



Air Quality Assessment

Bournemouth Road, Chandler's Ford, SO53 3ZL

Prepared for:
Portakabin Limited
Huntington
York
YO32 9PT

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	Date	July 2025	September 2025		
	Prepared By	Alec Barnett Redmore Environmental	Alec Barnett Redmore Environmental		
	Contractor Ref No.	9464	9464		
	Issued on Behalf of Omnia	Huw Thomas	Dan Pope		
	Signature				
	Position	Director	Director		
	Project Number	C11240	C11240		

North Office
No.3 Fulwood,
3 Caxton Road,
Preston,
PR2 9ZZ

01772 963 024

Midlands Office
Office 203,
St Nicholas House,
31 Park Row,
Nottingham,
NG1 6FG

0115 7043 492

South Office
Suite 1, Pure Offices,
One Port Way,
Port Solent,
Portsmouth
PO6 4TY

01489 808088

Executive Summary

Site Address

Bournemouth Road, Chandler's Ford (SO53 3ZL)

An Air Quality Assessment was undertaken in support of a planning application for the demolition of an existing building and the subsequent construction of a three-storey modular office development at 32-36 Bournemouth Road, Chandler's Ford.

The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road vehicle exhaust emissions during operation. As such, an Air Quality Assessment was undertaken to determine baseline conditions and assess potential impacts as a result of the scheme.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of demolition, earthworks, construction and trackout activities. It is considered that the use of good practice control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

During the operational phase of the development there is the potential for air quality impacts as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed against the relevant screening criteria. Due to the low number of trips generated by the proposals, road traffic exhaust impacts were not predicted to be significant.

Based on the assessment results, air quality issues are not considered a constraint to planning consent for the development.

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1.0 INTRODUCTION

1.1 Background

This report has been prepared in support of a planning application for the demolition of the existing Selwood building and the subsequent construction of a three-storey modular office development at 32-36 Bournemouth Road, Chandler's Ford.

The Air Quality Assessment was undertaken by Omnia's partner Redmore Environmental Ltd.

The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road vehicle exhaust emissions during operation. As such, an Air Quality Assessment was undertaken to determine baseline conditions and assess potential impacts as a result of the scheme.

1.2 Proposed Development

The site is located at 32-36 Bournemouth Road, Chandler's Ford at approximate National Grid Reference (NGR): 443270, 120364. The relevant Local Authority (LA) is Eastleigh Borough Council (EBC). Reference should be made to Figure 1 for a map of the site and surrounding area.

The proposals comprise the demolition of the existing Selwood building and subsequent construction of a three-storey modular office development alongside associated infrastructure, which will provide an uplift of 66 desks compared to the existing use.

1.3 Objectives

The proposals have the potential to cause air quality impacts at sensitive locations during the construction and operational phases. As such, an Air Quality Assessment was undertaken to determine baseline conditions and assess potential impacts associated with the scheme. This is detailed in the following report.

1.4 Acronyms

All acronyms used within this report are defined in the Abbreviations listings, set out in Section 7.

1.5 Confidentiality

This report has been prepared solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Omnia; a charge may be levied against such approval.

2.0 LEGISLATION AND POLICY

2.1 Legislation

The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- Particulate matter with an aerodynamic diameter of less than 2.5µm (PM_{2.5});
- Benzene; and,
- Carbon monoxide.

Air Quality Target Values were also provided for several other pollutants. It should be noted that the AQLV for PM_{2.5} stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published on 28th April 2023¹. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

The Environmental Improvement Plan 2023² was published in January 2023, providing long term and Interim Targets in order to reduce population exposure to PM_{2.5}. The concentration target for 2040 was subsequently adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

Table 1 presents the AQOs, Interim Target and Concentration Target for pollutants considered within this assessment.

Table 1 Air Quality Objectives/ Interim Target/Concentration Target

Pollutant	Air Quality Objective/ Interim Target/ Concentration Target	
	Concentration	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM ₁₀	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
PM _{2.5}	12 ^(a)	Annual mean
	10 ^(b)	Annual Mean

¹ AQS: Framework for Local Authority Delivery, DEFRA, 2023.

² Environmental Improvement Plan 2023, DEFRA, 2023.

Note: (a) Interim Target to be achieved by end of January 2028.
(b) Concentration Target to be achieved by 2040.

Table 2 summarises the advice provided in DEFRA guidance³ on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.2 Local Air Quality Management

LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air

³ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.3 Dust

The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.4 National Planning Policy

The revised National Planning Policy Framework⁴ (NPPF) was published in December 2024 and amended in February 2025. The document sets out the Government's planning policies for England and how these are expected to be applied.

The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to air quality:

"c) an environmental objective - to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

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

[...]

⁴ NPPF, Ministry of Housing, Communities and Local Government, 2024.

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 [...]"

The NPPF specifically recognises air quality as part of delivering sustainable development and states that:

"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."

The implications of the NPPF have been considered throughout this assessment.

2.5 National Planning Practice Guidance

The National Planning Practice Guidance⁵ (NPPG) web-based resource was launched by the Department for Communities and Local Government to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality considerations be relevant to the development management process?
6. What specific issues may need to be considered when assessing air quality impacts?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

2.6 Local Planning Policy

The Eastleigh Borough Local Plan⁶ was adopted by EBC in April 2022. Review of the document identified the following policy of relevance to this assessment:

⁵ <https://www.gov.uk/guidance/air-quality--3>.

⁶ Portsmouth's Core Strategy, PCC, 2012.

"Policy DM8, Pollution

1. Development will not be permitted if it is likely to cause loss of amenity or impact on public health or other unacceptable environmental impacts through:

a. air pollution (including odours or particulate emissions)

[...]

2. Development susceptible to particular forms of pollution will not be permitted:

a. where it will be adversely affected by such pollution, unless measures can be taken that adequately mitigate the polluting effects; or

b. where it would inhibit existing economic or other activities giving rise to acceptable polluting effects".

The above policy was considered as necessary throughout the assessment.

3.0 METHODOLOGY

3.1 Introduction

The proposed development has the potential to cause air quality impacts during the construction and operational phases. These have been assessed in accordance with the following methodology.

3.2 Construction Phase Assessment

There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V2.2'⁷.

Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and,
- The risk of health effects due to a significant increase in exposure to PM₁₀.

The assessment steps are detailed below.

3.2.1 Step 1

Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 250m from the boundary or 50m from the construction vehicle route up to 250m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route up to 250m from the site entrance, then the assessment also proceeds to Step 2.

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

3.2.2 Step 2

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

⁷ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

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

The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.

Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	• Total building volume greater than 75,000m³ • Potentially dusty construction material (e.g. concrete) • On-site crushing and screening • Demolition activities more than 12m above ground level
	Earthworks	• Total site area greater than 110,000m² • Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • More than 10 heavy earth moving vehicles active at any one time • Formation of bunds greater than 6m in height
	Construction	• Total building volume greater than 75,000m³ • On site concrete batching • Sandblasting
	Trackout	• More than 50 Heavy Duty Vehicle (HDV) trips per day • Potentially dusty surface material (e.g. high clay content) • Unpaved road length greater than 100m
Medium	Demolition	• Total building volume between 12,000m³ and 75,000m³ • Potentially dusty construction material • Demolition activities between 6m and 12m above ground level
	Earthworks	• Total site area 18,000m² to 110,000m² • Moderately dusty soil type (e.g. silt) • 5 to 10 heavy earth moving vehicles active at any one time • Formation of bunds 3m to 6m in height
	Construction	• Total building volume 12,000m³ to 75,000m³ • Potentially dusty construction material (e.g. concrete) • On site concrete batching
	Trackout	• 20 to 50 HDV trips per day • Moderately dusty surface material (e.g. high clay)

Magnitude	Activity	Criteria
		Unpaved road length 50m to 100m
Small	Demolition	- Total building volume less than 12,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber) - Demolition activities less than 6m above ground level - Demolition during wetter months
	Earthworks	- Total site area less than 18,000m² - Soil type with large grain size (e.g. sand) - Less than 5 heavy earth moving vehicles active at any one time - Formation of bunds less than 3m in height
	Construction	- Total building volume less than 12,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	- Less than 20 HDV trips per day - Surface material with low potential for dust release - Unpaved road length less than 50m

Step 2B defines the sensitivity of the area around the development to potential dust impacts. The sensitivities of specific receptors are summarised in Table 4.

Table 4 Construction Dust - Sensitivities of Human and Ecological Receptors

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	- Users expect high levels of amenity - High aesthetic or value property - People expected to be present continuously for extended periods of time - Locations where members of the public are exposed over a time period relevant to the AQO for PM₁₀. e.g. residential properties, hospitals, schools and residential care homes	Internationally or nationally designated site e.g. Special Area of Conservation
Medium	- Users would expect to enjoy a reasonable level of amenity - Aesthetics or value of their property could be diminished by soiling - People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	Nationally designated site e.g. Sites of Special Scientific Interest

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
Low	• Enjoyment of amenity would not reasonably be expected • Property would not be expected to be diminished in appearance • Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, farmland, short term car parks and roads	• Locally designated site e.g. Local Nature Reserve

The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 5.

Table 5 Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 250
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

Table 6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 6 Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m ³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	Less than 24µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	1 or more	Low	Low	Low	Low

Table 7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 7 Construction Dust - Sensitivity of the Area to Ecological Impacts

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

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

Table 8 outlines the risk category from demolition activities.

Table 8 Construction Dust - Dust Risk Category from Demolition Activities

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

Table 9 outlines the risk category from earthworks, construction and trackout activities.

Table 9 Construction Dust - Dust Risk Category from Earthworks, Construction and Trackout Activities

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

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

3.2.3 Step 3

Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance⁸ to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

3.2.4 Step 4

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

3.3 Operational Phase Assessment

3.3.1 Potential Development Impacts

The proposal has the potential to increase concentrations of NO₂, PM₁₀ and PM_{2.5} as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. A screening assessment was therefore undertaken using the criteria contained within the IAQM 'Land-Use Planning & Development Control: Planning for Air Quality'⁹ guidance to determine the potential for trips generated by the scheme to affect local air quality.

The following criteria are provided to help establish when an assessment of potential impacts on the local area is likely to be considered necessary:

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha; or,
- more than 1,000m² of floor space for all other uses or a site area greater than 1ha.

B. Coupled with any of the following:

- the development has more than 10 parking spaces; or,
- the development will have a centralised energy facility or other centralised combustion process.

Should these criteria not be met, the IAQM guidance¹⁰ considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required.

⁸ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

⁹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁰ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

Where the above criteria are met, then the assessor should proceed to assess the development proposals against the following Stage 2 screening criteria:

- The development leads to a change of Light Duty Vehicle (LDV) flows of:
 - More than 100 Annual Average Daily Traffic (AADT) within an AQMA;
 - More than 500 AADT outside of an AQMA;
- The development leads to a change of HDV flows of:
 - More than 25 AADT within an AQMA;
 - More than 100 AADT outside of an AQMA;
- Introduce a new junction that would cause traffic flow to change behaviour with respect to acceleration/deceleration or introduce queueing traffic where there previously wasn't any (such as a roundabout or traffic lights); and,
- Introduce one or more significant combustion processes where there is a risk of impact to relevant receptors.

Should these criteria not be met, then the IAQM guidance¹¹ considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required. Where the screening criteria is met, further assessment including atmospheric dispersion modelling of impacts may be required.

¹¹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

4.0 BASELINE

4.1 Introduction

Existing air quality conditions in the vicinity of the proposed development site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

4.2 Local Air Quality Management

As required by the Environment Act (1995), as amended by the Environment Act (2021), EBC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ are above the relevant AQO within the borough. Four AQMAs have therefore been declared. The closest of these to the site is described as follows:

" Eastleigh AQMA No.1 (A335) - Follows the A335 Southampton Rd, Romsey Rd & Leigh Rd. Amended to extend a short way along Woodside Ave, Twyford Rd & Bishopstoke Rd. It includes a number of properties on each road."

The development is located approximately 635m north of the AQMA. As such, there is the potential for vehicles travelling to and from the site to increase pollution levels in this sensitive area. This has been considered throughout the undertaking of the assessment.

EBC has concluded that concentrations of all other pollutant considered in the AQS are below the relevant AQOs. As such, no further AQMAs have been declared.

4.3 Air Quality Monitoring

Monitoring of pollutant concentrations is undertaken by EBC throughout their area of jurisdiction. Recent annual mean NO₂ results recorded in the vicinity of the site, as provided in the EBC '2024 Air Quality Annual Status Report'¹² are shown in Table 10.

Table 10 Monitoring Results - Annual Mean NO₂

Monitoring Site		Annual Mean NO ₂ Concentration (µg/m ³)			
		2020	2021	2022	2023
ES2	Steele Close	19.1	19.8	19.2	16.1 ^(a)
BEL	Belmont Road	20.8	20.1	18.8	16.5
LR13	Leigh Road Junction 13	30.7	32.5	32.9	29.6
SC(A), SC(B), SC(C)	Steele Close (C)	18.0	18.7	18.6	15.9
MC	Medina Close	19.4	20.1	18.8	16.0

Note: (a) Annualised based on data from 17/10/2023 to 3/01/2024.

As shown in Table 10, annual mean NO₂ concentrations were below the AQO of 40µg/m³ at all monitoring positions in recent years.

¹² 2024 Air Quality Annual Status Report, EBC, 2024.

Recent short-term NO₂ results recorded in the vicinity of the development are shown in Table 11.

Table 11 Monitoring Results -1-Hour Mean NO₂

Monitoring Site		Monitored Number of Hours With 1-Hour Mean NO ₂ Concentrations above 200µg/m ³			
		2020	2021	2022	2023
ES2	Steele Close	0	0	0	0

As shown in Table 11Table 10, there were no recorded hours with NO₂ concentrations above 200µg/m³ in recent years. Reference should be made to Figure 2 for a map of the survey positions.

Pollutant concentrations during 2020 and 2021 were affected by changes to travel patterns associated with the COVID-19 pandemic. The results should therefore be viewed with caution. However, data for 2022 is now considered representative of post-pandemic conditions. This is supported by the IAQM¹³, who have adopted the following position:

"ambient air quality monitoring data for the year 2022 and beyond is generally considered to represent the current post-pandemic baseline."

Monitoring of PM₁₀ and PM_{2.5} is not undertaken within the vicinity of the site.

4.4 Background Pollutant Concentration Predictions

Predictions of NO₂, PM₁₀ and PM_{2.5} concentrations on a 1km by 1km grid basis have been produced by DEFRA. These maps cover the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located in grid square NGR: 443500, 120500. Data for this location was downloaded from the DEFRA website¹⁴ for the purpose of the assessment and is summarised in Table 12.

Table 12 Background Pollutant Concentration Predictions

Pollutant	Predicted 2025 Background Pollutant Concentration (µg/m ³)
NO ₂	10.32
PM ₁₀	12.13
PM _{2.5}	7.49

As shown in Table 12, predicted background NO₂, PM₁₀ and PM_{2.5} concentrations are below the relevant AQOs, Interim Target and Concentration Target at the development site.

4.5 Sensitive Receptors

A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. Receptors sensitive to potential dust impacts during demolition, earthworks and construction were identified from a desk-top study of the area up to 250m from the development boundary. These are summarised in Table 13.

¹³ IAQM, "Use of 2020 and 2021 Monitoring Datasets - IAQM Position Statement V1.1.," 2023.

¹⁴ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>.

Table 13 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	10 to 100	0
Up to 50	10 to 100	0
Up to 100	More than 100	-
Up to 250	More than 100	-

Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 250m of the site access. These are summarised in Table 14.

Table 14 Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0

There are no ecological receptors within 50m of the development boundary or access route within 250m of the site entrance. As such, ecological impacts have not been assessed further within this report.

Based on the criteria shown in Table 4, the sensitivity of the receiving environment to potential dust impacts was determined as **high**. This was because the identified receptors included residential properties.

The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria shown in Section 3.2, is shown in Table 15.

Table 15 Sensitivity of the Surrounding Area to Potential Dust Impacts

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Low	Low	Low	Medium

4.6 Local Emission Sources

Review of the surrounding area has highlighted the Heidelberg Materials Ready-Mixed Concrete site within 50m to the north of the Site located off School Lane, SO53 3DG.

The following environmental permit is associated with the Heidelberg Site:

- SO/P03674/001¹⁵.

¹⁵ https://environment.data.gov.uk/public-register/water-discharges/registration/SO-P03674-001?__pageState=result-water-discharge-consents#documents

The Heidelberg site must adhere to their associated permit and therefore, any emissions associated with the site should be controlled and consequently, not impact the Proposed Development. Emissions this source have therefore been scoped out of further assessment.

5.0 ASSESSMENT

5.1 Introduction

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

5.2 Construction Phase Assessment

5.2.1 Step 1

The undertaking of activities such as demolition, excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul roads and highway surfaces.

The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.

The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 250m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

5.2.2 Step 2

5.2.2.1 Demolition

Demolition will be undertaken at the start of the construction phase and will involve clearance of the existing building on site. It is estimated that the total building volume to be demolished is less than 12,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from demolition is therefore **small**.

Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 8, the development is considered to be a **medium** risk site for dust soiling as a result of demolition.

Table 15 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 8, the development is considered to be a **negligible** risk site for human health impacts as a result of demolition.

5.2.2.2 Earthworks

Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The area of the development site is less than 18,000m². In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks activities is therefore **small**.

Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of earthworks.

Table 15 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 9, the development is considered to be a **negligible** risk site for human health impacts as a result of earthworks.

5.2.2.3 Construction

The total building volume to be constructed is estimated to be less than 12,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **small**.

Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of construction activities.

Table 15 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 9, the development is considered to be a **negligible** risk site for human health impacts as a result of construction activities.

5.2.2.4 Trackout

Based on the site area and existing hard standing, it is anticipated that the unpaved road length will be less than 50m. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **small**.

Table 15 indicates the sensitivity of the area to dust soiling effects to people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of trackout activities.

Table 15 indicates the sensitivity of the area to human health impacts is **medium**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for human health impacts as a result of trackout activities.

Summary of the Risk of Dust Effects

A summary of the risk from each dust generating activity is provided in Table 16.

Table 16 Summary of Potential Unmitigated Dust Risks

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Low	Low	Low
Human Health	Negligible	Negligible	Negligible	Low

As indicated in Table 16, the potential risk of dust soiling is **medium** from demolition and **low** from all remaining activities. The potential risk of human health impacts is **low** from trackout and **negligible** from all remaining activities.

It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on a worst-case scenario of works being undertaken at the site boundary closest to each sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

5.2.3 Step 3

The IAQM guidance¹⁶ provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 17. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan or similar if required by the LA.

Table 17 Fugitive Dust Emission Mitigation Measures

Issue	Comment
Communications	- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site - Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager - Display the head or regional office contact information - Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the LA.
Site management	- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken - Make the complaints log available to the LA upon request - Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book
Monitoring	- Undertake daily on-site and off-site inspections to monitor dust, record inspections, and make the log available to - the local authority when asked - Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log available to the LA upon request - Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions

¹⁶ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Issue	Comment
Site preparation	- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible - Erect solid screens or barriers around dusty activities or the site - Fully enclose the site or specific operations when there is a high potential for dust production and the site is active for an extensive period - Avoid site runoff of water or mud - Keep site fencing, barriers and scaffolding clean using wet methods - Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below - Cover, seed or fence stockpiles to prevent wind whipping
Operating vehicle/machinery and sustainable travel	- Ensure all vehicles switch off engines when stationary - no idling vehicles - Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable
Operations	- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques - Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate - Use enclosed chutes and conveyors and covered skips - Minimise drop heights and use fine water sprays wherever appropriate - 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	Avoid bonfires or burning of waste materials
Demolition	- Ensure effective water suppression is used during demolition operations - Avoid explosive blasting, using appropriate manual or mechanical alternatives - Bag and remove any biological debris or damp down such material before demolition
Trackout	- Avoid dry sweeping of large areas - Ensure vehicles entering and leaving site are covered to prevent escape of materials - Implement a wheel washing system, if required

5.2.4 Step 4

Assuming the relevant mitigation measures outlined in Table 17 are implemented, the residual impacts from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance¹⁷.

5.3 Operational Phase Assessment

5.3.1 Introduction

The proposed development has the potential to cause air quality impacts as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during operation. These are assessed in the following Sections.

5.3.2 Potential Development Impacts

5.3.2.1 Stage 1 Screening Criteria

Any vehicle movements associated with the development will generate exhaust emissions on the local and regional road networks. The proposals have therefore been assessed against the IAQM¹⁸ screening criteria detailed in Section 3.3. The development includes more than 1,000m² of floor space and includes more than 10 parking spaces. As such, the Stage 2 Screening Criteria have been considered below.

5.3.2.2 Stage 2 Screening Criteria

Information provided by the Transport Consultants for the scheme indicated that the proposed development will lead to an increase of 66 additional desks, generating 132 additional vehicle movements per day. It is anticipated that the vehicles will distribute evenly north and south of the site entrance onto Bournemouth Road.

Based on the above, the scheme is not predicted to result in a change in LDV flows of more than 500 AADT or 100 AADT within the AQMA on any individual road link. Additionally, the proposals do not include significant highway realignment or the introduction of an off-site junction, and there will not be the requirement for more than 100 HDV trips per day or 25 HDV trips per day within the AQMA. As such potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be **not significant** in accordance with the IAQM¹⁹ screening criteria detailed in Section 3.3.

5.3.3 Interim Planning Guidance for PM_{2.5}

Interim Planning Guidance²⁰ on the consideration of the PM_{2.5} targets identified in the Environment Act (2021) in planning decisions has been produced by DEFRA. This requires

¹⁷ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

¹⁸ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

²⁰ <https://uk-air.defra.gov.uk/pm25targets/planning>.

evidence that the key sources of air pollution within a development have been identified and appropriate action to minimise emissions of PM_{2.5} and its precursors as far as is reasonably practicable be provided in support of planning applications. To assist the process, two questions and associated considerations are provided. These are summarised in Table 18, along with the scheme response.

Table 18 Interim Planning Guidance Questions

Question	Response
How has exposure to PM_{2.5} been considered when selecting the development site? Factors to consider include: • Site proximity to people (particularly large populations and/or vulnerable groups, e.g. schools, hospitals, care homes, areas of deprivation) and the impact of the development on these • Site proximity to pollution sources and the impact of these on users of the development • Exposure and emissions during both construction and in-use	The site is located in a mixed-use setting and is bordered by residential properties to the south and east and commercial properties to the north and west. There are no schools, hospitals or care homes within 400m of the site. As such, the development is set back from large populations and vulnerable groups. The development is not predicted to lead to a significant increase in vehicle movements on the local road network. Associated impacts on air quality are therefore predicted to be not significant, as set out in Section 5.3 The scheme comprises industrial land use, which is not considered sensitive to long term pollutant exposure As outlined in Table 17, a number of mitigation measures will be used throughout the construction phase in order to reduce fugitive dust emissions as far as practicable. This will control potential exposure at off-site locations
What actions and/or mitigations have been considered to reduce PM_{2.5} exposure for development users and nearby receptors and to reduce emissions of PM_{2.5} and its precursors? Factors to consider include: • Site layout • The development's design • Technology used in the construction or installed for use in the development • Construction and future use of the development	In order to reduce emissions of PM_{2.5} from the development with associated impacts at nearby receptors, the following measures have been included in the proposals: • Provision of Electric Vehicle (EV) charging points • Provision of cycle parking spaces Further to the above, in order to reduce emissions during the construction phase, a number of mitigation measures will be used to minimise dust generation from associated activities

Based on the responses provided in Table 18 and the results of the assessment, as outlined in Section 5.2 and Section 5.3, it is considered that the scheme has identified key sources of air pollution and taken appropriate action to minimise emissions of PM_{2.5}.

6.0 SUMMARY

An Air Quality Assessment was undertaken in support of a planning application for the demolition of the existing Selwood building and the subsequent construction of a three-storey modular office development at 32-36 Bournemouth Road, Chandler's Ford.

The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road vehicle exhaust emissions during operation. As such, an Air Quality Assessment was undertaken to determine baseline conditions and assess potential impacts as a result of the scheme.

During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the IAQM²¹ methodology. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by demolition, earthworks, construction and trackout activities was predicted to be **not significant**.

Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed using the IAQM²² methodology. Due to the low number of vehicle movements associated with the proposals, road traffic exhaust impacts were predicted to be not significant.

Based on the assessment results, air quality issues are not considered a constraint to planning consent for the development.

²¹ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

²² Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

7.0 ABBREVIATIONS

AADT	Annual Average Daily Traffic
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
DEFRA	Department for Environment, Food and Rural Affairs
EBC	Eastleigh Borough Council
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
NGR	National Grid Reference
NO ₂	Nitrogen dioxide
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10µm
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5µm

APPENDIX I

Drawings



Legend



Site Boundary

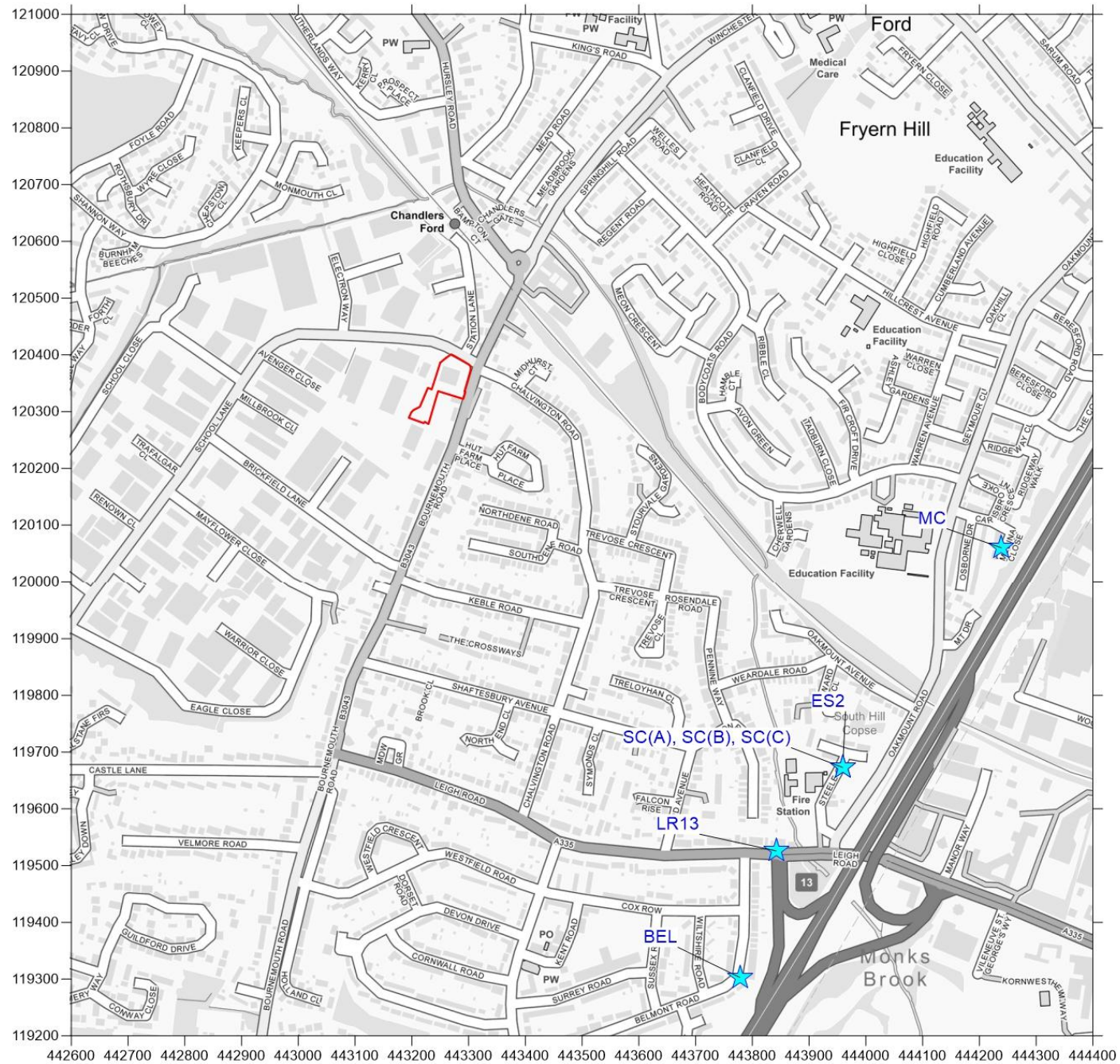
Title

Figure 1 - Site Location Plan

Project

Bournemouth Road, Chandler's Ford

Contains Ordnance Survey Data
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Legend



Site Boundary



Monitor

Title

Figure 2 - Monitoring Positions

Project

Bournemouth Road, Chandler's Ford

Contains Ordnance Survey Data
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