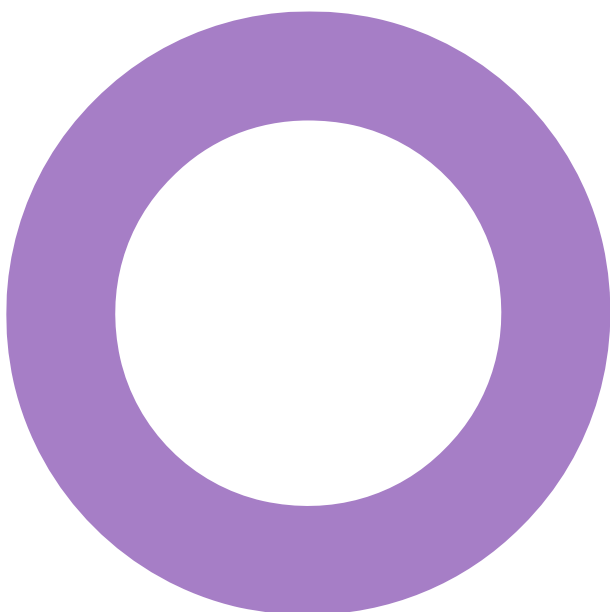


**Colin Campbell Court.
Plymouth.**
**University Hospitals
Plymouth NHS Trust.**

AIR QUALITY
AIR QUALITY ASSESSMENT

REVISION 01 – 14 DECEMBER 2023



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	28/11/2023	First Draft	SB	RH	CE
01	14/12/2023	First Issue	SB	RH	RH

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Executive Summary.

Hoare Lea have been commissioned by University Hospitals Plymouth NHS Trust to undertake an Air Quality Assessment to support the planning application (Ref. No: 23/00951/MOR) for the proposed Community Diagnostic Centre (CDC) at Colin Campbell Court, fronting Western Approach, Plymouth, approximate postcode PL1 1TQ (the 'Application Site').

An Air Quality Assessment (AQA) was previously completed by Hoare Lea for the planning submission (Ref. No: 21/02222/FUL), of a proposed West End Health and Wellbeing Centre scheme at the Application Site in December 2021, in which planning permission was granted. The latest Community Diagnostic Centre scheme (Ref. No: 23/00951/MOR) is an update to the consented West End Health and Wellbeing Centre scheme (Ref. No: 21/02222/FUL).

The proposals for the new scheme comprise of the construction of a 4-storey CDC on the Colin Campbell Court Site, with levels 00-02 used for diagnostic imaging and treatment purposes, and level 03 used for plant rooms. The CDC would provide significant diagnostic capacity in terms of imaging, physiological measurement, pathology, and other services to reduce demand at the Derriford Hospital site (the 'Proposed Development'). The Proposed Development will have a Gross Internal Area (GIA) of 6,182 square metres, being predominantly car-free, only providing five accessible car parking spaces and patient drop off lay by on the eastern façade of the Proposed Development.

The baseline assessment has shown that the Application Site is directly adjacent to the Plymouth City Council (PCC) Air Quality Management Area (AQMA) located approximately 6 m to the west, declared for exceedances of the annual mean NO₂ Air Quality Objectives (AQO). NO₂ concentrations recorded at passive diffusion tube monitoring locations within 1 km of the Application Site have mostly shown compliance with the NO₂ annual mean AQO between 2015 and 2019, apart from exceedances recorded at one passive diffusion tube site (Site ID: DT38). PM₁₀ and PM_{2.5} concentrations at the nearest automatic monitor that records these pollutants have been in compliance with the annual mean and 24-hour mean AQO in the last five years. Defra predicted background concentrations at the Application Site are below the relevant AQOs for all pollutants in the earliest anticipated opening year of the Proposed Development.

The impacts of construction work on dust soiling and ambient fine particulate matter concentrations have been assessed and appropriate mitigation measures have been recommended. Provided these mitigation measures are implemented and included within a dust management plan, for example through a planning condition, the residual impacts from the construction phase are considered to be not significant.

The traffic generated by the Proposed Development was supplied by AECOM and has been screened against the criteria set-out in the Environmental Protection United Kingdom (EPUK) and Institute of Air Quality Management (IAQM) planning guidance to determine the need for a detailed assessment. This screening assessment has shown that the potential impact of additional road traffic on local air quality is considered insignificant and a detailed assessment is not required.

The energy strategy for the Proposed Development is primarily electric, utilising ASHPs, a zero-emission technology. A diesel generator is also proposed for emergency back-up use only. As no combustion sources are proposed during normal operation, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

The ventilation strategy for the Proposed Development includes mechanical ventilation via the use of Air Handling Units (AHUs) with high efficiency heat recovery devices.

A qualitative Site Suitability Assessment has shown that pollutant concentrations are in compliance with the Air Quality Objectives (AQOs) at the Application Site and therefore, the Application Site is considered suitable for use as a CDC without the need for mitigation.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation, air quality should not be considered as a constraint to the planning consent and the Proposed Development conforms to the principles of the National Planning Policy Framework Plan and the Plymouth and South West Devon Joint Local Plan.

1. Introduction.

Hoare Lea have been commissioned by University Hospitals Plymouth NHS Trust to undertake an Air Quality Assessment to support the planning application for the proposed Community Diagnostic Centre (CDC) at Colin Campbell Court, fronting Western Approach, Plymouth, approximate postcode PL1 1TQ (the 'Application Site').

1.1 Proposed Development.

The proposals comprise of the construction of a 4-storey Community Diagnostic Centre (CDC) on the Colin Campbell Court Site, with levels 00-02 used for diagnostic imaging and treatment purposes, and level 03 used for plant rooms. The CDC would provide significant diagnostic capacity in terms of imaging, physiological measurement, pathology, and other services to reduce demand at the Derriford Hospital site (the 'Proposed Development').

An Air Quality Assessment (AQA) was previously completed by Hoare Lea for the planning submission (Ref. No: 21/02222/FUL), of a proposed West End Health and Wellbeing Centre scheme at the Application Site in December 2021, in which planning permission was granted. The latest Community Diagnostic Centre scheme (Ref. No: 23/00951/MOR) is an update to the consented West End Health and Wellbeing Centre scheme (Ref. No: 21/02222/FUL).

The Proposed Development will have a Gross Internal Area (GIA) of 6,182 square metres, being predominantly car-free, only providing five accessible car parking spaces and patient drop off lay by on the eastern façade of the Proposed Development. The energy strategy for the primary supply to the Proposed Development is proposed to be all electric, utilising Air Source Heat Pumps (ASHPs), a zero-emission technology. A 1000 kVA diesel generator is also proposed for emergency back-up use only and will be tested for maintenance purposes for fewer than 18 hours per year. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

The proposed ventilation strategy includes mechanical ventilation via the use of Air Handling Units (AHUs) with high efficiency heat recovery devices. The AHUs will be demand controlled and incorporate high efficiency Electronically Commutated (EC) fans with low Specific Fan Powers (SFPs). Where natural ventilation systems are permissible, low energy hybrid ventilation systems with heat recovery will be provided to reduce energy consumption.

1.2 Application Site Description and Location.

The Application Site is located within Plymouth City Council's (PCC) administrative area at the approximate National Grid Reference (NGR): X 247345, Y 54505.

The Application Site is situated to the east of Western Approach (A374). The Application Site is surrounded predominantly by commercial properties and associated car parks. Further to the west of the Application Site is St Peter's Primary School and further west and north are residential dwellings. The Application Site is currently a brownfield site, partially occupied to the east by some of the open-air Colin Campbell Court car park, upon which 20 existing car parking spaces are proposed to be lost due to the construction of the Proposed Development, in order to move the road further to the east of the Proposed Development.

Figure 1 illustrates the location of the Application Site boundary, with the PCC Air Quality Management Area (AQMA), Plymouth AQMA approximately 6 m to the west.

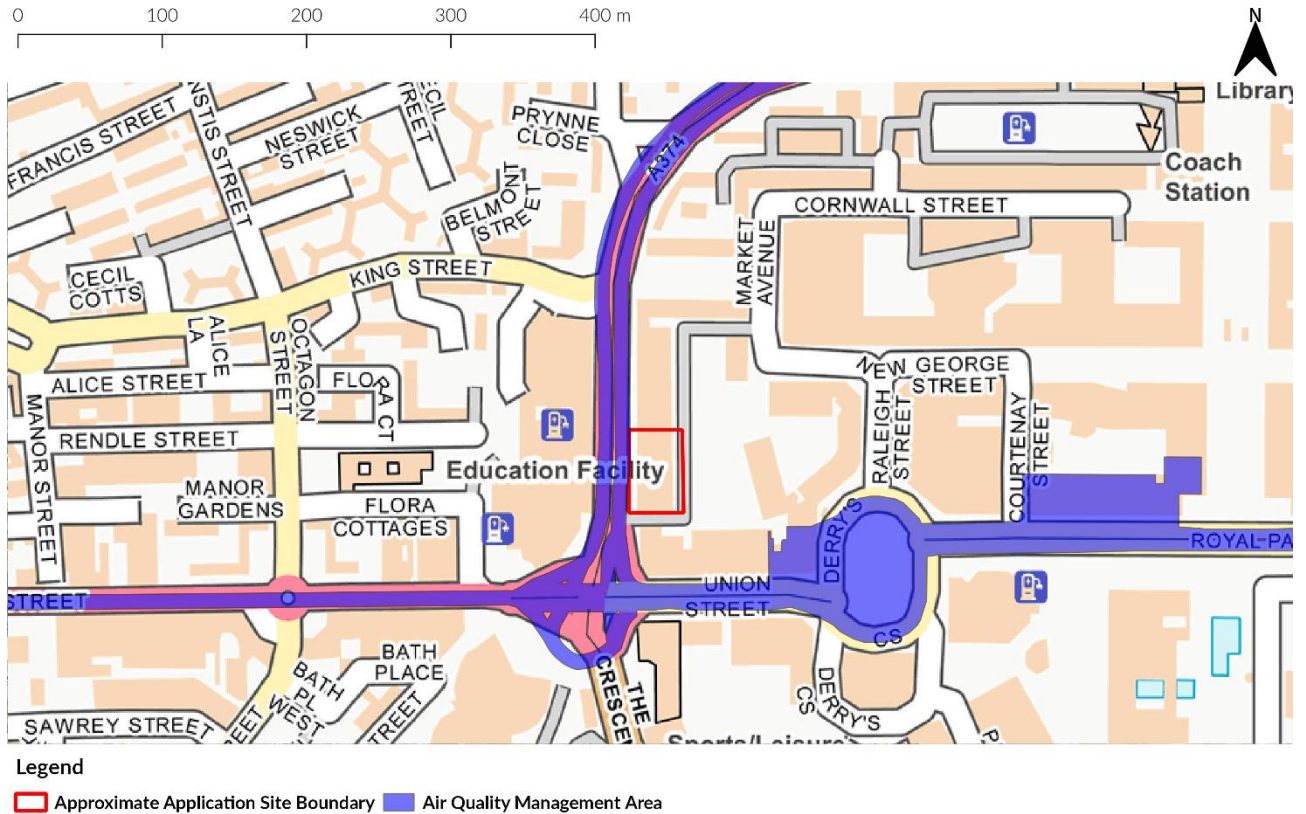


Figure 1: Location of the Application Site, including its proximity to the PCC AQMA. Contains OS Data © Crown Copyright and Database rights 2023.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to PCC on the 1st of November 2023. A response was received from PCC on the 6th of November 2023 approving the methodology. A copy of the correspondence with PCC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Review of National and Local Policy;
- Determination of baseline scenario, using PCC monitoring data and Department for Environmental, Food and Rural Affairs (Defra) predicted background concentrations;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of potential air quality impacts during the operational phase;
- An assessment of the suitability of the Application Site for its proposed use; and
- Identification of required mitigation measures.

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management.

The Environment Act 1995 (Part IV)¹ requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries. The latter has become known as Local Air Quality Management (LAQM).

The Air Quality Strategy² provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these Air Quality Objectives (AQOs).

Local authorities are required to identify whether the AQOs have been, or will be, achieved at relevant locations, by the applicable date. If the AQOs are not achieved, the authority must declare an Air Quality Management Area (AQMA) and should prepare an action plan within 12 months. An action plan must identify appropriate measures and policies that can be introduced in order to work towards achieving the AQO(s).

The AQOs set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The AQOs for use by local authorities are prescribed within the Air Quality (England) Regulations 2000³, and the Air Quality (England) (Amendment) Regulations 2002⁴.

The AQOs for Nitrogen Dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) are set out in Table 1. The AQOs for NO₂, PM₁₀ and PM_{2.5} were to have been achieved by 2005, 2004 and 2020 respectively and continue to apply in all future years thereafter.

The Environment Act 2021⁵ acts as the UK's new framework of environmental protection and came into force on 1st April 2022. With regard to air quality, the Environment Act establishes a legally binding duty on government to bring forward at least two new air quality targets in secondary legislation. This was implemented through the Environmental Improvement Plan⁶ which outlines new PM_{2.5} targets for future years. These are a long term target of 10 µg/m³ by 2040 and an interim target of 12 µg/m³ by 31st January 2028. These targets are expected to focus on reducing concentrations of, and exposure to, PM_{2.5}.

Additionally, a new Air Quality Strategy has been published in April 2023 which sets out a framework which should be followed by local authorities in support of Defra's long term air quality goals including new PM_{2.5} targets⁷.

Table 1: Air Quality Objectives for NO₂, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO ₂)	1-hour Mean	200 µg/m ³ Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
Fine Particles (PM ₁₀)	24-hour Mean	50 µg/m ³ Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
Fine Particles (PM _{2.5}) *	Annual Mean	20 µg/m ³
Notes: Measured gravimetrically *The time period in LAQM.TG(22) states "Work towards reducing emissions/concentrations of fine particulate matter (PM _{2.5})"		

The AQOs apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the AQO. Examples of where the annual mean AQOs should apply are provided in the Local Air Quality Management Technical Guidance (LAQM.TG(22))⁸, and include: building façades of residential properties, schools, hospitals. The annual mean AQOs are not relevant for the building façades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

The 24-hour mean AQO for PM₁₀ is considered to apply at the same locations as the annual mean AQO, as well as in gardens of residential properties and at hotels.

The 1-hour mean AQO for NO₂ also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, carparks and bus stations which are not fully enclosed. The 1-hour mean AQO does not apply at kerbside sites where the public do not have regular access.

2.2 EU Limit Values.

The European Union has also set limit values for NO₂, PM₁₀ and PM_{2.5}; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010⁹ and The Air Quality Standards (Amendment) Regulations 2016¹⁰.

The limit values for NO₂, PM₁₀ and PM_{2.5} are the same as the English objectives (given in Table 1), but applied from 2010 for NO₂, 2005 for PM₁₀ and 2015 for PM_{2.5}. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

2.3 Statutory Nuisance Legislation.

Part III of the Environmental Protection Act (EPA) 1990 (as amended)¹¹ contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10 µm (i.e. greater than PM₁₀) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK Air Quality Strategy. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.4 Clean Air Strategy.

The Clean Air Strategy (CAS)¹², published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.5 Building Regulations.

The Building Regulations help to ensure that new buildings, conversions, renovations and extensions (domestic or commercial) will be safe, healthy and high performing. Detailed regulations cover specific topics including structural integrity, fire protection, accessibility, energy performance, acoustic performance, protection against falls, electrical and gas safety. Part F of the Building Regulations (2021)¹³ provides guidance for indoor air quality and the pollutant concentrations that must not be exceeded in both buildings for dwellings and non-dwellings.

2.6 Planning Policy.

2.6.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2023¹⁴ sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

Paragraph 55: *“Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition.”*

Paragraph 174: *“Planning policies and decisions should contribute to and enhance the natural and local environment by: preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land*

instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.”

Paragraph 185: *“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.”*

Paragraph 186: *“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.”*

Paragraph 188: *“The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”*

The NPPF is supported by Planning Practice Guidance (PPG)¹⁵.

The PPG states that:

Paragraph 001 (Reference ID: 32-001-20191101): *“Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit or where the need for emissions reductions has been identified.”*

Paragraph 002 (Reference ID: 32-002-20191101): *“Plans may need to consider ways in which the development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable.”*

Paragraph 005 (Reference ID: 32-005-20191101): *“Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and / or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.”*

The PPG also sets out the information that may be required in an air quality assessment, stating that:

Paragraph 007 (Reference ID: 32-007-20191101): *“Assessments need to be proportional to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific. The scope and content of supporting information is best discussed and agreed between the local planning authority and applicant before it is commissioned.”*

It also provides guidance on options for mitigating air quality impacts, and makes clear that:

Paragraph 008 (Reference ID: 32-008-20191101): *“Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact.”*

2.7 Local Policy.

2.7.1 Plymouth and South West Devon Joint Local Plan

The Plymouth and South West Devon Joint Plan (JLP)¹⁶, was adopted in 2019 and covers the period until 2034, and includes the following policies relevant to air quality:

“Policy DEV2: Air, water, soil, noise, land and light.

Development proposals which will cause unacceptable on- or off-site risk or harm to human health, the natural environment or living conditions, either individually or cumulatively, will not be permitted. Development should:

- 1. Avoid harmful environmental impacts and health risks for both new and existing development arising from soil, air, water, land or noise pollution or land instability.*
- 2. Where located in or impacting on an Air Quality Management Area, avoid or mitigate its impact through positively contributing towards the implementation of measures contained within air quality action plans and transport programmes, and through green infrastructure provision and enhancements, building design and layout which helps minimise air quality impacts.*

[...]

- 8. Not cause an adverse effect on the integrity of a European Site.”*

And

“Policy DEV29: Specific provisions relating to transport.

Development proposals should therefore, where appropriate: [...] mitigate the environmental impacts of transport, including impacts on air quality, noise pollution, landscape character and the quality and distinctiveness of urban and rural environments.”

Furthermore, the Plymouth Plan¹⁷ sets out the City’s spatial strategy and incorporates the Plymouth-specific elements of the Plymouth and South West Devon Joint Local Plan. It contains the following policy relevant to air quality:

“Policy HEA6: Delivering a safe, efficient, accessible, sustainable, and health-enabling transport system.

The City will deliver a transport system that enables and encourages sustainable and active travel choices, provides good accessibility for the city’s population to jobs and services, and supports a healthy environment. This will involve:

- 1. Using the planning process to: [...] ii. Address air quality, carbon emissions and noise pollution*

[...]

- 2. Designing transport infrastructure projects to take full account of the needs of all users, the wider community and place shaping the needs of the area, whilst also helping to minimise air quality and noise pollution.”*

2.7.2 Local Air Quality Management in Plymouth

According to the PCC Annual Status Report (ASR) 2023¹⁸, PCC have one AQMA in their administrative area, Plymouth AQMA, declared for exceedances of the annual mean NO₂ AQO across the major road networks in the city. As mentioned within the PCC Annual Status Report (ASR) 2023¹⁸, the Plymouth AQMA is described as:

“An area encompassing roads along Mutley Plain, Exeter Street, Stoke Village, Royal Parade and Tavistock Road”

The Plymouth AQMA is directly adjacent and located approximately 5 m west of the Application Site boundary.

Consequently, an Air Quality Action Plan¹⁹ was adopted in 2006 which sets out the following measures that aim to improve air quality in the City:

- Raising awareness of the links between transport and health
- Developing a Green Travel Plan
- Improving the emissions from the council fleet and incentives to scrap older cars

- Absorbing emissions through planting trees
- Managing the road network e.g. traffic management at pollution hot spots

2.8 Assessment Guidance and Standards.

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.8.1 Defra Local Air Quality Management Technical Guidance

Defra's LAQM.TG(22)⁸ was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

2.8.2 EPUK and IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance (EPUK and IAQM planning guidance)²⁰ to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

2.8.3 IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM (IAQM construction guidance)²¹. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

2.8.4 Plymouth and South West Devon Supplementary Planning Document

The Plymouth and South West Devon Supplementary Planning Document (SPD) July 2020²² was adopted by PCC on 22nd June 2020, West Devon Borough Council (WDBC) on 9th June 2020 and South Hams District Council (SHDC) on 16th July 2020. The SPD has been prepared by the three local authorities to amplify and give guidance on the implementation of the policies of the Plymouth and South West Devon JLP. Guidance relating to air quality aiming to minimise impacts has been considered in this assessment. Where significant emissions are predicted, it is required that there is the provision of at least 1 electric vehicle charging point per 10 residential dwellings and/ or 1000 m² of commercial floorspace, as well as the provision of a detailed travel plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking).

2.8.5 Statement of Community Involvement

The Plymouth and South West Devon Statement of Community Involvement²³ was adopted by PCC in June 2020 and sets out how PCC, WDBC and SHDC have committed to engage the community to lead to better decisions regarding planning.

3. Methodology of Assessment.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to the PCC for review. The methodology was approved by the PCC on the 6th of November 2023. A copy of the correspondence with PCC has been included in Appendix 1.

3.2 Existing Air Quality in the Study Area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Application Site.

This desk-top study was undertaken using the following sources:

- Air quality data for PCC including a review of the PCC air quality reports and local monitoring data¹⁸;
- The UK Pollutant Release and Transfer Register²⁴;
- Background pollution maps from Defra's Local Air Quality Management (LAQM) website²⁵;
- Pollution Inventory from the Environment Agency²⁶
- The UK Ambient Air Quality Interactive Map²⁷; and
- Ordnance Survey data and Aerial photography from Google Maps.

3.3 Construction Phase Impacts.

3.3.1 Construction Dust Assessment

The assessment of construction dust impacts has been undertaken in line with the methodology outlined in the IAQM construction guidance²¹. Activities on the proposed construction site have been divided into three types to reflect their different potential impacts. These are:

- Earthworks;
- Construction; and
- Trackout.

Demolition has not been considered in the Construction dust assessment as the Application Site is a brownfield site which has already been cleared of previous commercial buildings.

The risk of dust emissions has been assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling;
- The risk of health effects due to a significant increase in exposure to PM₁₀; and
- The risk of ecological impacts due to a significant increase in exposure to PM₁₀.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM construction guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 250 m of the boundary of the Application Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Application Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are given in the guidance available online²¹.

3.3.2 Construction Emissions Assessment

3.3.2.1 Construction Traffic Emissions Screening

The screening assessment has been undertaken with reference to the following EPUK and IAQM planning guidance indicative criteria:

- a change of Light Duty Vehicle (LDV) flows of more than 100 AADT (within an AQMA); and/or
- a change of Heavy Duty Vehicle (HDV) flows of more than 25 AADT (within an AQMA).

3.3.2.2 NRMM Emissions Screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following IAQM construction guidance.

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Emissions Assessment

The screening assessment has been undertaken following the EPUK and IAQM planning guidance indicative criteria:

- a change of LDV flows of more than 100 AADT (within an AQMA); and/or
- a change of HDV flows of more than 25 AADT (within an AQMA).

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that “*the criteria provided are precautionary and should be treated as indicative*”, and “*it may be appropriate to amend them on the basis of professional judgement*”.

Where impacts can be screened out there is no need to progress to a more detailed assessment.

3.4.2 Site Suitability Assessment

A qualitative Site Suitability Assessment has been undertaken to consider the exposure of future occupants of the Proposed Development to existing air quality.

The assessment of Site Suitability will be assessed qualitatively using monitoring data from PCC and using Defra background mapped concentrations in the locale of the Application Site.

3.5 Assessment of Significance.

3.5.1 Construction Dust

The IAQM construction guidance states that the primary aim of the construction phase risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 2.

3.5.2 Operational Impacts

The EPUK and IAQM planning guidance has been used to assess the potential for significant impacts as a result of vehicle emissions from traffic associated with the Proposed Development. The focus of the guidance is to assess traffic emission impacts and advises on how to describe the air quality impacts and their significance.

3.5.3 Site Suitability Assessment

To determine the significance of predicted air quality impacts based upon a Site Suitability Assessment, the EPUK and IAQM planning guidance states:

“Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

4. Baseline Environment.

This section sets out the available information on air quality in the vicinity of the Application Site.

4.1 Local Air Quality Management Review and Assessment.

A review of the latest PCC Annual Status Report (ASR) 2023¹⁸ indicated that compliance with the annual mean NO₂ AQO was observed at all automatic and passive diffusion tube monitoring locations operated by PCC in 2022, which indicates positive trends regarding pollutant levels within the administrative area, despite increases in pollutant levels post the COVID-19 pandemic. No indications of exceedances of the NO₂ 1-hour mean AQO were recorded in 2022 based on the provided monitoring data. Within PCC, NO₂ levels are strongly linked to road traffic emissions.

There is one AQMA in PCC, Plymouth AQMA, declared for exceedance of the annual mean NO₂ AQO focussing on five areas within the administrative area (Exeter Street, Mutley Plain, Stoke Village, Royal Parade and Tavistock Road) covering the local road network. However, owing to sustained compliance with the annual mean NO₂ AQO in most areas of the AQMA, PCC are proposing to amend this AQMA to focus only on the Mutley Plain and Stoke Village areas, where air quality remains to be of most concern.

However, it should be noted that the pollutant concentrations recorded in 2020 and 2021 from the most recently PCC ASR 2023¹⁸ are lower than previous years as a direct result of reduced traffic levels during the COVID-19 pandemic. As such the pollutant concentrations recorded in 2020 and 2021 are not considered to be representative of 'normal' air quality conditions.

The 2022 data from the 2023 ASR has been presented for information purposes only, as the 2023 ASR is awaiting approval by Defra, however, monitoring data from the years 2015-2019 from the 2022 ASR²⁸ enable long-term pollutant trends of NO₂ to be reviewed in detail for multiple representative years of monitoring. This provides a more robust assessment and accordingly the monitoring data from 2019 has been discussed as the most representative year of monitoring data to assess the baseline conditions at the Application Site, as a worst case scenario.

4.2 Local Air Quality Monitoring.

The UK Automatic Urban and Rural Network (AURN) is a countrywide network of air quality monitoring stations operated on behalf of Defra. Monitoring data for AURN sites is available from the UK Air Information Resource website (UK AIR).

Additionally, PCC operate five automatic monitoring stations, with the closest site being Royal Parade, located approximately 239 m from the Application Site. Recent monitoring data for the automatic monitoring stations is detailed in Table 2 and a visual representation of the locations of the automatic monitoring stations is shown in Figure 2.

Table 2: Automatic Monitoring Locations

Monitoring site and distance (m) from site boundary (approx.)	Objective	2015	2016	2017	2018	2019	2020	2021	2022
NO ₂									
Royal Parade, CM3, 239 m, Roadside	Annual mean (µg/m ³)	n/d	50	38	41	36	25	26	28
	Number of hours with concentrations >200 µg/m ³	n/d	10	14	10	1	1	0	0

Monitoring site and distance (m) from site boundary (approx.)	Objective	2015	2016	2017	2018	2019	2020	2021	2022
Plymouth Centre, CM1, 395 m, Urban Background	Annual mean ($\mu\text{g}/\text{m}^3$)	19	22	20	16	19	14	12	16
	Number of hours with concentrations $>200 \mu\text{g}/\text{m}^3$	0	0	0	0	0	0	0	0
PM₁₀									
Plymouth Centre, CM1, 395 m, Urban Background	Annual mean ($\mu\text{g}/\text{m}^3$)	18	15	14	16	17	16	14	17
	Number of days with concentrations $> 50 \mu\text{g}/\text{m}^3$	0	0	0	0	1	0	0	2
PM_{2.5}									
Plymouth Centre, CM1, 395 m, Urban Background	Annual mean ($\mu\text{g}/\text{m}^3$)	11	11	9	10	11	9	8	9
Notes: n/d = no data Concentrations in bold indicate an exceedance of the relevant AQO Exceedance of the NO ₂ short term AQO of $200 \mu\text{g}/\text{m}^3$ over the permitted 18 hours per year are shown in bold and <u>underlined</u> .									

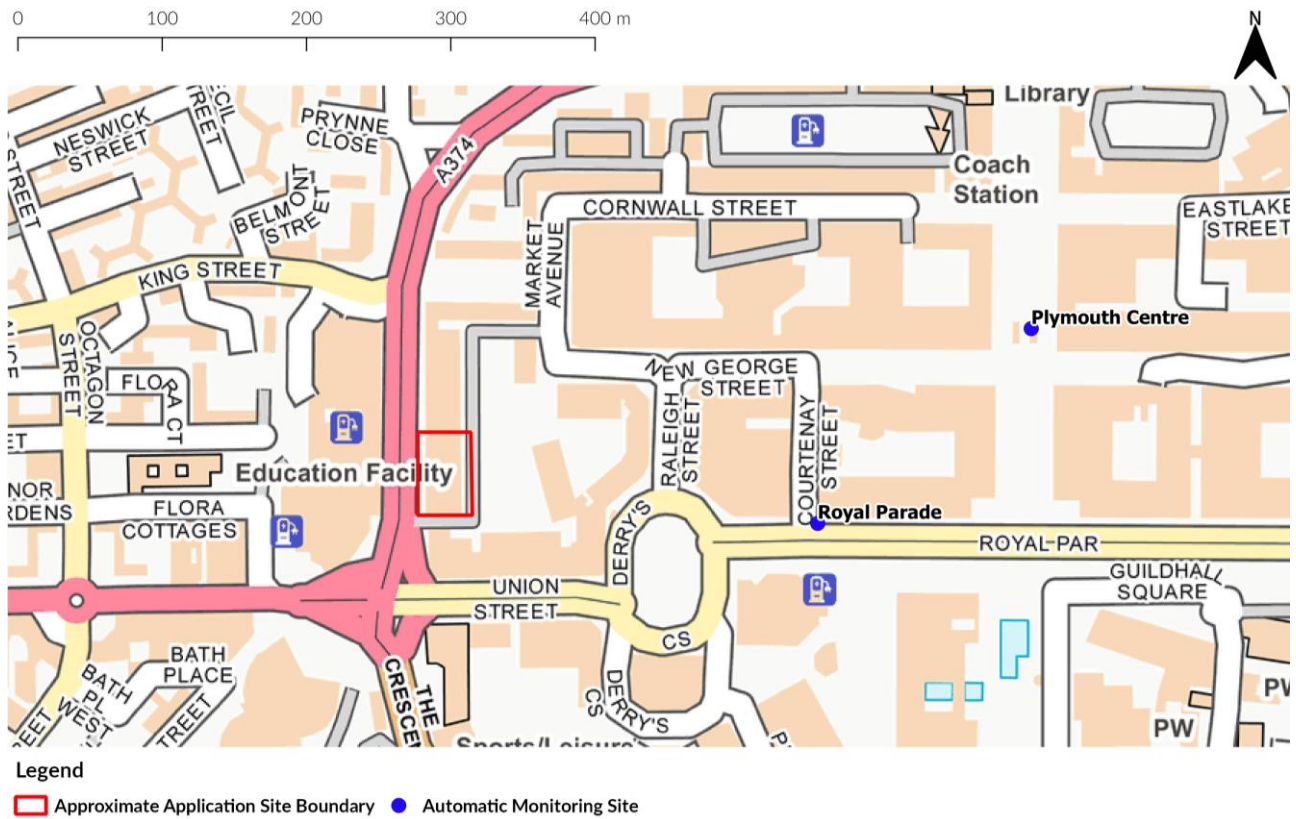


Figure 2: Automatic Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2023.

The automatic monitoring results shown in Table 2 indicate that one automatic monitoring site (Royal Parade, CM3) recorded exceedances of the annual mean NO₂ AQO in 2016 and 2018. However, compliance with the annual mean NO₂ AQO was observed in all years between 2015 and 2019 at the Plymouth Centre site (Site ID: CM1). Compliance with the annual and 1-hour mean NO₂ AQOs was observed at both automatic monitoring stations in 2019, the most representative year of monitoring data.

Plymouth Centre automatic monitoring site recorded no exceedances of the annual mean AQOs for PM₁₀ and PM_{2.5}, or of the 24-hour mean PM₁₀ AQO, in any year from 2015 to 2019.

PCC currently operate 17 passive diffusion tubes to monitor NO₂ concentrations. A review of the most recent monitoring data available indicated that there are five passive diffusion tube monitoring locations within 1 km of the Application Site. Recent monitoring results are shown in Table 3 and a visual representation of the passive diffusion tube monitoring locations with respect to the Application Site is shown in Figure 3.

Table 3: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³)							
				2015	2016	2017	2018	2019	2020	2021	2022
DT38	Urban Centre	Derrys Cross Roundabout	94	32.3	29.6	45.7	40.9	41.1	28.5	29.9	34.7
DT33	Urban Centre	Royal Parade Analyser	239	31.3	29.0	40.0	39.4	38.4	25.5	28.2	31.6
DT36	Urban Background	AUN	396	18.9	21.2	19.0	18.8	18.5	12.5	14.2	15.8

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³)							
				2015	2016	2017	2018	2019	2020	2021	2022
DT32	Urban Centre	St Andrews Cross Roundabout	615	28.7	26.3	37.0	35.5	34.9	23.9	28.3	29.2
DT37	Roadside	Charles Cross	890	32.5	33.5	31.3	32.0	35.9	n/d	n/d	n/d

As shown in Table 3 above, the only exceedances of the annual mean NO₂ AQO were recorded at the Derrys Cross Roundabout (Site ID: DT38) between 2017 and 2019. However, at the four other passive diffusion tube monitoring locations in the vicinity of the Application Site, compliance with the annual mean NO₂ AQO was recorded in 2019 and all other years.

Furthermore, an annual mean NO₂ concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the 1-hour mean NO₂ AQO, as outlined in LAQM.TG(22)⁸. There have been no annual mean NO₂ concentrations in exceedance of 60 µg/m³ at any of the passive diffusion tube monitoring locations in any year from 2015 to 2019. As such, exceedance of the 1-hour mean NO₂ AQO is unlikely.

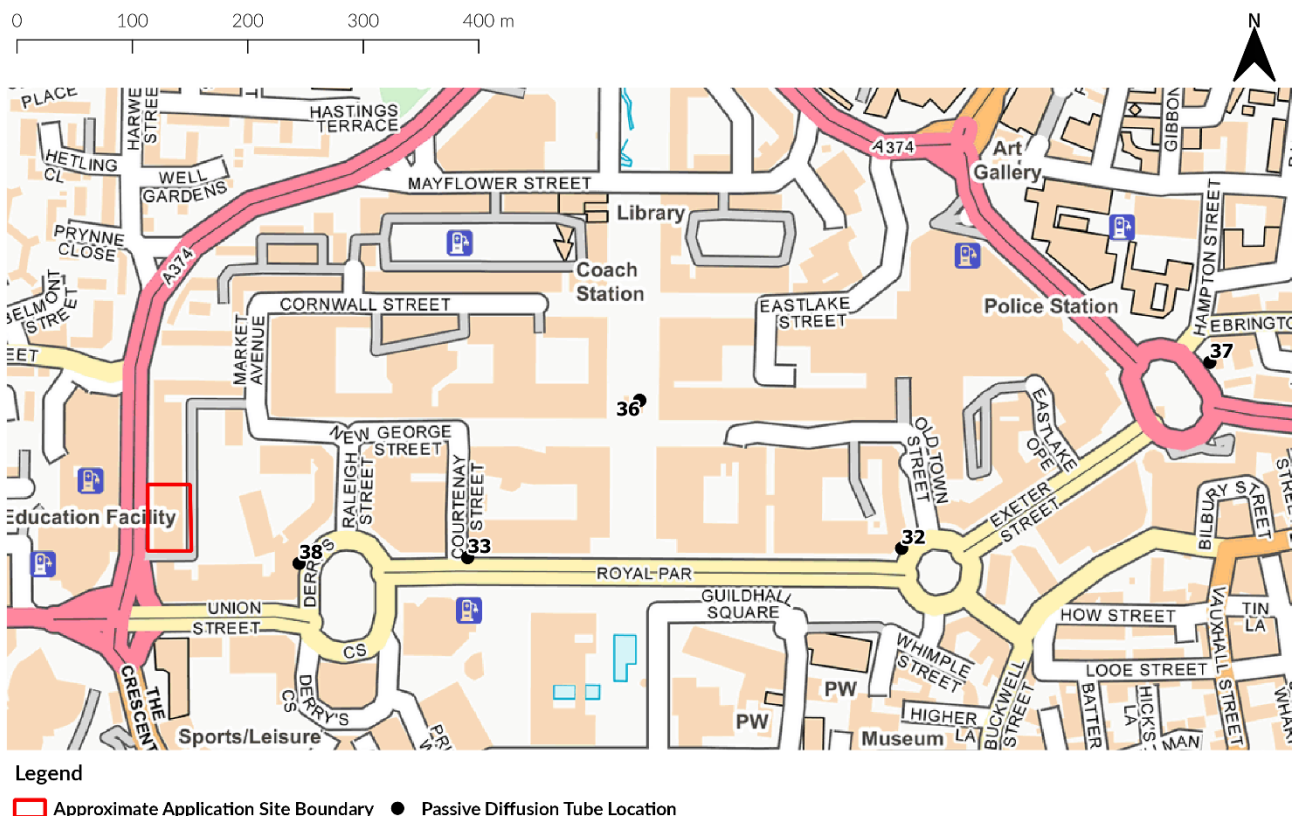


Figure 3. Passive Diffusion Tube Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2023.

4.3 Industrial Pollution.

A desk-based review of potential industrial sources using the Pollution Inventory from the Environment Agency²⁶ did not identify any significant industrial or waste management sources of air pollution within 2 km of the Application Site that are likely to affect the Application Site with regard to air quality.

4.4 Defra Predicted Concentrations.

The Defra predicted background concentrations have been obtained from the national maps published by Defra²⁵. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application Site falls into grid square X 247500 Y 54500 and the predicted concentrations for this grid square for NO₂, PM₁₀ and PM_{2.5} are provided in Table 4 for 2019, the most recent year with available data and for 2025, the earliest anticipated opening year for the Proposed Development.

Table 4: Predicted Background Concentrations for grid square X 247500 Y 54500

Year	Predicted Background Concentration (µg/m ³)		
	NO ₂	PM ₁₀	PM _{2.5}
2019	14.8	10.9	6.9
2025	11.8	10.2	6.3

As shown in Table 4, Defra predicted background concentrations are well below the relevant annual mean AQOs (and WHO guidelines, 2005) for pollutants NO₂, PM₁₀ and PM_{2.5} in the years 2019 and 2025.

4.5 Summary of Background Data.

The baseline assessment has shown that the Application Site is directly adjacent to the Plymouth AQMA on the Western Approach, A374 road network, located approximately 6 m west of the Proposed Development.

The baseline assessment has shown that no exceedance of the annual mean NO₂ AQO was recorded at either automatic monitoring location in 2019, the most recent year with representative monitoring data. Recent monitoring data from passive diffusion tube monitoring locations within the vicinity of the Application Site indicated that exceedances of the annual mean NO₂ AQO were recorded in 2017, 2018 and 2019 at the urban centre site Derrys Cross Roundabout (Site ID: DT38), as the diffusion tube is only set back approximately 0.75 m from the kerb of the A374 road network. However, compliance with the annual mean NO₂ AQO was observed at the other four nearby passive diffusion tube monitoring locations between 2015 and 2019.

There were no recorded annual mean NO₂ concentrations in exceedance of 60 µg/m³ from 2015 to 2019 at the passive diffusion tube or automatic monitoring locations.

Defra predicted background concentrations are expected to be below the annual mean AQOs and WHO guidelines for all considered pollutants at the Application Site in 2019 and 2025, the expected opening year for the Proposed Development.

There are no industrial or waste management sources of air pollution within 2 km of the Application Site that could impact local air quality in the vicinity of the Application Site based on a review of the EA Pollution Inventory²⁶.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section.

5.1 Construction Phase Dust Assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment Screening

There are 'human receptors' within 250 m of the Application Site but no designated habitat sites within 50 m of the Application Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance.

The closest ecological receptor to the Application Site is Richmond Walk, classified as a Site of Specific Scientific Interest (SSSI), located approximately 1.25 km to the west of the Application Site.

Therefore, an assessment of construction dust at human receptors is required, but an assessment of construction at ecological receptors can be screened out from this assessment.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from earthworks, construction and trackout have been assessed, as identified in Table 5.

Table 5: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Earthworks	Small	The Application Site currently comprises of hardstanding ground; however, the new building and structure require new foundations to be excavated. The total Application Site area has been confirmed by KTA Architects, the project architects, to be approximately 1,800 m ² from the Pre-application document* for the Proposed Development. The soil type at the Application Site has been classed as loamy ²⁹ which is a potentially dusty soil type. Therefore, in line with IAQM guidance, the magnitude of dust emissions from earthworks is anticipated to be small.
Construction	Medium	The proposals are for a 4-storey building comprising of various diagnostic and waiting rooms from levels 00-02, with plant rooms at level 03. The exact construction volumes for the Application Site are not currently available, but estimates taken from the most recently received building plans* show that the total volume will fall in the medium bracket of between 12,000 – 75,000 m ³ . It is expected that concrete will be used as a construction material which has potential for dust generation. Therefore, in line with IAQM guidance, the magnitude of dust emissions from construction is anticipated to be medium.
Trackout	Medium	Outward movements of HDVs associated with the Proposed Development has not been confirmed at time of writing, however the proposals are likely to result in less than 10 outward HDV movements in any one day. The Application Site is predominantly hardstanding. Due to the size of the Application Site, the unpaved road length is likely to be between 50 m to 100 m in length. As mentioned previously, the soil type at the Application Site is loamy ²⁹ and as such can be considered to be potentially dusty. Therefore, in line with IAQM guidance, the potential dust emissions magnitude from trackout is anticipated to be medium.

*KTA Architects- Plymouth CDC Pre-application and Proposed CCC Site Plan & GIA Calculations. August 2023.

5.1.3 Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM₁₀, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The IAQM distance bands for sensitivity are illustrated relative to the Application Site in Figure 4.

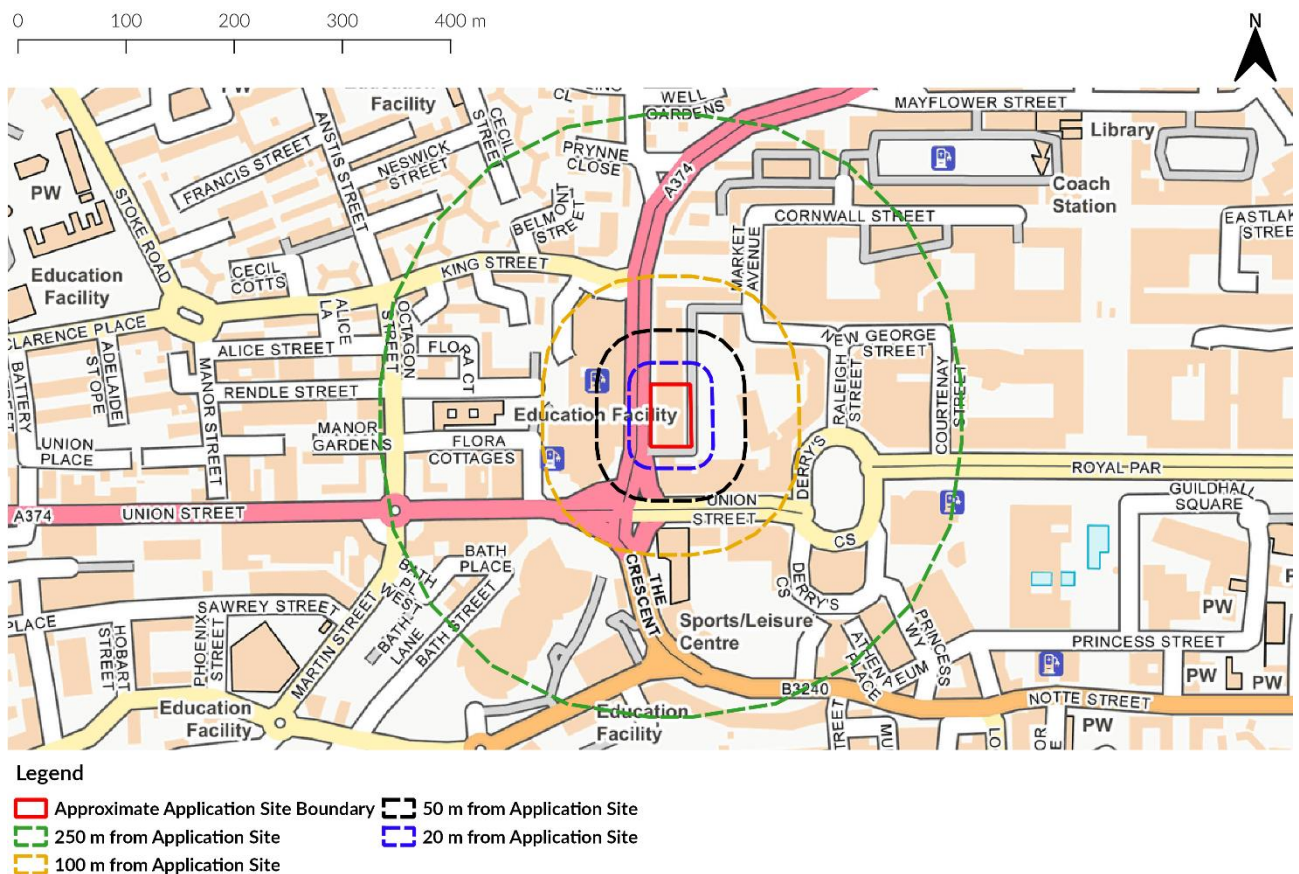


Figure 4: IAQM Demolition and Construction Dust Distance band criteria from the Application Site boundary. Contains Ordnance Survey Data © Crown Copyright 2023.

The sensitivity of the area and the factors considered are detailed in Table 6.

Table 6: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On - Site Activity	Trackout
Dust Soiling	Within 50 m west of the Application Site is the Western Approach multi-storey car park. There are also between 10 and 100 commercial properties and places of work within 50 m south of the Application Site, which are classed as medium sensitivity receptors. St Peters Primary School and residential	Medium	Medium

Sensitivity Type	Factors	Sensitivity of Area	
		On - Site Activity	Trackout
	<p>dwellings are within 250 m to the west of the Application Site have also been considered. Hence, the sensitivity of the area surrounding the Application Site has been classified as medium sensitivity with regards to dust soiling for on-site activity.</p> <p>For trackout, the routes likely to be used by construction traffic to travel to/from the Application Site will be along the Western Approach (A374) dual carriageway, with vehicular access for construction vehicles to the site from the minor road directly south of the Application Site.</p> <p>Within 20 m of the routes likely to be used by construction traffic, there are less than 10 high sensitivity receptors. Therefore, the sensitivity of the area with regards to trackout can be classed as medium.</p>		
Human Health	<p>The Defra predicted background concentrations for the 1 km by 1 km grid square in which the Application Site is located are below the annual mean PM₁₀ concentration in 2019 and 2025, the confirmed opening year of the development, at 10.9 µg/m³ and 10.2 µg/m³ respectively. Despite there being between 10-100 medium sensitivity receptors within 50 m of the Application Site, since the PM₁₀ concentration is less than 24 µg/m³, the sensitivity of the area to human health impacts can be classified as low sensitivity for on-site activity.</p> <p>For trackout, the routes likely to be used by construction traffic to travel to/from the Application Site will be along the Western Approach (A374) dual carriageway, with vehicular access for construction vehicles to the site from the minor road directly south of the Application Site.</p> <p>Within 20 m of the routes likely to be used by construction traffic up to 50 m from the Application Site, there are less than 10 high sensitivity receptors. Therefore, the sensitivity of the area with regard to trackout can be classed as low with respect to human health for trackout.</p>	Low	Low

5.1.4 Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 7 details the risk of dust impacts for earthworks, construction and trackout activities.

Table 7. Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity		Earthworks	Construction	Trackout
	On-Site Activity	Trackout			
Magnitude			Small	Medium	Medium
Dust Soiling Impacts	Medium	Medium	Low Risk	Medium Risk	Medium Risk
Human Health Impacts	Low	Low	Negligible	Low Risk	Low Risk

5.2 Construction Phase – Vehicular Pollutants.

The Application Site is located adjacent to the Plymouth AQMA (approximately 6 m west of the Application Site) and therefore the lower screening criteria (i.e. 100 LDV and 25 HDV) would apply.

Specific information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the criteria outlined in the EPUK and IAQM planning guidance.

The duration of movements expected will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criteria presented within EPUK and IAQM planning guidance, additional road vehicle trips during the construction phase of the Proposed Development “*can be considered to have insignificant effects*” on air quality.

5.3 Construction Phase – Non-road Mobile Machinery.

Pollutants emitted by NRMM that may have the most significant potential effects on local air quality are particulate matter (PM₁₀ and PM_{2.5}), and NO_x/NO₂. Typically, NRMM is associated with construction sites and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development.

Furthermore, the IAQM construction guidance states that “*Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed.*”

6. Operational Phase Assessment.

The potential for air quality impacts during the operation of the Proposed Development are assessed in this section.

6.1 Road Traffic Emissions Screening Assessment.

The Development is predominantly car free apart from the five disabled access parking spaces and drop off layby for deliveries and taxis provided on the eastern façade of the Proposed Development. Patients and staff of the CDC are anticipated to use the underutilised public transport means already available within Plymouth city centre. If users of the CDC drive, they will not park at the Development itself but at the underutilised Colin Campbell Court car park.

Initial road traffic information associated with the Proposed Development has been provided by AECOM, the appointed Transport Consultants for the project. It is anticipated that there will be a decrease in traffic as a result of the Proposed Development owing to a reduction in parking provision in the central Colin Campbell Court car park. Additionally, due to the updated proposals for the Proposed Development there are to be less users of the site when compared to the consented development (Ref no: 21/02222/FUL), upon which the impacts of air quality from operational phase traffic generation were determined to be insignificant.

Therefore, the increase in AADT for LDVs and HDVs is likely to be below the screening criterion of 100 LDVs and 25 HDVs and no further assessment is required.

In accordance with the EPUK and IAQM planning guidance, the impacts on air quality from operational phase traffic generation are considered to be not significant.

6.2 Site Suitability Assessment.

This section presents a review of PCC monitoring data and mapped concentrations by Defra in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for use as a CDC and to identify any requirements for potential mitigation to be embedded into the Proposed Development's design.

As presented in Section 2, and in line with Defra LAQM.TG(22)⁸, the annual mean (also in line with Part F of the Building Regulations (2021)¹³), 24-hour mean, and 1-hour mean AQOs apply to the Proposed Development due to its proposed healthcare use. As such, this section considers the annual mean, 24-hour mean, and the 1-hour mean pollutant concentrations at the Application Site.

6.2.1 Predicted NO₂ Concentrations

A review of the annual mean NO₂ concentrations monitored within 1 km of the Application Site has been completed as part of the baseline review with recent monitoring results, presented in Table 2 and Table 3.

Passive diffusion tube monitoring locations DT37 and DT38 are most representative of conditions at the Proposed Development, as DT37 is located on the same A374 ring road network, and DT38 is located only 94 m south east from the Proposed Development at Derrys Cross roundabout, as shown in Figure 3. As such, the NO₂ concentrations recorded at these sites in 2019 have been used to predict the NO₂ concentrations expected at the Application Site.

Diffusion tube DT38, located approximately 94 m south east to the Application Site and set back approximately 0.75 m from the kerb (on the Derrys Cross roundabout), recorded an exceedance of the annual mean NO₂ AQO of 41.1 µg/m³ in 2019. Diffusion tube DT37, located approximately 890 m north east from the Application Site, set back approximately 7.0 m from the kerb (north east of the A374), recorded compliance with the annual mean NO₂ AQO at 35.9 µg/m³ in 2019.

The western façade of the Proposed Development fronting Western Approach (A374) will be set back approximately 5.8 m from the kerb, to the north east of the A374. The prevailing wind direction in the UK tends to be south-westerly, dispersing traffic emissions in a north easterly direction and as such, pollutant concentrations would be expected to be similar at both DT37 and the Application Site, which are both located at the north-east side of the A374. Therefore, NO₂ concentrations recorded at DT37 are considered to be most

representative of those at the Application Site, due to being set back at a similar distance from the A374 (5.8 m and 7.0 m respectively).

Defra have produced an NO₂ fall off with distance calculator which estimates the annual mean NO₂ concentrations at a distance from a road using measurements made at a different distance from the same road³⁰. 2019 monitored concentrations at DT38 have been used to predict the annual mean NO₂ concentration and fall off with distance for the approximate 5.8 m distance that the western façade of the Proposed Development is set back from the A374 road.

Table 8 provides the inputs and predicted concentration at 5.8 m set back from the A374 road network using the worst case NO₂ annual mean prediction from diffusion tube DT38.

Table 8. Defra NO₂ Fall off With Distance Calculator

Measurement Distance from Kerb (m)	Receptor Distance from Kerb* (m)	2019 NO ₂ Defra Background Concentration (µg/m ³)	Monitored Annual Mean NO ₂ Concentration (µg/m ³)	NO ₂ Fall of With Distance Calculator Predicted Concentration (µg/m ³)
0.75	5.8	14.8	41.1	30.9
<u>Notes</u> *the receptor must be within 50m of the kerb				

Results of the NO₂ fall off with distance calculator presented in Table 8 show the predicted annual mean NO₂ concentration at 5.8 m from the kerb of the A374 is 30.9 µg/m³ and so is below the annual mean NO₂ AQO, which is the approximate distance at which the western façade of the Proposed Development is set back from the kerb. Therefore, exceedances of the annual mean NO₂ AQO are not expected at the western façade of the Proposed Development.

At the closest automatic monitoring station to the Application Site, Royal Parade, compliance with the annual mean NO₂ AQO was observed in 2019.

Furthermore, an annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the 1-hour mean NO₂ AQO. None of the five passive diffusion tube monitoring locations discussed recorded an annual mean NO₂ concentration in exceedance of 60 µg/m³ in 2019. Similarly, compliance with the 1-hour mean NO₂ AQO was also observed at both automatic monitoring locations in 2019, as shown in Table 2.

As shown in Table 4, the Defra background mapped NO₂ concentrations for the 1 km by 1 km grid square upon which the Application Site is located (X 247500 Y 54500) are below the annual mean NO₂ AQO in the following years of interest; 2019 and 2025 (the Proposed Development opening year).

Therefore, NO₂ concentrations in the vicinity of the Proposed Development are considered to be below both the annual mean NO₂ AQO (in line with Part F of the Building Regulations (2021)¹³ and the 1-hour mean NO₂ AQO. As such, the Application Site is considered suitable for the proposed Community Diagnostic Centre (CDC) use without the need for additional mitigation measures.

6.2.2 Predicted PM₁₀ concentrations

As shown in Table 2, PM₁₀ concentrations are only recorded at the Plymouth Centre automatic monitoring site which is located approximately 395 m north east from the Application Site. No exceedances of the annual mean PM₁₀ AQO have been recorded at this site between 2015 and 2019, with the recorded concentration at 17 µg/m³ in 2019 at 42.5% of the annual mean PM₁₀ AQO.

Further to this, the Defra predicted background concentrations for PM₁₀ at the Application Site, as shown in Table 4, are below their respective annual mean AQOs in 2019 and 2025, the earliest anticipated opening year for the Proposed Development. Therefore, PM₁₀ concentrations in the vicinity of the Application Site are expected to be below the annual mean PM₁₀ AQO. Thus, the Application Site is considered suitable for the proposed CDC use without the need for mitigation.

6.2.3 Predicted PM_{2.5} concentrations

As shown in Table 2, PM_{2.5} concentrations are only recorded at the Plymouth Centre automatic monitoring site which is located approximately 395 m north east from the Application Site. No exceedances of the annual mean PM_{2.5} AQO have been recorded at this site between 2015 and 2019, with the recorded concentration at 11 µg/m³ in 2019 at 55% of the annual mean PM_{2.5} AQO.

Additionally, the Defra predicted background concentrations for PM_{2.5} at the Application Site, as shown in Table 4, are below their respective annual mean AQOs in 2019 and 2025, the earliest anticipated opening year for the Proposed Development. As such, there are not expected to be exceedances of the PM_{2.5} annual mean AQO at the Application Site. Hence the Application Site is considered suitable for the proposed CDC use without the need for mitigation.

6.2.4 Significance of Air Quality Impacts

To determine the significance of predicted air quality impacts based upon a Site Suitability assessment, such as that undertaken as part of this assessment, the EPUK and IAQM planning guidance states:

“Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

With regards to the Proposed Development, the unmitigated impact significance associated with the Proposed Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

- The Proposed Development will not introduce any new receptor into an area of exceedance of the annual mean and 1-hour mean NO₂ AQOs based upon a review of NO₂ monitoring data within the development locale;
- The Proposed Development will not introduce any new receptor exposure into an area of exceedance of the annual mean or 24-hour PM₁₀ AQOs based upon a review of PM₁₀ monitoring data/Defra within the development locale; and
- The Proposed Development will not introduce any new receptor exposure into an area of exceedance of the annual mean PM_{2.5} AQO based upon a review of PM_{2.5} monitoring data/Defra within the development locale.

As no exceedances of the considered annual mean, 1-hour mean and 24-hour mean AQOs are predicted, mitigation measures are not required for the operational phase of the Proposed Development. As such, the overall effect is considered to be ‘not significant’.

7. Mitigation.

7.1 Construction Phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM construction guidance are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in the guidance²¹.

It is recommended that PCC approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. Table 9 below details the measures that should be incorporated in the DMP. For general mitigation measures, which excludes those specifically targeted towards demolition, earthworks, construction and trackout (which are given towards the end of the table), medium risk measures have been applied as these represent the highest risk category determined in Table 7. This approach is consistent with the IAQM construction guidance.

Table 9: Mitigation Measures

Issue	Mitigation Measure
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.
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM ₁₀ continuous monitoring and/or visual inspections.
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 Local Authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
	Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences.
Preparing and maintaining the site	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 boundary that are at least as high as any stockpiles on site.

Issue	Mitigation Measure
	<p>Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.</p> <p>Avoid site runoff of water or mud.</p> <p>Keep site fencing, barriers and scaffolding clean using wet methods.</p> <p>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 cover as described below.</p> <p>Cover, seed or fence stockpiles to prevent wind whipping.</p>
Operating vehicles/machinery and sustainable travel	<p>Ensure all vehicles switch off engines when stationary – no idling vehicles.</p> <p>Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.</p> <p>Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable).</p> <p>Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)</p>
Operations	<p>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.</p> <p>Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.</p> <p>Use enclosed chutes and conveyors and covered skips.</p> <p>Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.</p> <p>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.</p>
Waste management	<p>Avoid bonfires and burning of waste materials.</p>
Demolition	<p>Soft strip inside building before demolition.</p> <p>Ensure effective water suppression is used during demolition activities. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.</p> <p>Avoid explosive blasting, using appropriate manual or mechanical alternatives.</p> <p>Bag and remove any biological debris or damp down such material before demolition.</p>
Earthworks	<p>Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.</p> <p>Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.</p> <p>Only remove the cover in small areas during work and not all at once.</p>

Issue	Mitigation Measure
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being in continuous use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	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.
Access gates to be located at least 10 m from receptors where possible.	

Potential dust effects during the construction phase are considered to be temporary and short term in nature. The impacts are determined to be temporary as they will only potentially occur throughout the construction phase and short-term because these will only arise at particular times when certain activities and meteorological conditions combine to create the predicted level of magnitude.

However, with the application of the above dust control and mitigation measures, it is considered that impacts at all receptors will be 'not significant' in accordance with the IAQM construction guidance.

7.1.1 Construction Phase Road Traffic Emissions

Potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out for further assessment with associated impacts on air quality predicted to result in an 'insignificant' effect. Therefore, mitigation measures are not considered to be required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM construction guidance, all NRMM would need to adhere to the emissions standards for NO₂ and PM₁₀ set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational Phase.

7.2.1 Road Traffic Emissions

Potential air quality impacts associated with operational phase development trips have been screened out from further assessment as *'the impacts [on air quality from operational phase movements] can be considered to have insignificant effects'* in accordance with the EPUK and IAQM planning guidance. Therefore, mitigation measures such as a sustainable travel plan are not considered to be required.

7.2.2 Site Suitability Assessment

A review of PCC monitoring data in consideration of the Application Site, and mapped concentrations by Defra in the locale of the Application Site, indicates no likely exceedance of the respective annual mean AQOs (also in line with Part F of the Building Regulations (2021)¹³), 1-hour mean NO₂ AQO and 24-hour mean PM₁₀ AQO.

As no exceedances of any considered AQOs are predicted, this follows the 1st hierarchy principle of the EPUK and IAQM planning guidance to *'prevent and avoid'* exposure'. Therefore, no embedded mitigation into the Proposed Development design is required and openable windows are possible from an air quality perspective.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed Community Diagnostic Centre (CDC) development at Colin Campbell Court, fronting Western Approach, Plymouth, approximate postcode PL1 1TQ (the 'Application Site').

The findings of the assessment are as follows:

- The baseline assessment has shown that the Application Site is located adjacent to an AQMA. Local monitoring data within the PCC area of administration, including passive diffusion tube monitoring locations within 1 km of the Application Site, in addition to Defra predicted background concentrations²⁵ indicated that only one monitoring location exceeded the annual mean NO₂ AQO in 2019, alongside no exceedances of the respective AQOs for PM₁₀ and PM_{2.5} being recorded in 2019 at the Application Site;
- A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature;
- The results of the operational phase traffic screening assessment indicate that there will be a decrease in traffic as a result of the Proposed Development owing to a reduction in parking provision at the Campbell Court site. As such, air quality impacts are predicted to be insignificant, and no further assessment is required.
- The Proposed Development energy strategy was confirmed to be all electric, utilising zero-combustion emission technologies.
- A qualitative Site Suitability Assessment has been undertaken to assess the suitability of the Application Site for the proposed CDC use. Based on the assessment results no exceedances of the relevant AQOs for any pollutant are expected to occur at the Application Site. Therefore, embedded mitigation within the design of the Proposed Development is not required.

Based on the information above, it is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of National Planning Policy Framework and the Plymouth and South West Devon Local Plan¹⁶.

9. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Annual Status Report
AURN	Automatic Urban and Rural Network
CDC	Community Diagnostic Centre
DMP	Dust Management Plan
Defra	Department for Environment, Food and Rural Affairs
EC	Electronically Commutated
EPA	Environment Protection Act
EPUK	Environmental Protection UK
GIA	Gross Internal Area
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles (\leq 3.5 tonnes gross vehicle weight)
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
NGR	National Grid Reference
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be $\text{NO}_2 + \text{NO}$)
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PCC	Plymouth City Council
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$\text{PM}_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPD	Supplementary Planning Document
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
Trackout	The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site
WHO	World Health Organisation

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- ⁸ Defra (2022) Local Air Quality Management Technical Guidance (TG22) – [online] (Last accessed: 08/11/2023), Available at: <https://iaqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>
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- ¹² Defra (2019) The Clean Air Strategy – [online] (Last accessed: 08/11/2023), Available at: www.gov.uk/government/publications/clean-air-strategy-2019
- ¹³ HMSO (2021). The Building Regulations 2021. Approved Document Part F: Ventilation
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- ¹⁷ Plymouth City Council (2019) The Plymouth Plan 2014-2034 –[online] (Last accessed: 08/11/2023), Available at: <https://plymouth.gov.uk/planningandbuildingcontrol/plymouthplan>
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- ²² West Devon Borough Council, South Hams District Council and Plymouth City Council (2020) Plymouth & South West Devon Joint Local Plan 2014-2034 Supplementary Planning Document –[online] (Last accessed: 08/11/2023), Available at: <http://plymouth.gov.uk/sites/default/files/JLPSPD2020FINALred.pdf>
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Appendix 1 - EHO Consultation.

From: Jenkin, Gary
Sent: 06 November 2023 09:29
To: Brough, Sophie
Cc: Public Protection
Subject: RE: BC-948044-01/11/23-Community Diagnostic Centre (CDC), Plymouth - Air Quality Assessment Consultation
Attachments: [PCC_ASR_England_2023 - Awaiting DEFRA Approval.pdf](#)

OFFICIAL

Good Morning Sophie,

Many thanks for your email with regards the methodology for this assessment.

I am happy with the proposals you have made. I attach a draft copy of the 2023 ASR, which is still awaiting final verification by DEFRA.

Kind regards

Gary Jenkin

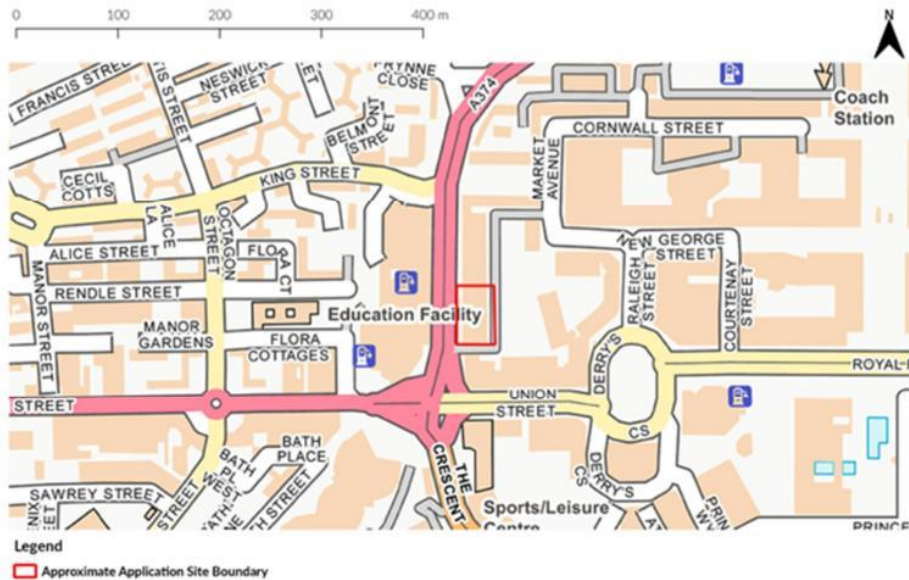
www.plymouth.gov.uk

From: Brough, Sophie
Sent: Wednesday, November 1, 2023 11:08 AM
To: Public Protection
Subject: BC-948044-01/11/23-Community Diagnostic Centre (CDC), Plymouth - Air Quality Assessment Consultation

Dear Sir/Madam,

Hoare Lea have been instructed by Ward Williams Associates on behalf of the University Hospitals Plymouth NHS Trust to undertake an Air Quality Assessment to support the planning application for the proposed construction and operation of a Community Diagnostic Centre (CDC) at the Colin Campbell Court site fronting Western Approach, Plymouth, PL1 1TQ.

I have set out our proposed assessment approach below and would invite any comments or local air quality considerations you may have. The site is located at the below location (red outline):



The Proposed Development comprises of the construction of a 3-storey Community Diagnostic Centre (CDC) on the Colin Campbell Court Site fronting Western Approach, with the ground, first and second floors used for diagnostic imaging and treatment purposes, with the third floor used for plant rooms (hereafter referred to as the 'Proposed Development'). The Proposed Development will provide diagnostic capacity to allow for diagnostic imaging, audiology and physiological measurements to be conducted for patients in the community, alongside providing public waiting areas and facility management areas.

Hoare Lea propose to undertake the assessment using the following methodology:

- A baseline assessment of air quality will be undertaken using Plymouth City Council (PCC) data, taken from the most recently available Annual Status Report/s.
- Monitoring data for 2020 and 2021 will not be included as part of our assessment, owing to the effects of the COVID-19 pandemic. Monitoring data from 2019 will be used to establish the baseline. Should the 2022 monitoring data be available please could you comment on the suitability of using this data, as well as providing us with the most up to date ASR?
- A review of the Plymouth and South West Devon Joint Local Plan will be carried out.
- A review of relevant supplementary planning guidance including the Plymouth and South West Devon Supplementary Planning Document and the Plymouth and South West Devon Statement of Community Involvement will be conducted.
- DEFRA's background pollution maps will be used to establish background concentrations in the area.
- An assessment of the construction impacts on air quality and dust using the IAQM methodology, in compliance with 'The Control of Dust and Emissions During Construction and Demolition'.
- Any construction or operational phase mitigation will be recommended as necessary in line with IAQM guidance.
- The energy strategy for the Proposed Development is to be all electric, utilising zero emission technologies. There will also be a diesel generator, for emergency use only. However, as no combustion sources are proposed during normal operation and within the primary energy strategy, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

- Initial road traffic data associated with the Proposed Development has been provided by AECOM, the appointed Transport Consultants for the project. It is expected that the annual average daily traffic (AADT) will decrease associated with the Proposed Development, due to the Proposed Development being predominantly car-free (with five accessible car parking spaces and a patient drop off lay by on the eastern façade of the Proposed Development) and the removal of approximately 20 car parking spaces from the Colin Campbell Court car park at the east of the Proposed Development. Therefore, AADT associated with the Proposed Development will be below the EPUK and IAQM criteria, indicating that the potential for air quality impacts from road traffic emissions associated with the Proposed Development, is unlikely. As such, a detailed assessment is not required, and a screening assessment will be undertaken.
- An assessment of Site Suitability will be undertaken qualitatively with a desk-based review of the existing baseline air quality undertaken to inform the exposure of future users of the development. Local air quality monitoring and DEFRA's background pollution maps will be used to understand concentrations at the Application Site.

I would also be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have.

Please let me know if there are any additional guidance documents that aren't publicly available that you would like us to consider.

In the meantime, if you have any questions, do not hesitate to contact me.

Many thanks,

Sophie Brough
Graduate Air Quality Consultant



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Appendix 2 - Professional Experience.

Christelle Escoffier (Hoare Lea) MsEng, Msc.PhD MIES MIAQM

Christelle Escoffier is a Senior Associate and technical lead for air quality group with Hoare Lea. She is a Full Member of the Institution of Environmental Sciences and the Institute of Air Quality Management. She graduated with a Master in Science Diploma from Paris VI University, France and holds a Doctor of Philosophy degree in Physical Oceanography, Meteorology and Environment, from the same University.

In her twenty-two years of professional experience, she has managed and delivered air quality services for a wide range of industries in the United Kingdom (UK), the United States of America (USA) and the Middle East. Her portfolio of experience comprehends projects for diverse sectors from road transport, planning and development, wastewater and waste, oil and gas to power (energy centres, landfill gas plant, power reserve facilities, gas-fired and oil-fired combustion turbine stations). Christelle has in-depth knowledge of atmospheric dispersion models. She has delivered dispersion modelling training courses to government agencies, academic, industrial and commercial professionals worldwide since 2005.

Rachael Harrison (Hoare Lea) BSc(Hons) AMIEnvSc, AMIAQM

Rachael is a Senior Air Quality Consultant with Hoare Lea. She is an Associate Member of both the Institution of Environmental Sciences and Institute of Air Quality Management. Rachael has experience in managing Air Quality and Odour Assessments for a wide range of UK and international clients covering sectors including; residential, commercial, energy and industrial operations. With experience in quantitative and qualitative atmospheric assessments, complex dispersion modelling, air pollutant monitoring surveys for rail, road transport and energy projects. Rachael's interest's lie in the health implications attributed to poor air quality.

Sophie Brough (Hoare Lea), BSc (Hons), MChem

Sophie is a Graduate Air Quality Consultant with Hoare Lea. She is an integrated MChem Chemistry graduate from the University of Leeds. During her MChem research project, Sophie conducted research in atmospheric chemistry, with particular focus on the impact of the oxidation of volatile organic compounds on air pollution. Sophie has experience in air quality assessments and producing indoor air quality plans. Sophie's interests lie within promoting indoor air quality and recognising the impacts of poor air quality on the individual.



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