mean NO₂ Process Concentration (mg/m³)

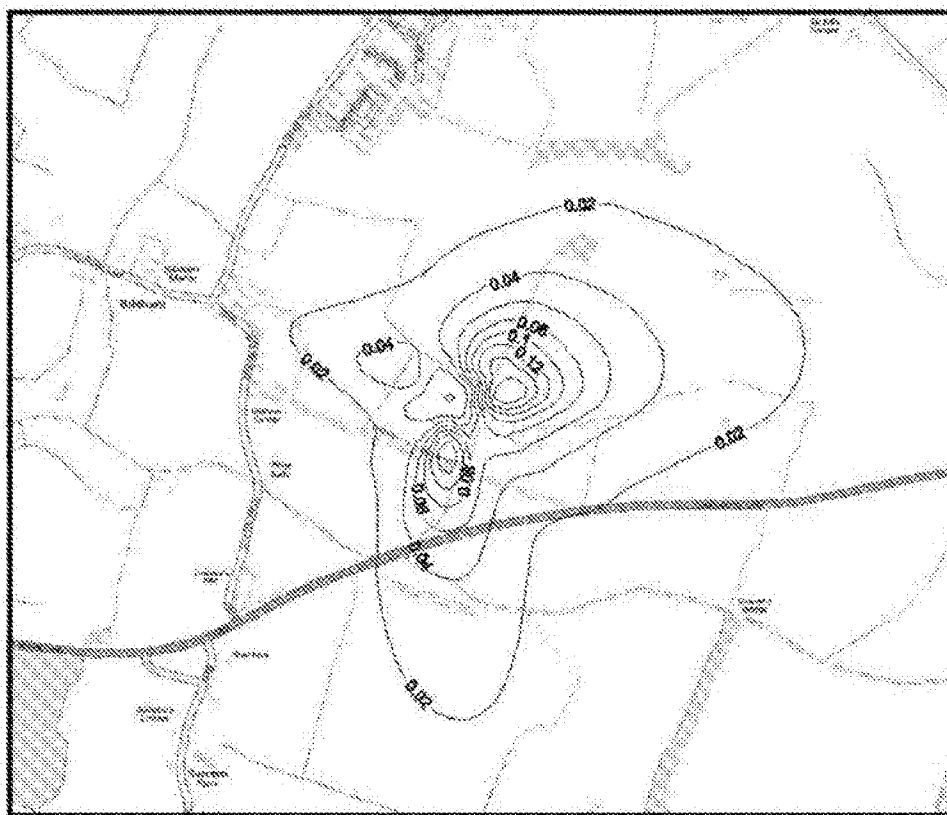
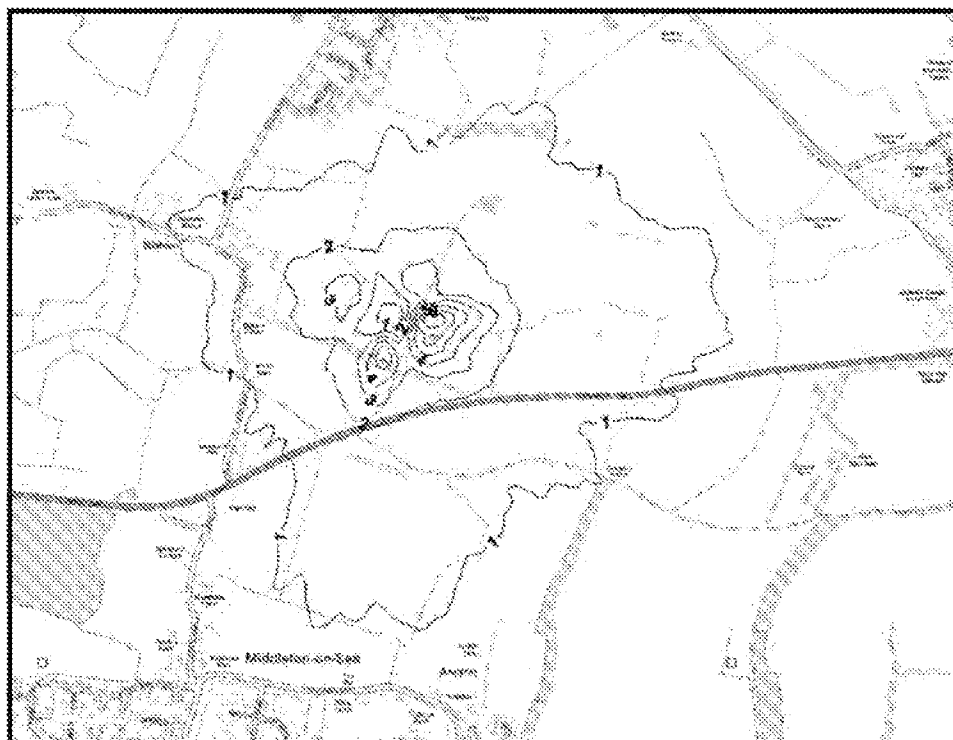


Figure 4.2 Crematorium annual mean PM₁₀ process contribution μgm^{-3} .

Figure 5.2: Predicted 99.8th Percentile of 1-Hour Mean NO₂ Process Concentrations (ng/m³)



5 DUST RISK ASSESSMENT

5.1 Introduction

The purpose of this assessment is to identify the category of risk from dust emission associated with the demolition, earthworks, construction and track out phases, and to put in place a suitable management and mitigation strategy to ensure negative impacts and adverse effects are controlled and reduced.

This assessment follows the procedure in the IAQM's "Guidance on the assessment of dust from demolition and construction"¹².

The construction works are assessed for four phases:

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

The first step of the assessment is to conduct screening to establish if there is need to proceed to detailed assessment. A dust risk assessment usually proceeds to detailed assessment if there is a human receptor within 50 m of the boundary of the site or 50 m of the routes used by construction vehicles on the public highway, up to 500 m from the site entrances (for large sites).

The main steps are as follows:

- identify magnitude of dust emission for each of the phases the worksite;
- Identify the sensitivity of the receptors;
- Identify the sensitivity of the area;
- determine potential risk category of each works phase; and
- outline how each risk will be mitigated.

There are human and soiling receptors within 50 m of the Site and so the assessment proceeded to a detailed assessment and is described in the following sections.

5.2 Dust Emission Magnitude

Demolition

The demolition phase involves:

- demolition activities being below 10 m in height;
- a building volume of less than 20,000 m³; and

The demolition phase dust emission magnitude is considered as **Small**.

Earthworks

The site is underlain by made river terrace deposits (sands, silts and clay), and under that chalk formations, that have the potential to be moderately dusty, when dry.

The earthworks phase involves:

- a site area 2,500- 10,000 m²;
- <5 heavy earth moving vehicles at any one time; and
- potentially dusty soil material.

The earthworks phase dust emission magnitude is considered as **Medium**.

¹² Institute of Air Quality Management. Guidance on the assessment of dust from demolition and construction. 2014

Construction

The construction phase involves:

- potentially dusty construction material (concrete)

The construction phase dust emission magnitude is considered as **Medium**.

Trackout

The trackout phase involves:

- Maximum of 10 HDV outward movements (during the earthworks phase);
- Unpaved road length <50 m;
- Potentially dusty surface material

The Trackout phase dust emission magnitude is considered as **Medium**.

Table 5.2 Dust Emission Magnitude

Phase	Dust Emission Magnitude
Demolition	Small
Earthworks	Medium
Construction	Medium
Trackout	Medium

5.3 Sensitivity of the Area

The next step of the assessment is to define the sensitivity of the area. The sensitivity of the area takes into account a number of factors, including:

- Specific sensitivities of receptors in the area;
- The proximity and number of receptors;
- Background PM₁₀ concentrations; and
- Site specific factors such as topography.

The sensitivity is defined for:

- Dust soiling effects;
- Human health effects of PM₁₀; and
- Ecological effects.

High sensitivity receptors for dust soiling in the vicinity of the site include dwellings. Medium sensitivity receptors for dust soiling include places of work such as offices. High sensitivity receptors for health effects of PM₁₀ include human health receptors within dwellings.

Ecological effects are not considered further in this assessment as there are no designated dust sensitive ecological receptors within 50m of the site boundary or construction route or within 500m of the site entrance.

For dust soiling effects there are 10-100 high sensitivity receptors within 20 m of the site boundary and so the sensitivity of the area is defined as “High” for dust soiling effects. For demolition works these are more than 20m from the receptors and so the sensitivity of the area for demolition is defined as “Medium”.

For human health effects the baseline annual mean PM₁₀ concentration needs to be considered. The baseline conditions are described in section 4.3. For the purpose of the dust risk assessment background PM₁₀ concentrations have been assumed as being below 24 µgm⁻³ based on the modelled annual mean PM₁₀ concentrations from Defra. With the background annual mean PM₁₀ concentration of below 24 µgm⁻³ and 10-100 High sensitivity receptors within 20 m the site the sensitivity of the area is considered as “Low” for human health effects.

The sensitivity of the area is summarised below in Table 5.2.

Table 5.2 Sensitivity of the area

Receptor Sensitivity	Sensitivity of the surrounding area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	High	High	High
Human Health	Low	Low	Low	Low
Ecological	n/a	n/a	n/a	n/a

5.4 Risk of Impacts

When the dust emission magnitude is combined with the sensitivity of the area the risk of impacts with no mitigation applied can be determined. The summary of the risks assessment is presented below in Table 5.3. In summary, the site is considered as a **Medium Risk** during earthworks, construction and trackout site for dust soiling. The site is **Low Risk** for human health effects and during demolition. The dust risk is used to define the amount of site-specific mitigation that is required. The mitigation measures are described in Section 5.5.

Table 5.3 Dust Risk Summary

Summary	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low risk	Medium risk	Medium risk	Low risk
Human Health	Negligible	Low risk	Low risk	Low risk
Ecological	Negligible	Negligible	Negligible	Negligible

5.5 Demolition Construction Dust and Air Quality Mitigation

Due to the sensitivity of the area and dust risk assessment findings the following dust and air quality mitigation measures are proposed:

Table 5.4 Mitigation Measures

Reference	Measure	Specific details
Site management		
SM1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;	This section
SM2	Develop a dust management plan.	
SM3	Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary	
SM4	Display the head or regional office contact information	
SM5	Record and respond to all dust and air quality pollutant emissions complaints;	
SM6	Undertake daily on-site and off-site inspections, where receptors are nearby (including roads), to monitor dust, record inspection results, and make an inspection log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m and cleaning to be provided if dust soiling is attributable to site activity;	
SM7	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority if asked.	
SM8	Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high	

potential to produce dust and emissions and dust are being carried out, and during prolonged dry or windy conditions.

- SM8 Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and the action taken to resolve the situation is recorded in the log book.
- SM9 Agree dust deposition, dust flux or real-time continuous PM₁₀ monitoring locations with the local authority.

Preparing and maintaining the site

- PM1 Plan site layout: machinery and dust causing activities should be located away from receptors, as far as possible
- PM2 Erect solid screens or barriers around dust activities or the site boundary that are, at least, as high as any stockpiles on site
- PM3 Avoid site runoff of water or mud
- PM4 Keep site fencing, barriers and scaffolding clean using wet methods
- PM5 Remove materials from site as soon as possible.

Operating vehicle/machinery and sustainable travel

- OV1 Ensure all vehicles switch off engines when stationary - no idling vehicles.
- OV2 Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where possible
- OV3 Impose and signpost a maximum-speed-limit of 15mph on surfaced haul routes and work areas and 10mph on unsurfaced areas.
- OV4 Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing
- OV5 Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials

Operations

- OP1 Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
- OP2 Ensure an adequate water supply on the site for effective dust/particulate matter mitigation (using recycled water where possible)
- OP3 Use enclosed chutes, conveyors and covered skips
- OP4 Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate
- OP5 Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- WM1 Reuse and recycle waste to reduce dust from waste materials
- WM2 Avoid bonfires and burning of waste materials.

Demolition

- DM1 Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- DM2 Ensure water suppression is used during demolition operations.
- DM3 Avoid explosive blasting, using appropriate manual or mechanical alternatives.

DM4 Bagging and removal of any biological debris or damp down of material prior to demolition;

Earthworks

- EW1 Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- EW2 Use Hessian, mulchers and trackifiers where it is not possible to revegetate or cover with topsoil, as soon as practicable.
- EW3 Only remove the covers in small areas during work and not all at once.

Construction

- CS1 Avoid scabbling (roughening of concrete surfaces) if possible.
- CS2 Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- CS3 Ensure bulk cement and other fine powders are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- CS4 For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

Trackout

- | | | |
|-----|---|--|
| TR1 | Avoid dry sweeping of large areas. | Use wet sweeping |
| TR2 | Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport. | |
| TR3 | Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). | Use of jetwash to clean wheels when required |
| TR4 | Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site. | |
| TR5 | Inspect haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; | |
| TR6 | Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. | |
| TR7 | Access gates to be located at least 10m from receptors where possible. | |

6 EMISSIONS MITIGATION ASSESSMENT

6.1 Introduction

The purpose of the air quality neutral assessment is to demonstrate that the proposed development is compliant with the Sussex Authorities air quality and emissions mitigation guidance. The proposed development is not in, or near, an AQMA or proposed AQMA. The development is a Major Development as defined by the Town and Country Planning (Development Management Procedure) Order (England) 2015 and so the assessment proceeds to an emissions mitigation assessment.

6.2 Transport Emissions Assessment

The transport statement gives a 12 hour flow of 378. The number of parking spaces is yet to be specified as the application is outline. An assumed worst case flow of 441 AADT with 5% HDV, an assumed distance of 10km and an assumed speed of 50km/h has been run through the Emissions Factor Toolkit. The calculated emissions are shown in Table 6.1.

Table 6.1 Kg/year emissions NO_x and PM₁₀

Kg/Year	2023	2024	2025	2026	2027
NO _x	373	335	300	270	242
PM ₁₀	25	25	25	25	25

The calculated emissions have been run through the Defra Damage Cost Appraisal toolkit:

NO_x: £19,797

PM_{2.5}: £30,843

Total: £50,640

6.3 Buildings Emissions Assessment

The proposed development is powered and heated by electricity from the national grid and as such there are not building emissions to consider.

6.4 Emissions Mitigation

The following emissions mitigation is indicated to be required by the Sussex Authorities guidance:

- E1. all gas-fired boilers (not planned to be used) to meet a minimum standard of <40mgNO_x/kWh. Consideration should be given to renewable sources of energy, e.g. air source heat pumps.
- E2. Electric vehicle parking spaces - 20% of spaces based on West Sussex County Council: Guidance on Parking at New Developments for 2021.
- E3. mitigation in accordance with the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction.
- E4. Invest in EV charging infrastructure within the development over and above the current recommended standards
- E5. Provide secure cycle storage
- E6. Invest in additional evergreen infrastructure to reduce particulates and other pollutants. The proposed development includes, green spaces and allotments.
- E7. Development set back from roads.
- E8. Ensure all new commercial vehicles comply with the latest European Emission Standards.
- E9. Designate parking spaces for low emission vehicles.
- E10. Set up a car club within the development or contribute to the cost of a local car club.
- E11. Designate parking spaces for car club/car sharing vehicles.

7 CONCLUSIONS

Anderson Acoustics Ltd was commissioned by Nova Planning to undertake an air quality assessment, dust risk assessment and air quality neutral assessment for the proposed development at Land at Little Meadow, Yapton. The impact of the development on existing receptors is considered “**Negligible**” and the effect is “**Not Significant**”.

The modelled annual mean NO₂ and PM₁₀ concentrations for 2020 at the site indicate that concentrations at the site of the development are below the annual mean objectives. The hourly mean NO₂ objective is unlikely to be exceeded.

The effect of the introduction the human health receptors is considered as “**Not Significant**” as the areas are not in exceedance of the annual or daily mean NO₂ or PM₁₀ objectives.

The dust risk assessment shows the site to be “**Medium Risk**” for dust soiling effects and “**Low Risk**” for human health effects, prior to the consideration of mitigation. With mitigation in place the dust effect is considered to be “**Not Significant**”.

The emissions mitigation assessment shows the development can be considered as “**Air Quality Neutral**” for both transport and building emissions.

The proposed development is considered a suitable use and compliant with relevant air quality policy.