Transpennine Route Upgrade
Flint Street Compound Hub

Air Quality Screening Assessment

Document Ref: 151667-TSA-00-TRU-REP-W-EN-001705

Network Rail

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1.1. Background

1.1.1. The Trans Pennine Route Upgrade West (“TRU West”) is a programme of works to enhance/upgrade the existing railway infrastructure between Manchester & Leeds. Network Rail is proposing to develop the former Kirklees Council Building Services Site at Flint Street into a temporary office/induction hub and associated staff parking site (“the Proposed Development”).

1.1.2. A Transport and Works Act Order (TWAO) for the Huddersfield and Westtown (Dewsbury) section of the TRU was submitted to the Secretary of State for Transport on 31 March 2021 (The Network Rail (Huddersfield to Westtown (Dewsbury) Improvements) Order). Upgrading the railway between Huddersfield and Westtown (Dewsbury) is key to delivering passenger benefits along the Transpennine railway. Network Rail is submitting a standalone planning application under the Town and Country Planning Act 1990 to facilitate the use of the former Kirklees Council Building Services Site, (herein referred to as “the site”) as separate works to the TWAO.

1.2. The Proposed Development

1.2.1. The site is located at the former Kirklees Council Building Services Site on Flint Street, Huddersfield at approximate National Grid Reference (NGR) SE 14686 18261.

1.2.2. The site will be used principally as a temporary office hub for use by the TRU West Alliance and various other contractors in support of construction activities to service the wider TRU Scheme. Its use is scheduled to end in January 2029 when the site will be restored to its original condition and returned to Kirklees Council.

1.2.3. The works will comprise a number of elements:

- Retention of existing asphalt surfacing
- Minor resurfacing of the car park area where required using compacted aggregates MOT Type 1 – 2, (Ministry of Transport standard stable sub-base for road surfaces and pathways;
- Provision of 200 parking spaces including 12 disabled bays, and larger vehicle bays (parking for site staff and staff working on wide TRU upgrade scheme);
- Install 50 electric vehicle (EV) charging points;
- Installation of LED lighting across site;
- Utility connections for power, water and sewage; and
- Construction and use of single tier modular building (provides 80 desk office and 150 person multipurpose briefing/induction room.

1.2.4. In terms of site drainage, all facilities using a water supply/toilet will be connected to the main sewer and rainwater fall will be directed towards the existing drainage system.

1.3. Scope

1.3.1. To support the planning application for the site a qualitative air quality screening assessment considering the impact of planned site activities on nearby sensitive receptors has been undertaken. The scope of this assessment is to:

- Present the existing baseline air quality at and around the site (presented in the appendices);

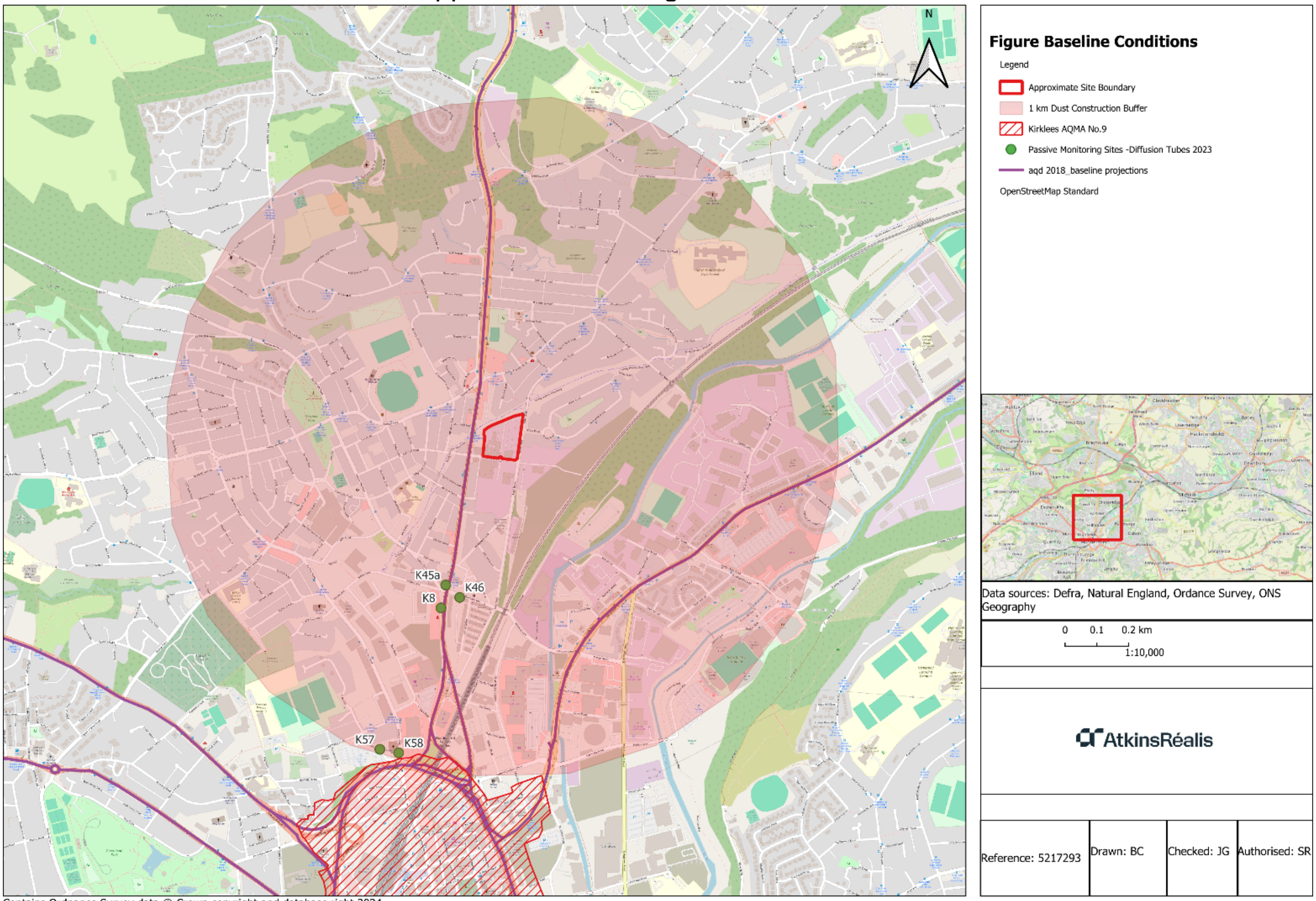
- Assess the potential for significant effects from on-site activities during construction of the site and during use of the site at surrounding sensitive receptors; and

- Discuss any potential mitigation measures to reduce any potential adverse impacts from the continued operation of the site if needed.

1.4. Site Context

1.4.1. The site is located within the administrative area of Kirklees Council. The site is located on the edge of an industrial estate 1.3 km north of Huddersfield Town Centre. The site is bordered by two roads; Alder Street to the east and Flint Street to the south. The A641 Bradford Road is located approximately 30 m to the west of the site. There are residential dwellings located within 50 m of the site in the north, east and west directions. Several commercial and industrial properties are in close proximity to the site. The location and layout of the site is shown in Figure 1 below.

1.4.2. There is an Air Quality Management Area (AQMA) 1 km south of the site, which incorporates roads bordering and within the Huddersfield Ring Road and is named "*Kirklees AQMA 9*". This AQMA was declared by Kirklees Council in 2017 due to exceedances of the nitrogen dioxide (NO_2) annual mean Air Quality Strategy (AQS) objective. It should be noted that this AQMA is one of ten AQMAs within Kirklees Council's administrative area. Further information on the baseline conditions is detailed in Appendix B including



1.4.3. Figure 2 which shows the location of the AQMA and air quality monitoring near the site.

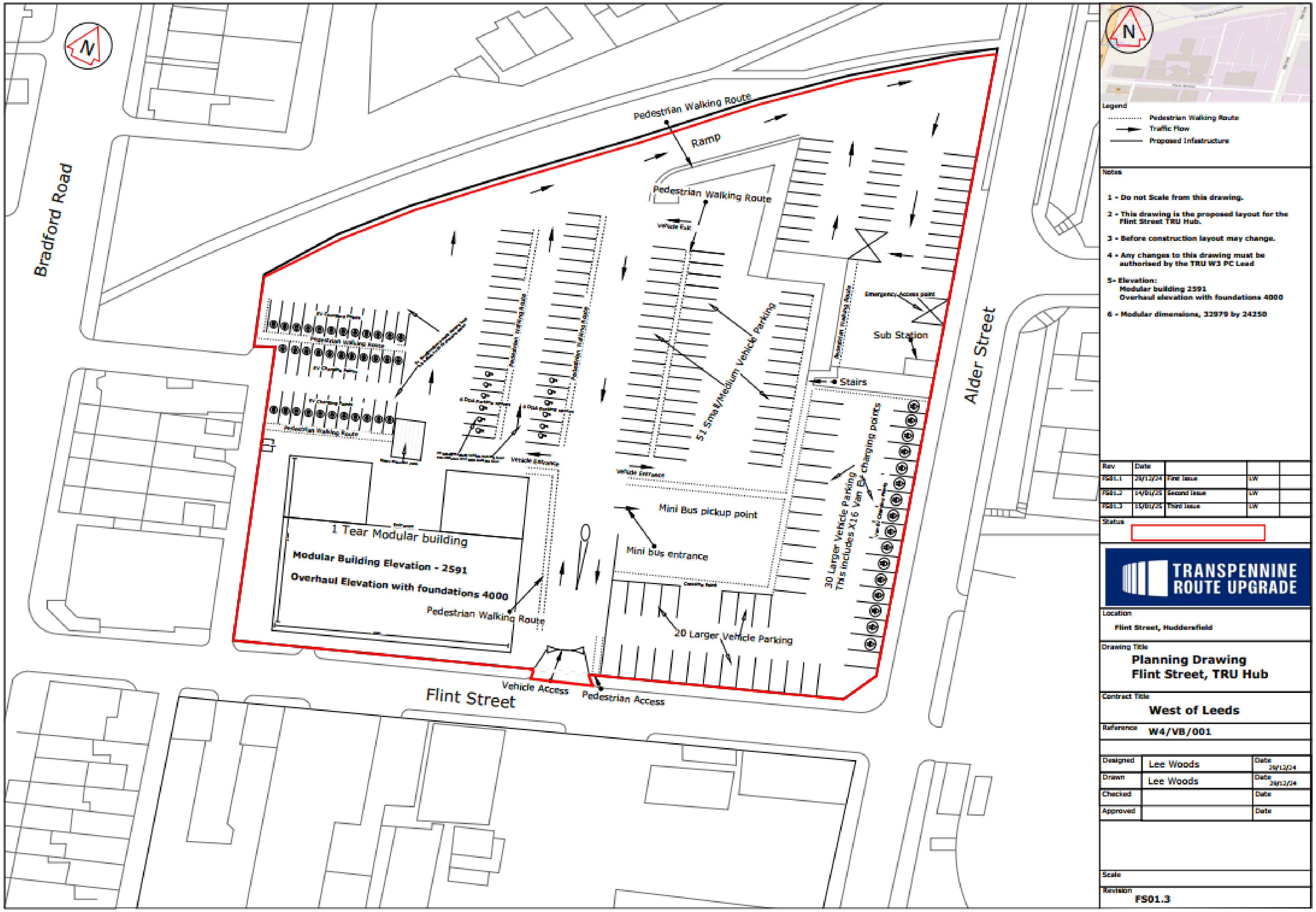


Figure 1 – Flint Street TRU Hub - Location and Layout

1.5. Sensitive Receptors

1.5.1. The surrounding area is mainly residential properties in the north, east and west directions with mainly industrial units, commercial spaces and the TRU West - Hillhouse Construction Site south and southeast of the site. The industrial and commercial properties can be accessed via Flint Street and Alder Street which border the site.

1.5.2. The closest ecological site is “Grimescar Wood”, designated as an ancient, planted woodland, and is located 1.2 km to the northwest of the site. It is therefore unlikely to be affected by activities at the site.

1.6. Consenting Approach

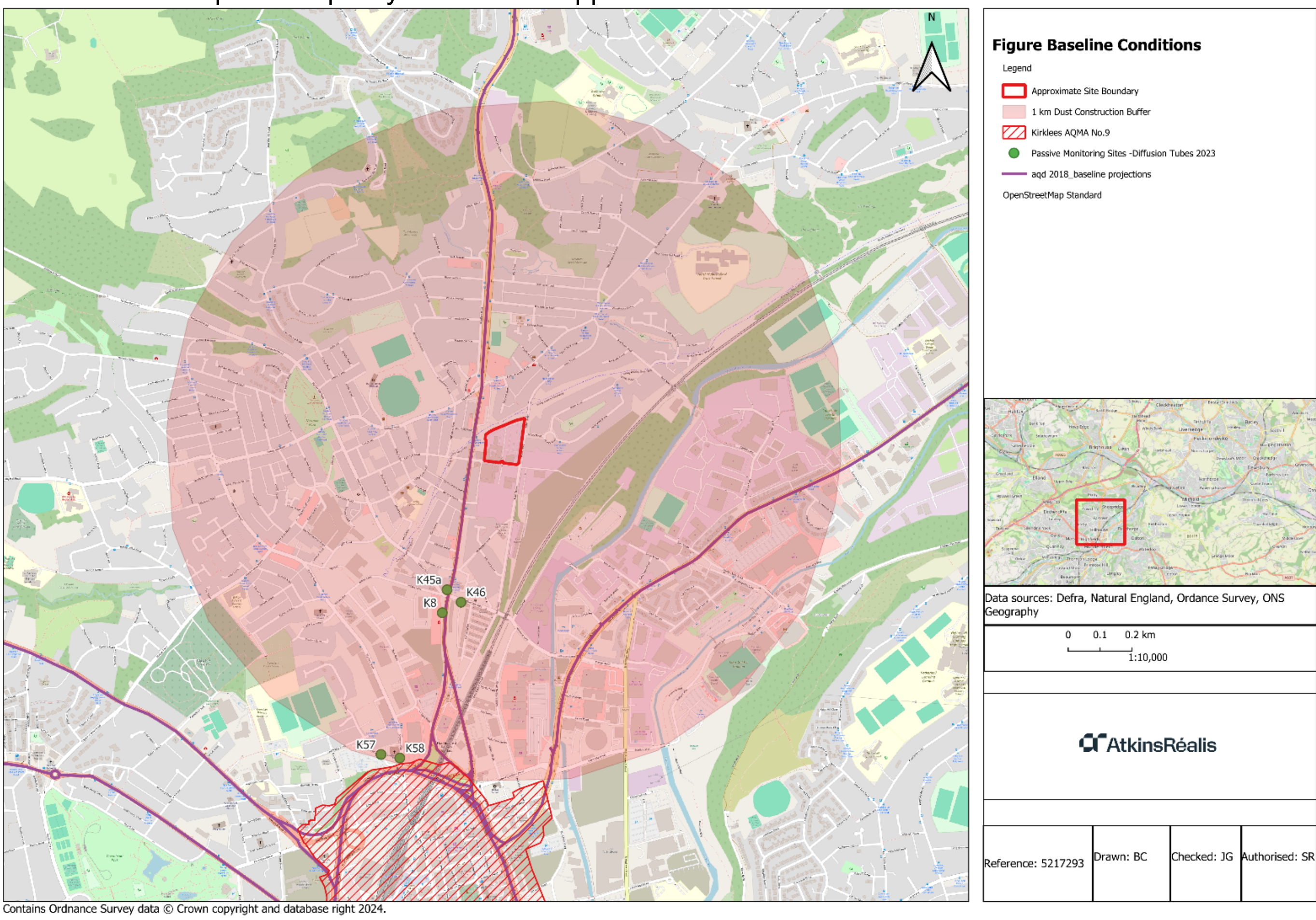
1.6.1. Consent for the Proposed Development will be gained via submission of a planning application under the Town and Country Planning Act 1990. The following sub sections set out the methodology for the qualitative air quality assessment undertaken to support the planning application for the Proposed Development.

2.1. Background

2.1.1. Information on existing baseline air quality conditions was obtained from the following sources:

- Kirklees Council air quality review and assessment reports[1] ;
- Air quality background concentrations and Pollution Climate Mapping (PCM) model data from Defra's Air Information Resource (UK-AIR)[2];
- AQMA mapping[3]; and
- Residential properties, designated ecological sites and other sensitive receptors in the vicinity of the Proposed Development have been identified from Ordnance Survey (OS) mapping (OpenStreetMap), and the Natural England Multi-Agency Geographic Information for the Countryside (MAGIC) website[4].

2.1.2. A constraints map for air quality is shown in Appendix B -



2.1.3. Figure 2, which shows the boundaries of AQMA, PCM model data, and Kirklees Council air quality monitoring sites.

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[1] Kirklees Council. 2024 Air Quality Annual Status Report (ASR). Available at: https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/kirklees-annual-status-report-2024.pdf
[2] Defra UK-AIR 'Modelled background pollution data' Available at: https://uk-air.defra.gov.uk/data/modelling-data
[3] Defra AQMA interactive map. Available at: http://uk-air.defra.gov.uk/aqma/maps
[4] Defra Magic Map Application. Available at: http://www.magic.defra.gov.uk/

2.2. Construction Phase and Use of Site as Construction Hub

Construction Dust Risk Assessment

2.2.1. The assessment of dust emissions during construction activities and use of the site is considered in the context of the overall scale and nature of the development under consideration and the potential sensitivity of neighbouring land uses. The quantity and distribution of dust emissions varies according to type, duration and location of activity, weather conditions and the effectiveness of suppression (mitigation) measures. Good practice control measures that are “highly recommended” or “desirable” for dust control for the various dust risk categories are recommended.

2.2.2. The Institute of Air Quality Management (IAQM) ‘Guidance on Assessment of Dust from Demolition and Construction (IAQM Construction Dust Guidance)[5] provides a framework for a risk-based approach to the assessment of dust emissions from demolition and construction activities and outlines options for mitigation depending on the level of ‘dust risk’ identified for a site through the assessment process.

Construction Traffic

2.2.3. The potential impact of vehicle emissions on local air quality has been evaluated using criteria given in the Environmental Policy Implementation Community (EPIC, previously Environmental Protection UK (EPUK)) and the IAQM’s ‘Land-use Planning and Development Control: Planning for Air Quality’ (2017)[6] guidance (IAQM Planning Guidance), which advises that an air quality assessment would be required where a development causes a change in Heavy Duty Vehicle (HDV) flows of more than 25 HDVs per day on local roads within or adjacent to an AQMA and by more than 100 HDVs per day elsewhere or changes of Light Duty Vehicle (LDV) flows of more than 100 LDV per day on local roads within or adjacent to an AQMA and by more than 500 LDVs per day elsewhere. Where the traffic change criteria are exceeded an assessment of the potential impacts from construction traffic is required.

2.2.4. Traffic data have been provided by AtkinsRealis traffic modelling team, in support of the Transport assessment, which estimate the additional traffic generated whilst the site is under construction and in use between January 2025 and January 2029.

Construction Plant

2.2.5. IAQM Construction Dust Guidance[5] advises that the exhaust emissions from on-site non road mobile machinery (NRMM) plant are unlikely to make a significant impact on local air quality, and in the vast majority of cases will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur.

2.3. Duration of use

2.3.1. The site will only be in use in support of the TRU works construction phase and will cease following completion of the TRU works planned to end January 2029. Further consideration of operational emissions for the use of the site as a compound once the TRU works are complete is not required.

[5] IAQM (2024 v2.2). Guidance on the assessment of dust from demolition and construction: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf
[6] Environmental Policy Implementation Community (EPIC), previously Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) (2017), ‘Land-Use Planning & Development Control: Planning for Air Quality’. Available at:http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

3.1. Construction Phase

Construction Activities

3.1.1. Assessment of the potential impact of the planned site construction activities on air quality with regards to dust and PM_{10} emissions has been carried out with reference to the four-step process described in the IAQM Construction Dust Guidance[5]. This assessment is described in more detail in Appendix C and summarised below.

3.1.2. Without mitigation there could be increased emissions of dust and particulate matter during construction activities planned at the site in 2025.

3.1.3. Site activities will be undertaken in accordance with well-established and routine mitigation measures to control dust and manage emissions as required by Network Rail's Environmental and Social Policy Statement - NR/L2/ENV/015[7]. The need for any further mitigation has been determined based on the assessment undertaken in accordance with the IAQM Construction Dust Guidance[5].

3.1.4. With reference to the IAQM Construction Dust Guidance[5] a high-level appraisal of the potential for dust emissions during construction works planned at the site in terms of dust soiling and human health impacts has been undertaken. This considers the overall scale and nature of the proposals as summarised below and the sensitivity of neighbouring land uses:

- Demolition activities are confirmed to be negligible as part of the proposals and have been scoped out of the construction dust assessment. Any existing structures within the site boundary will be cleared prior to transfer to TRU West and existing asphalt surfaces will be retained;
- Total earthworks area is approximated to be less than 18,000 m^2 with the existing soil within the site boundary classed as "loamy" in line with the application Soilscape[8], the limited earthworks planned are covering parking areas not currently covered in Asphalt with compacted MOT, and minor works to support installation of drainage, installation of water supply, installation of power supply, installation of fibre for internet connection, installation of light columns for lighting across the site.
- Total new building volume is predicted to be below 12,000 m^3, based on the use of modular prefabricated units with a total volume of 2,000 m^3 likely to have low potential for dust release; and
- Total HDV movements (vehicles with a weight of > 3.5 tonnes) are anticipated to be less than 20 AADT with unpaved road lengths less than 50 m where all road surfaces are covered by Asphalt or compacted MOT.

3.1.5. The potential dust emission magnitude for earthworks, construction and trackout[9] activities has been assessed as SMALL for the construction of the TRU Hub.

3.1.6. There are between 10-100 high sensitivity residential properties east and west of the scheme and 10-100 low sensitivity receptors on the industrial estate to the southeast of the scheme located within 20 m of the site boundary. Within 50 m of the site boundary there are both 10-100 high sensitivity residential properties and 10-100 low sensitivity workplace receptors.

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[7] Network Rail (2021) Environment and Social Minimum Requirements for Projects – Design and Construction, NR/L2/ENV/015, Network Rail, June 2021
[8] Soilscape Application developed Cranfield Environment Centre, supported by Defra. Available at: https://www.landis.org.uk/soilscapes/
[9] The transport of dust and debris from a construction site onto the public highway

The background PM_{10} concentration is 11.5 µg/m^3. There are no ecological receptors within 50 m of the site boundary.

3.1.7. The sensitivity of the area is assessed as HIGH to dust soiling effects and LOW for human health impacts. The risk of dust impacts for each of the four activities (demolition, earthworks, construction and trackout) is given below

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Low Risk	Low Risk	Low Risk
Human Health	N/A	Negligible	Negligible	Negligible

Construction Hub Operation Activities

3.1.8. Assessment of the potential impact on air quality of the planned activities at the site, with regards to dust and PM_{10} emissions has been carried out with reference to the four-step process described in the IAQM Construction Dust Guidance[5]. This assessment is described in more detail in Appendix C and summarised below.

3.1.9. Without mitigation there could be increased emissions of dust and particulate matter during use of the site between 2025 and 2029.

3.1.10. Site activities will be undertaken in accordance with well-established and routine mitigation measures to control dust and manage emissions as required by Network Rail's Environmental and Social Policy Statement - NR/L2/ENV/015[7]. The need for any further mitigation has been determined based on the assessment undertaken in accordance with the IAQM Construction Dust Guidance[5].

3.1.11. With reference to the IAQM Construction Dust Guidance[5] a high-level appraisal of the potential for dust emissions during use of the Hub in terms of dust soiling and human health impacts has been undertaken. This considers the overall scale and nature of the proposals as summarised below and the sensitivity of neighbouring land uses:

- Demolition activities are confirmed to be negligible as part of the proposals and have been scoped out of the construction dust assessment;
- Earthworks activities are confirmed to be negligible as part of the proposals and have been scoped out of the construction dust assessment;
- Construction activities are confirmed to be negligible as part of the proposals and have been scoped out of the construction dust assessment; and
- Total HDV movements (vehicles with a weight of > 3.5 tonnes) were estimated to be 46 outward vehicle movements per day (this is half of the two-way traffic movements) with unpaved road lengths less than 50 m where all road surfaces are covered by Asphalt or compacted MOT.

3.1.12. The potential dust emission magnitude for trackout activities has been assessed as MEDIUM for the use of the office facility during the TRU works construction phase.

3.1.13. There are between 10-100 high sensitivity residential properties within 20 m of the trackout route and 10-100 low sensitivity receptors on the industrial estate located to the south of the scheme. The background PM_{10} concentration is 11.5 µg/m^3. There are no ecological receptors within 50 m of the site boundary.

3.1.14. The sensitivity of the area is assessed as HIGH to dust soiling effects and LOW for human health impacts. The risk of dust impacts for each of the four activities (demolition, earthworks, construction and trackout) is given below.

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	N/A	N/A	Medium Risk
Human Health	N/A	N/A	N/A	Low Risk

Traffic Emissions

3.1.15. The potential impact of vehicle emissions on local air quality has been evaluated using criteria given in the IAQM Planning Guidance which advises that an air quality assessment would be required where a development causes a change in HDV flows of more than 25 HDVs per day[10] on local roads within or adjacent to an AQMA and by more than 100 HDVs per day elsewhere or changes of LDV flows of more than 100 LDV per day on local roads within or adjacent to an AQMA and by more than 500 LDVs per day elsewhere.

3.1.16. The estimated number of vehicle movements during the site construction period associated with the transport and placement of prefabricated modular units, construction materials, plant and labour to and from site is on average less than 20 HDV per day. The estimated vehicle movements include 4 weekends where between 09:00 and 16:00 the modular units will be installed using a crane to avoid impact on local traffic. Traffic management will be provided during the installation. The estimated number of vehicle movements do not exceed the traffic change criteria and further assessment has therefore not been undertaken. Any effect on air quality from construction traffic will in any case be temporary and will cease when the construction works at the site are complete.

3.1.17. The estimated number of additional vehicle movements associated with use of the office facility is an increase in two way traffic of up to 418 LDV and 92 HDV per day on the site access road with increases in two way traffic of less than 418 LDV and 92 HDV on the local road network including the Bradford Road, Flint Street, Alder Street, Leeds Road, Willow Lane East, Hillhouse Lane and Thistle Street. These values do not exceed the traffic change criteria and further assessment has therefore not been undertaken. Any effect on air quality from traffic during use of the Hub will be temporary and will cease when the works are complete.

Plant Emissions

3.1.18. During the site construction period, temporary use of silenced acoustic generators may be required until permanent connection to power supplies can be completed. Permanent connection to utilities including water, power, and sewage will be completed during construction. The numbers of plant required during site construction and other on-site non road mobile machinery is not expected to be of a magnitude that would result in a significant impact and as such further assessment is not deemed necessary.

3.1.19. During the temporary use of the site as an office hub, permanent connection to utilities

[10] As Annual Average Daily Traffic (AADT)

including water, power, internet and sewage will be in place. It is not anticipated that any plant will be required to support use of the offices and parking.

4.1. Construction

Hub Construction Activities

4.1.1. Suitable best practice mitigation measures, proportionate to the likely worst case "Low" risk of dust impacts, will be applied during the construction of the site. With appropriate and site-specific mitigation in place, there should be no significant effects on air quality at local receptors due to construction dust. A full list of highly recommended and desirable mitigation measures for a "Low" risk construction site is presented in Section 8 of the IAQM Construction Dust Guidance[5]. With appropriate mitigation measures in place, any adverse effects resulting from the construction works should be minimised such that there is no significant residual effect on nearby receptors.

4.1.2. It should be noted that construction activities will also be undertaken in accordance with well-established and routine mitigation measures to control dust and manage emissions as required by Network Rail's Environmental and Social Policy Statement - NR/L2/ENV/015.

4.1.3. Examples of general mitigation measures highly recommended for "Low" risk construction sites and which will be implemented on site are given below:

- Display TRU West Alliance contact information;
- 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 offsite, and the action taken to resolve the situation in the logbook;
- Carry out regular site inspections, record inspection results, and make the 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 a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
- 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;
- Avoid site runoff of water or mud;
- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel- or petrol-powered generators and use solar power, mains electricity or battery powered equipment where practicable;

- 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;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Avoid bonfires and burning of waste materials.

Hub Operation Activities

4.1.4. Suitable best practice mitigation measures, proportionate to the likely worst case “Medium” risk of dust impacts, should be applied during the use of the site. With appropriate and site-specific mitigation in place, there should be no significant effects on air quality at local receptors due to construction dust. A full list of highly recommended and desirable mitigation measures for a “Medium” risk construction site including measures specific to trackout is presented in Section 8 of the IAQM Construction Dust Guidance[5]. With appropriate mitigation measures in place, any adverse effects resulting from the works should be minimised such that there is no significant residual effect on nearby receptors.

4.1.5. It should be noted that the use of the site in support of construction activities will be undertaken in accordance with well-established and routine mitigation measures to control dust and manage emissions as required by Network Rail’s Environmental and Social Policy Statement - NR/L2/ENV/015.

4.1.6. Examples of general mitigation measures highly recommended for “Medium” risk construction sites are given below:

- 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;
- 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 Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London’s guidance. The DMP may include monitoring of dust deposition, dust flux, real time PM10 continuous monitoring and/or visual inspections;
- 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

offsite, and the action taken to resolve the situation in the logbook;

- Carry out regular site inspections, record inspection results, and make the 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 a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction;

- 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;

- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives 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.

- Ensure all vehicles switch off engines when stationary - no idling vehicles;

- Avoid the use of diesel- or petrol-powered generators and use solar power, mains electricity or battery powered equipment where practicable;

- 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;

- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;

- Use enclosed chutes and conveyors and covered skips;

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment 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; and

- Avoid bonfires and burning of waste materials.

4.1.7. Additional mitigation measures recommended specifically for dust risks associated with Medium risk trackout are detailed below.

- 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 continuously in 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 logbook;
- 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 permit;
- Access gates to be located at least 10 m from receptors where possible

4.1.8. Given that the site will have hard surfaces installed across the car park area with low dust risk potential and vehicles travelling between the site and other sites across the construction works should be managed at source to reduce the risk of transferring soiling material onto the office facility car park, it is thought unlikely that dust or PM_{10} monitoring, water-assisted dust sweepers, mobile sprinkler systems or wheel washing systems will be necessary. Regular site inspections and recording of inspection results will identify if dust is present on the local road network and where necessary these additional mitigation measures may be required.

5.1.1. This qualitative air quality screening assessment presents a review of the local existing air quality conditions. It also considers the potential air quality impacts during construction of the site and during use of the site, on existing sensitive receptors.

5.1.2. The site is located on a light industrial estate 1.3 km north of Huddersfield Town Centre. The nearest AQMA, AQMA No.9, is located 1 km south of the site and incorporates roads bordering and within the Huddersfield Ring Road. Local authority air quality monitoring data and background mapping indicates that local air quality is acceptable with measured concentrations below the currently legislated AQS objectives for NO_2 and PM_{10}, and background mapping below AQS objectives and future targets for $PM_{2.5}$. Air quality in the vicinity of the Proposed Development is therefore not considered to be a concern.

5.1.3. The area surrounding the site is mainly residential to the north, east and west with industrial, commercial office space and construction activities to the south and southeast. There are a small number of residential receptors located within 20 m of the eastern and western boundary of the site accessed via Alder Street and Bradford Road.

5.1.4. The planned construction activities on site have the potential to generate dust and particulate emissions, which may have a short-term adverse impact at nearby human health receptors and to a lesser extent at office/commercial receptors. With appropriate mitigation measures in place however, these works should not result in a significant residual effect at these receptors. The use of the site as an office facility also should not result in a significant residual effect at receptors with appropriate mitigation measures in place.

5.1.5. No long-term impacts to air quality as a result of vehicle emissions are anticipated as a result during the site construction period or with the use of the office facility because additional vehicle movements are below the traffic change criteria recommended in the IAQM Planning Guidance. In addition, the requirement for on-site power generation and plant operation is minimised. It is therefore not anticipated that mitigation of emissions will be required.

5.1.6. Overall, there are not anticipated to be any adverse effects resulting from the site with appropriate mitigation in place. Once TRU construction activities cease there will be no significant residual effect on nearby receptors.

APPENDICES

A. Legislation, Policy, and Guidance

Local Air Pollutants

The pollutants of concern in the context of the site include nitrogen dioxide, particulate matter and dust.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a secondary pollutant produced by the oxidation of nitric oxide (NO) in ambient air. The pollutants NO and NO_2 are collectively termed oxides of nitrogen (NO_x). Road transport contributed 30 per cent of emissions of NOx in 2022 and emissions of NOx from non-road transport (aviation, rail, and shipping) contributed 15 per cent of total NOx emissions in 2022[11]. The majority of NO_x emitted from vehicles is in the form of NO, which oxidises rapidly in the presence of ozone (O_3) to form NO_2. In high concentrations NO_2 can affect the respiratory system, whereas NO does not have any observable effect on human health at the range of concentrations found in ambient air. High concentrations of NO_x can have an adverse effect on vegetation, including leaf or needle damage and reduced growth. Deposition of pollutants derived from NO_x emissions contribute to acidification and/or eutrophication of sensitive habitats.

Particulate Matter

PM is a generic term used to describe a complex mixture of solid and liquid particles of varying size, shape, and composition. Some particles are emitted directly (primary PM); others are formed in the atmosphere through complex chemical reactions (secondary PM). The composition of PM varies greatly and depends on many factors, such as geographical location, emission sources and weather.

The main sources of man-made PM are the combustion of fuels (by vehicles, industry and domestic properties) and other physical processes such as tyre and brake wear. Natural sources include wind-blown soil and dust, sea spray particles, and fires involving burning vegetation.

There is an extensive body of evidence that long-term exposure to PM increases mortality and morbidity from cardiovascular and respiratory diseases. Outdoor air pollution, particularly PM, has also been classified by the International Agency for Research on Cancer (IARC) as carcinogenic to humans (a Group 1 carcinogen) and causing lung cancer. There is some experimental evidence, however, that ultrafine particles may also pass through the lungs into the bloodstream[12].

PM is classified according to size. The UK currently focuses on estimating the fractions of PM emissions where particles are less than 10 micrometres in diameter (PM_{10}) and less than 2.5 micrometres in diameter ($PM_{2.5}$). This approach is based on scientific consensus and longstanding evidence regarding the extent to which different sizes of particles penetrate into the respiratory system and are absorbed by the lungs.

Road transport continues to be a major source of PM emissions, as it contributed 18 per cent of total $PM_{2.5}$ emissions and contributed 16 per cent of total PM_{10} emissions in 2022. Road transport emissions

[11] Emissions of air pollutants in the UK – Nitrogen oxides (NOx), Defra, updated February 2024. Available at https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox

[12] Health matters: air pollution, Defra, updated November 2018, Available at https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution

are made up of both exhaust emissions and non-exhaust emissions (brake, tyre and road wear). Exhaust emissions have decreased markedly from 1996 to 2022 due to stricter emissions standards (decreased by 93 per cent for both $PM_{2.5}$ and PM_{10}). However, non-exhaust emissions (brake, tyre and road wear) have increased by 15 per cent for $PM_{2.5}$ and increased by 14 per cent for PM_{10} between 1996 and 2022, as the overall number of kilometres travelled by vehicles each year in the UK has increased over this period. This means that most PM emissions from road transport derive from non-exhaust emissions[13].

Dust

Dust is defined within the Institute of Air Quality Management (IAQM)'s "Guidance on the assessment of dust from demolition and construction[14]" (IAQM Dust Guidance) as 'solid particles that are suspended in air or that have settled out onto a surface after having been suspended in air. The terms dust and particulate matter (PM) are often used interchangeably, although in some contexts one term tends to be used in preference to the other. In this guidance the term 'dust' has been used to include the particles that give rise to soiling, and to human health and ecological effects.

The IAQM Dust Guidance states that in terms of effects, construction sites may give rise to annoyance due to the soiling of surfaces by dust. Very high levels of soiling also have the potential to damage plants and affect the diversity of ecosystems. Additionally, there is evidence of major construction sites increasing long term particulate matter concentrations. Exposure to particulate matter has long been associated with a range of health effects, with an increasing focus on smaller particles such as $PM_{2.5}$.

Dust emissions from a construction site may be mechanically generated due to land preparation (e.g., demolition, land clearing and earth moving) or released from construction activities, site plant and from the movement of road vehicles on temporary roads, open ground and haul routes and tracking out mud onto the local road network.

Air Quality Legislation

Air quality regulations that apply in England include:

- The Air Quality Standards Regulations (Statutory Instrument (SI) 2010 No.1001[15] as amended (SI 2016 No 1184)[16]) which implemented the air quality limit values included in the EU Directive on ambient air quality and cleaner air for Europe (2008/50/EC), as amended by SI 2019 No.74[17] and SI 2020 No.1313[18] to account for EU withdrawal.
- Regulations implementing national air quality objectives: Air Quality (England) Regulations 2000 (SI 2000 No. 928), Air Quality (England) (Amendment) Regulations 2002 (SI 2002 No. 3043)[19,20] and

[13] Emissions of air pollutants in the UK – Particulate matter (PM10 and PM2.5), Defra, updated February 2024. Available at https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-particulate-matter-pm10-and-pm25
[14] IAQM (2024 v2.2). Guidance on the assessment of dust from demolition and construction. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf
[15] The Air Quality Standards Regulations 2010. Available at: http://www.legislation.gov.uk/uksi/2010/1001/contents/made
[16] The Air Quality Standards (Amendment) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/1184/contents/made
[17] The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/uksi/2019/74/made
[18] The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (SI 2020 No. 1313) Available at: https://www.legislation.gov.uk/uksi/2020/1313/made
[19] The Air Quality (England) Regulations 2000. Available at: http://www.legislation.gov.uk/uksi/2000/928/contents/made
[20] The Air Quality (England) (Amendment) Regulations 2002. Available at: http://www.legislation.gov.uk/uksi/2002/3043/contents/made

- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023 No.96)[21].

Limit Values

The air quality limit values included in the EU Directive on ambient air quality and cleaner air for Europe (2008/50/EC) and are included in air quality regulations (SI 2010 No.1001)[15] as amended (SI 2016 No. 1184)[16], which have been further amended by SI 2019 No.74[17] and SI 2020 No.1313[18] to account for EU withdrawal.

The UK Government's air quality plan for nitrogen dioxide in the UK[22] sets out how local authorities should contribute to the achievement of air quality criteria through targeted feasibility studies[23], including clean air zones (CAZ) where appropriate.

Air Quality Objectives

The Air Quality Strategy (AQS) for England 2023[24] replaces the previous Air Quality Strategy for England, Scotland, Wales and Northern Ireland published in 2007. The new strategy sets out the national air quality objectives and targets for a number of local air pollutants and provides a strategic framework for local authorities and other partners in England.

The air quality objectives were set by expert organisations with regard to scientific and medical evidence on the effects of the particular pollutant on health and define the level of pollution below which health effects are expected to be minimum or low risk even for the most sensitive members of the population. The criteria set air pollution levels to be achieved by a specified timescale, which take account of the costs and benefits of achieving the standard, either without exception or, for certain short-term averaging period standards, with a permitted number of exceedances.

Local authorities have a responsibility (under Part IV of the Environment Act 1995, and as updated by the Environment Act 2021) to review and assess local pollution levels against these objectives.

It should be noted that the AQS objectives only apply in locations likely to have 'relevant exposure' i.e., where members of the public are exposed for periods equal to or exceeding the averaging periods set for the standards. For this assessment, locations of relevant exposure include building façades of residential premises, schools, public buildings and medical facilities; places of work (other than certain community facilities) are excluded.

Air Quality Targets

In January 2019, the UK Government published its Clean Air Strategy[25], which set out actions proposed by the Government to improve air quality by reducing pollution from a wide range of sources and including requiring new targets for $PM_{2.5}$. Targets have now been set in legislation[26], as required by the Environment Act 2021. Interim targets have also been introduced in Defra's Environmental Improvement

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[21] Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. Available at: https://www.legislation.gov.uk/uksi/2023/96/made?view=plain
[22] Defra (2017) UK plan for tackling roadside nitrogen dioxide concentrations, July 2017, Available at: https://uk-air.defra.gov.uk/library/no2ten/index
[23] Defra (2018) Supplement to the UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations: Local Authorities Feasibility Studies - Defra, UK. [online] Available at: https://uk-air.defra.gov.uk/library/no2ten/2018-la-tfs-documents
[24] Defra (2023) Air quality strategy: framework for local authority delivery, August 2023 Available at: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england
[25] A Clean Air Strategy 2019, Defra, January 2019, Available at https://www.gov.uk/government/publications/clean-air-strategy-2019
[26] Environment Act 2021, Available at https://www.legislation.gov.uk/ukpga/2021/30/contents

Plan 2023[27] to be achieved by the end of January 2028. Regulation SI 2023 No.96 sets out that the targets for $PM_{2.5}$ are to apply at relevant monitoring locations which are considered to be fixed monitoring locations within the national monitoring network. However, for this air quality assessment these targets have been applied at all locations on a precautionary basis.

Relevant air quality criteria for the protection of human health are presented in Table A.

Table A - Statutory air quality criteria for relevant air pollutants

Pollutant	Criteria	
PM_{10}	Limit value and objective	24-hour mean concentration should not exceed 50 µg/m^3 more than 35 times a year.
		Annual mean concentration should not exceed 40 µg/m^3.
$PM_{2.5}$	Limit value	Annual mean concentration should not exceed 20 µg/m^3 by 2020 (Stage 2 Limit).
		Exposure reduction: target of 20% reduction in concentrations at urban background between 2010 and 2020.
	Objective	UK (Except Scotland) annual mean concentration should not exceed 20 µg/m^3 by 2020.
		Exposure reduction (UK urban areas): target of 15% reduction in concentrations at urban background between 2010 and 2020.
	Target	Annual mean concentration target – a maximum of 10 µg/m^3 to be met across England by 2040, with an interim target of 12 µg/m^3 by the end of January 2028.
		Population exposure reduction target – a 35% reduction in population exposure by 2040 (compared to a base year of 2018), with an interim target to reduce by 22% by the end of January 2028.
NO_2	Limit value and objective	1-hour mean 200 µg/m^3 not to be exceeded more than 18 times a year.
		Annual mean concentration should not exceed 40µg/m^3.

Responsibility for achieving the national air quality criteria lies with the Government, although local authorities should contribute to this through local action plans designed to reduce pollution levels in Air Quality Management Areas (AQMA).

Local Air Quality Management

Under Part IV of the Environment Act 1995, as amended by Schedule 11 of the Environment Act 2021[28], all local authorities are responsible for Local Air Quality Management (LAQM), the mechanism by which the Government's AQS objectives are to be achieved. As part of this LAQM role, local authorities are required to periodically review air quality in their area and to assess present and likely future air quality against the objectives defined in Regulations. Where a local authority anticipates an objective is expected to be breached within their area, they must designate an AQMA and develop an action plan to improve pollution levels and work towards achieving the AQS objectives. Under the current LAQM

[27] Environmental Improvement Plan 2023, Defra, January 2023, Available at https://www.gov.uk/government/publications/environmental-improvement-plan
[28] Schedule 11 Environment Act 2021. Available from: https://www.legislation.gov.uk/ukpga/2021/30/schedule/11/enacted

regime, a local authority is responsible for regular review and assessment of local air quality, reports on which are published following public consultation and review by the Department for Environment, Food and Rural Affairs (Defra).

Statutory responsibility for achieving air quality limit values rests with the Government and local authorities have no responsibility for achieving the national air quality criteria, although they should contribute to this through local action plans designed to reduce pollution levels in AQMAs, and through the targeted feasibility studies[22], including clean air zones where appropriate, to supplement the government's air quality plan for nitrogen dioxide in the UK[23].

Dust

There are no national standards or guidelines for dust deposition currently set in the UK, nor by any international organisations. This is due mainly to the difficulty that any standard set would need to relate to dust being a perceptual problem rather than being specifically related to health effects. Typically, there is a 'likelihood of complaint' in residential areas when measured dust levels (as measured using a passive deposit gauge) are 200 mg/m^2/day or greater. This threshold is recommended as a level for action by IAQM[29].

Planning Policy

National Planning Policy

National Planning Policy Framework

The Government's planning guidance of general relevance to air quality is found within the NPPF[30]. It provides guidance for local authorities on incorporating air quality considerations into planning decisions and aims to protect the environment and to promote sustainable growth.

Paragraph 110 states that development should be focused on locations which are or can be made sustainable, as this can help to reduce congestion and emissions, and improve air quality and public health.

Paragraph 199 concerns the need to take into account the presence of AQMAs and Clean Air Zones (CAZs) and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified. The paragraph goes on to state that any new development in AQMAs and CAZs should be consistent with the local air quality action plan.

Planning Practice Guidance

Planning Practice Guidance (PPG)[31] is intended to support the NPPF and provide further detail to its policies. PPG indicates at paragraph 005 that information relating to air quality could be important to decision makers, and when there are concerns about air quality, the local planning authority may want to know about:

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[29] IAQM (2018) Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites. Available at: https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf
[30] Ministry of Housing, Communities and Local Government (2024) 'National Planning Policy Framework (NPPF)', December 2024. Available at: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf
[31] Ministry of Housing, Communities and Local Government (2019) National Planning Portal-Planning Practice Guidance-Air Quality, published November 2019, Available at http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/

- "the 'baseline' local air quality.
- whether the Proposed Development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and
- whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."

PPG also advocates, at paragraph 005, early engagement with the local planning and environmental health departments to establish the need and scope of any assessment. Guidance is also given on the level of detail required in an air quality assessment, and measures which could be employed to mitigate adverse effects.

Local Planning Policy

Kirklees Local Plan Strategy and Policies

Kirklees Local Plan Strategy and Policies[32] was adopted in February 2019 and contains policies to manage development within Kirklees up to 2031.

Policy LP51 – Protection and improvement of local air quality specifies:

1. *"Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air pollution which would have an unacceptable impact on the natural and built environment or to people."*

2. *"Proposals that have the potential to increase local air pollution either individually or cumulatively must be accompanied by evidence to show that the impact of the development has been assessed in accordance with the relevant guidance. Development which has the potential to cause levels of local air pollution to increase must incorporate sustainable mitigation measures that reduce the level of this impact. If sustainable measures cannot be introduced the development will not be permitted."*

3. *"Where the development introduces new receptors into Air Quality Management Areas or Areas of Concern or near other areas of relatively poor air quality, for example near roads or junctions, the development must incorporate sustainable mitigation measures that protect the new receptors from unacceptable levels of air pollution. Where sustainable mitigation measures cannot be introduced which prevent receptors from being exposed to unsafe levels of air pollution, development will not be permitted."*

Kirklees Local Air Quality Strategy

The Kirklees Local Air Quality Strategy[33] was launched in 2007. This strategy outlines the approach Kirklees takes to improve air quality.

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[32] Kirklees Council (2019) Kirklees Local Plan Strategy and Policies. Available online at: https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf

[33] Kirklees Council (2007) The Kirklees Local Air Quality Strategy. Available online at: https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/AirQualityStrategy.pdf

- It is the Vision of Kirklees Council to ensure that children have the best start in life, people are as well as possible for as long as possible and experience a high quality, clean, sustainable and green environment though our shared outcomes.
- Kirklees Council will consider the impact of Air Quality in all decision making and make decisions which improve air quality.
- Kirklees Council is committed to supporting the increase in active travel (walking and cycling) to improve air quality and the health and wellbeing of the public.
- Kirklees Council will work to accelerate the uptake of ultra-low emission vehicles, reduce emissions from all vehicles and increase low emission public transport use.
- Kirklees Council has declared a Climate Emergency and is committed to reducing carbon emissions. Action to reduce carbon emissions will also reduce emissions of other air pollution and improve local air quality.

Kirklees Air Quality Action Plan 2019-2024

Kirklees Air Quality Action Plan[34] was adopted in 2019 and outlines actions to improve air quality between 2019 and 2024. The plan outlines 11 broad topics where actions have been identified to reduce emissions associated with vehicles working with local businesses, homeowners and developers to reduce the impact from their emissions.

Kirklees Health and Wellbeing Strategy 2022 – 2027

The Kirklees Health and Wellbeing Strategy[35] is a high-level strategy delivered by the Health and Wellbeing Board and their partners to:

- Children have the best start in life
- People in Kirklees are as well as possible for as long as possible
- People in Kirklees live independently and have control over their lives

West Yorkshire Low Emission Strategy - Air Quality and Emissions – Technical Planning Guidance[36]

This technical guidance, developed by the West Yorkshire Low Emission Strategy (WYLES) group, which has membership from each of the five West Yorkshire local authorities, including Kirklees Council, forms part of the development of an overarching low emissions strategy to reduce road transport emissions in West Yorkshire. The technical guidance has been developed in support of planning applications to integrate air quality considerations into land-use planning and development management policies. The guidance provides advice on how to classify development by size and risk, quantify impacts, formulate damage costs, identify mitigation measures and tackle cumulative impacts.

[34] Kirklees Council (2019) Kirklees Air quality Action Plan 2019-2024. Available online at: https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/air-quality-action-plan.pdf

[35] Kirklees Council (2022) Kirklees Health and Wellbeing Strategy 2022 – 2027, Available at https://www.kirklees.gov.uk/beta/delivering-services/health-and-wellbeing-strategy.aspx

[36] West Yorkshire Low Emissions Strategy Group (2016), West Yorkshire Low Emission Strategy - Air Quality and Emissions – Technical Planning Guidance Available at https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/WYLES-air-quality-and-emissions-planning-technical-guide.pdf

Rail Specific Policy

Department for Transport

The Department for Transport's (DfT) Rail Environment Policy Statement[37] aims to:

"achieve a cleaner, greener railway that is fit for the future".

The policy statement includes the following priorities in relation to air quality:

- Set targets for levels of $PM_{2.5}$, PM_{10} and NO_2 for all parts of the network that the public can access in 2022, with the ambition of meeting these targets by the end of 2030;
- The rail industry will be required to produce air quality improvement plans for stations identified as having poor air quality;
- Remove all diesel-only trains from the network by 2040; and
- For 100% of Network Rail's cars and vans to be zero emission vehicles by 2027.

In addition, the Government's Transport Decarbonisation Plan[38] includes as a strategic priority the need to:

- "accelerate modal shift to public and active transport"

With a commitment to:

- "improve rail journey connectivity with walking, cycling and other modes of transport"

Clean Air Strategy

The Department for Environment, Food and Rural Affairs (Defra)'s Clean Air Strategy[25] has also identified actions to reduce emissions from rail transport, including to:

"reduce emissions from rail and reduce passenger and worker exposure to air pollution."

Network Rail

Network Rail has set up its own decarbonisation strategy[39], which aims to:

"set science based targets to the most ambitious target of limiting emissions from our own operations to a 1.5°C warming scenario." By limiting emissions within their direct control as well as optimising both its upstream and downstream emissions.

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[37] DfT (2021) Rail Environment Policy Statement on Track for a Cleaner, Greener Railway. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002166/rail-environment-policy-statement.pdf
[38] DfT (2021) Decarbonising Transport. A Better, Greener Britain. Available at: https://www.gov.uk/government/publications/transport-decarbonisation-plan
[39] Network Rail (2022) Traction Decarbonisation Network Strategy – Executive Summary: https://www.networkrail.co.uk/sustainability/a-low-emission-railway/

Rail Safety & Standards Board

The Rail Safety & Standards Board (RSSB)'s Air Quality Strategy Framework[40] has a vision to achieve 'A rail network with a positive impact on local air quality'. The Strategy covers all pollutant emissions resulting from the GB rail industry which have proven to impact human health.

Network Rail Environmental and Social Policy

The Environment and Social Minimum Requirements for Projects – Design and Construction**Error! Bookmark not defined.**, published by Network Rail in 2021 sets out Network Rail's minimum requirements for the management of environment and social risks and opportunities during design and/or construction activities. The document describes environmental requirements with respect to air quality and dust and social performance requirements.

Non-Statutory Guidance

Development Control

The IAQM Planning Guidance[6] aims to ensure that air quality is adequately considered in the land-use planning and development control processes. It comprises an initial screening stage to determine the need for an air quality assessment. If further assessment is required, a number of more stringent criteria are provided to help establish the need for further work, which may be either qualitative or quantitative, simple or detailed, depending on the impact of the development on, for instance, traffic flow. It also provides a framework for describing the magnitude of changes in local air pollutant concentrations at individual receptors (the impact) and gives advice on how overall significance may be assessed using professional judgement (the effect).

Construction Dust Assessment

The IAQM Construction Dust Guidance[14] provides a framework for a risk-based approach to the assessment of dust emissions from demolition and construction land development schemes and outlines options for mitigation depending on the level of 'dust risk' identified for a site through the assessment process.

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[40] GB Rail Industry supported by RSSB (May 2022 update) Air Quality Strategic Framework. Available at: https://www.rssb.co.uk/sustainability/clean-air/air-quality-strategic-framework

B. Baseline Conditions

Local Air Quality Management

The site is located within the Kirklees Council area of administration. The closest AQMA to the site is Kirklees AQMA 9, that incorporates roads bordering and within the Huddersfield Ring Road and located 1.0 km to the south of the site. This AQMA was declared by Kirklees Council in 2017 due to exceedances of the nitrogen dioxide (NO_2) annual mean Air Quality Strategy (AQS) objective. It should be noted that this AQMA is one of ten AQMAs within Kirklees Councils administrative area.

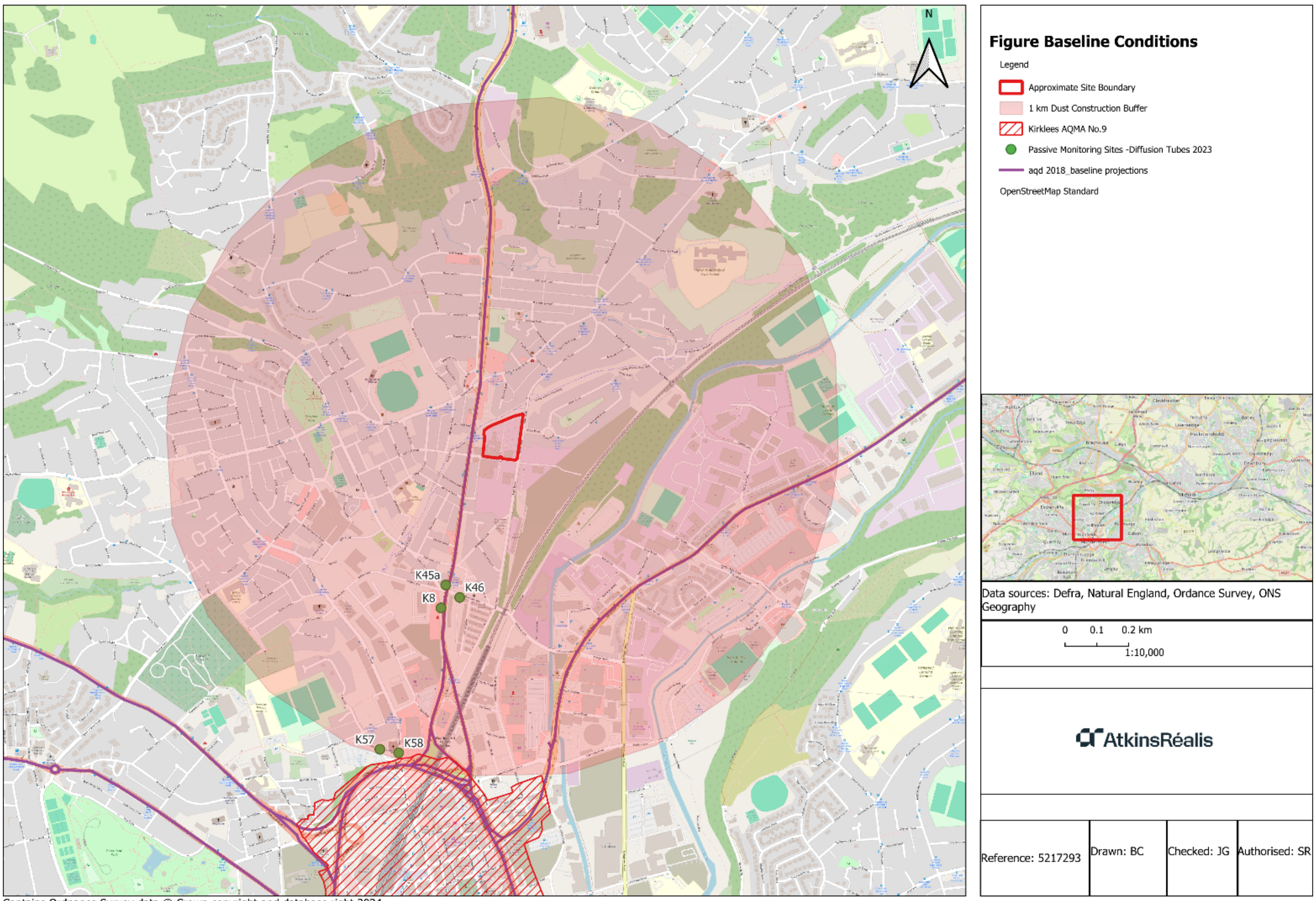

Figure 2 below shows the location of AQMA and air quality monitoring near the site.

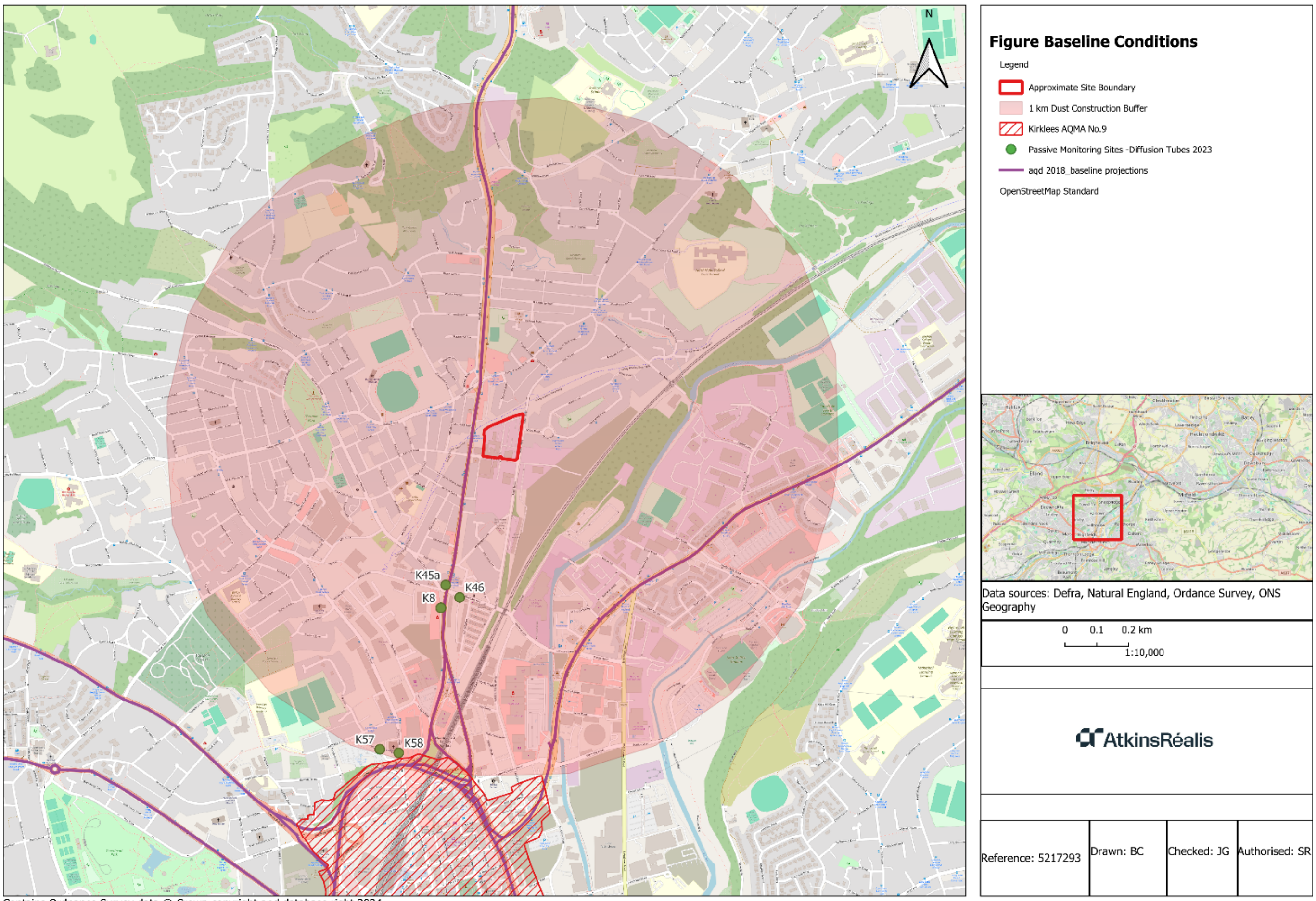

Figure 2 - Site Location and Air Quality Monitoring Locations

Air Quality Monitoring.

Continuous Monitoring

Continuous monitoring is undertaken at an Automatic Urban and Rural Network (AURN) site within the Kirklees Council boundary, CM1, an urban background monitor in Dewsbury, approximately 10.0 km northeast of the site. CM1 measures pollutant concentrations of NO_2, PM_{10} and $PM_{2.5}$.

Table B summarises the NO_2, PM_{10} and $PM_{2.5}$ monitored concentrations for this monitoring station from 2019 to 2023. The CMS site is not representative of conditions at the site however it is an urban background site and is representative of regional background conditions without emissions from local traffic.

Annual mean NO_2 concentrations at the CMS site are below the AQS objective of 40 µg/m^3 for the years presented. Annual mean PM_{10} and $PM_{2.5}$ concentrations at the CMS site are below the AQS objective of 40 µg/m^3 and 20 µg/m^3 respectively for the years presented. $PM_{2.5}$ concentrations in 2023 were also below the interim target of 12 µg/m^3 (to be met by the end of January 2028) and the target of 10 µg/m^3 (to be met by 2040).

Table C presents the number of exceedances of the 1-hour mean AQS objective for NO_2 of 200 µg/m^3 recorded at the CMS sites. The AQS objective for permits 18 exceedances of 200 µg/m^{3}per calendar year. The results show that the AQS objective was met in all years, as there were no exceedances was in one year.

Table D presents the number of exceedances of the daily mean standard for PM_{10} of 50 µg/m^3 recorded at the CMS sites, the AQS objective for which permits 35 per calendar year. The results show that the AQS objective was met in all years, as the number of exceedances was below 35 in any one year.

Table B - Annual mean NO_2, PM_{10} and $PM_{2.5}$ continuous monitoring results (µg/m^3), 2019 - 2023

Site Name	Pollutant	2019	2020	2021	2022	2023
CM1	NO_2	n/a	16.0	17.0	18.0	16.0
	PM_{10}	n/a	n/a	n/a	12.6	12.0
	$PM_{2.5}$	n/a	n/a	n/a	8.3	7.0

Table C - Number of 1-hour mean NO_2 concentrations > 200 µg/m^3, 2019 - 2023

Site Name	2019	2020	2021	2022	2023
CM1	n/a	0	0	0	0

Table D - Number of 24-hour mean PM_{10} concentrations > 50 µg/m^3, 2019 – 2023

Site Name	2019	2020	2021	2022	2023
CM1	n/a	n/a	n/a	0 (20) *	2

* Period of valid data was less than 85% so the 90.4th percentile of 24-hour means is provided in brackets.

Passive Monitoring

Kirklees Council operate 120 passive monitoring sites measuring NO_2 using diffusion tubes[1]. There are five passive monitoring sites within 1.0 km of the site, data for which is presented in Table E and locations shown in Figure 2. The closest diffusion tube location is K45a, a roadside site, adjacent to Bradford Road. The maximum recorded annual mean NO_2 concentration in 2023 was 34.3 µg/m^3, 86% of the annual mean AQS objective of 40 µg/m^3.

Table E shows that there were no exceedances of the NO_2 annual mean AQS objective at any of the passive monitoring sites in 2023.

Table E - Annual mean NO_2 concentrations of diffusion tubes within 1 km of the site (µg/m^3)

Site ID	Site Type	Site Name	2019	2020	2021	2022	2023
K45a	Roadside	Bradford Road Fartown 2 - opposite Khan Mather	36.4	25.1	33.2	34.3	34.3
K46	Roadside	1 Willow Lane East, Fartown (LC002)	34.8	29.2	22.5	21.3	30.5
K8	Roadside	Bradford Road Fartown 1- Charmaines	36.0	30.5	33.4	32.7	30.7
K57	Roadside	Cambridge Road 1	22.2	18.5	20.1	20.7	21.8
K58	Roadside	St John's Road	39.6	34.9	37.4	35.9	32.5

Defra Mapped Background Concentrations

Estimated annual mean background concentrations[41] for the grid square covering the site area (414500, 418500) for the current year, 2024, and the year of construction, 2025, are shown in Table F.

[41] Defra UK-AIR, 'Background Mapping data for local authorities – based on a base year of 2021' Available from: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021 [Accessed November 2024]

Background concentrations are below current relevant AQS objectives (annual mean concentration of 40 µg/m^3 for NO_2 and PM_{10}, and 20 µg/m^3 for $PM_{2.5}$).

Table F - 2024 and 2025 Defra mapped background annual mean concentrations for grid square 414500, 418500 (µg/m^3)

Year	NO_2	PM_{10}	$PM_{2.5}$
2024	12.7	11.7	8.1
2025	12.6	11.5	7.0

Pollution Climate Mapping (PCM)

Defra's PCM model[42] provides estimates of roadside concentrations of annual mean NO_2, which are used in reporting regarding compliance with limit values. The model provides projected roadside concentrations for the years 2018 to 2030 inclusive, based on a 2018 reference year. The closest PCM model link to the site is located on the A641 Bradford Road, approximately 40 m west of the site (PCM Census ID 802047429). The annual mean NO_2 concentrations on the link was 18.7 µg/m^3 for 2024 and 17.7 µg/m^3 for 2025 indicating that there is no risk of exceeding the annual mean NO_2 limit value.

Baseline Summary

The existing baseline air quality conditions has shown that the site is not located within an AQMA. The nearest AQMA, Kirklees AQMA 9, incorporating roads bordering and within the Huddersfield Ring Road is 1.0 km south of the site boundary. The AQMA was designated due to exceedances of the annual mean NO_2 AQS objective.

There were no exceedances of the annual mean AQS objective for NO_2 in 2023, the most recent year of available monitoring data, at passive monitoring sites within 1 km of the site. Furthermore, from a review of locally monitored urban background concentrations and Defra mapped background concentrations at the site and Defra PCM roadside concentrations, there are not expected to be exceedances of the relevant AQS objectives for pollutants NO_2, PM_{10} and $PM_{2.5}$ in 2024, the current year and 2025, the year of construction. Air quality in the vicinity of the Proposed Development is therefore not considered to be a concern.

[42] Defra UK-AIR 'Air pollution forecast' Available from: https://uk-air.defra.gov.uk/ [Accessed November 2024]

C. Construction Assessment

Construction Dust Assessment

There is likely to be increased emissions of dust and particulate matter during the site activities related to the construction activity during 2025 and use of the site between 2025 and 2029. The site is expected to be in use for four years and will be restored to previous condition in 2029.

The IAQM Construction Dust Guidance[5] provides a framework for a risk-based approach to the assessment of dust emissions from construction for land development schemes and outlines options for mitigation depending on the level of 'dust risk' identified for a site through the assessment process.

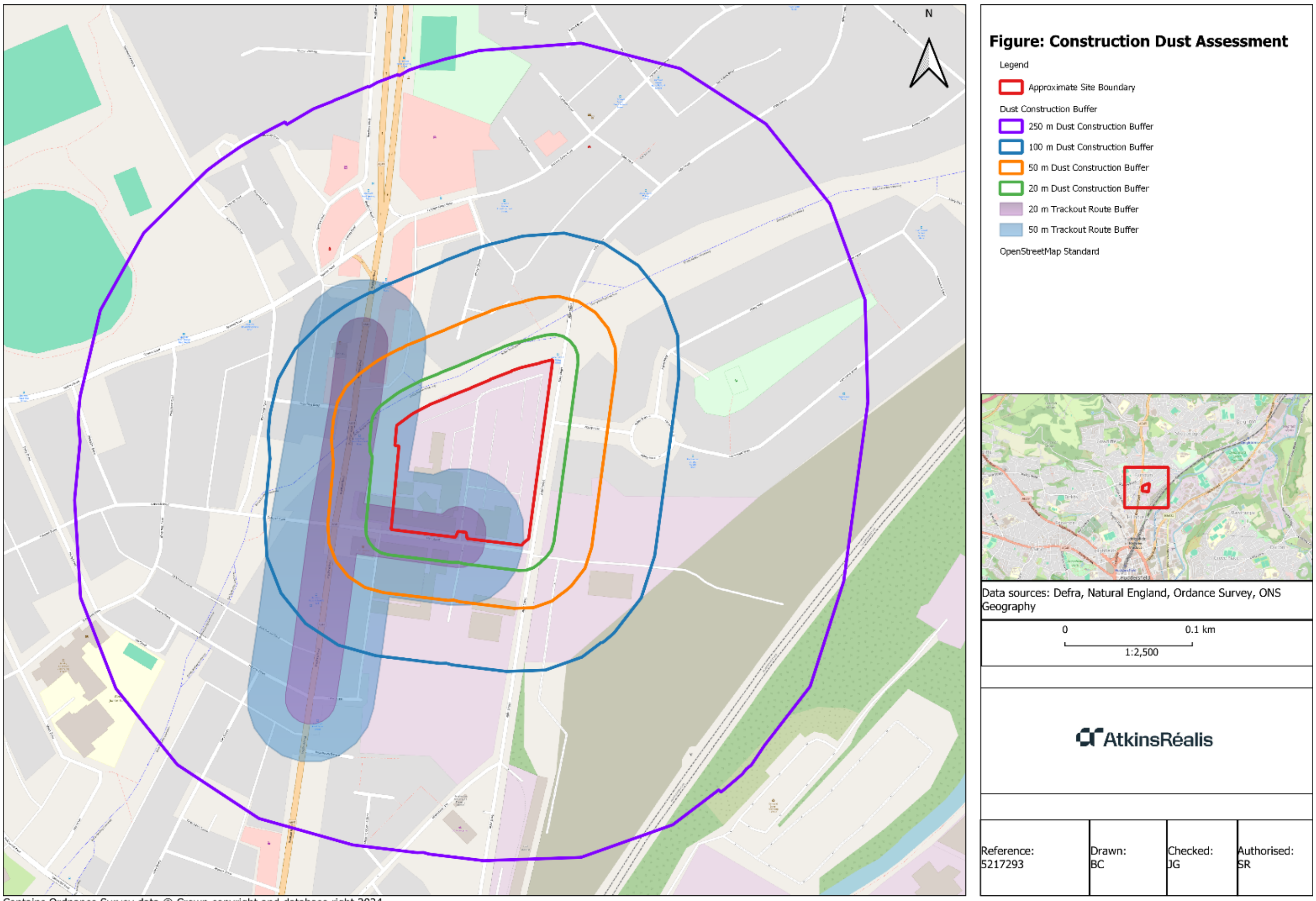

Figure 3 – Flint Street TRU Hub - Construction Dust Assessment

The screening assessment identified that there were human receptors within 20 m, east of the site boundary on Alder Street and to the west on Bradford Road and within 20 m of the trackout routes likely to be used by construction vehicles. No ecological receptors were identified within 50 m of the site boundary or within 50 m of the routes likely to be used by construction vehicles. As such a qualitative dust assessment was conducted, however impacts on ecological receptors were scoped out.

With reference to the IAQM Construction Dust Guidance[14] a high-level appraisal of the potential for dust emissions during construction of the Proposed Development was undertaken. This considered the overall scale and nature of the proposals and the sensitivity of neighbouring land uses.

The magnitude of dust emissions for the construction activities during site setup with the potential to generate dust are presented in Table G and for activities associated with site use in Table I.

Table G - Dust Emission Magnitude - Flint Street TRU Hub Construction Activities

Activity	Dust Emission Magnitude	Justification
Demolition	N/A	No demolition activities will occur.
Earthworks	Small	Site area is less than 18,000 m^2. The soil type has been classed as "loamy"[8] which accordingly has low dust potential.
Construction	Small	Building volume is likely to be less than 12,000 m^3. Construction materials are likely to have low potential for dust release.
Trackout	Small	Assumed to be less than 20 outward HDV movements per day with approximated unpaved road lengths less than 50 m due to the existing hardstanding characteristics of the site

There are between 10 to 100 residential receptors, classed as high sensitivity, located within 20 m of the site boundary adjacent to Alder Street and Bradford Road. Within 20 m of the external trackout route extending 250 m from the site access there are between 10 to 100 residential high sensitivity receptors and between 10 to 100 low sensitivity workplace receptors that may be sensitive to dust emissions. The sensitivity of the surrounding area to dust soiling is considered to be 'High'. As background annual mean PM_{10} concentrations are below 24 μg/m^3 in the area the sensitivity of the surrounding area to human health impacts is 'Low'.

The sensitivity of the surrounding area and potential risk from dust soiling and human health impacts, given the dust emissions magnitudes described above, is summarised in Table J. The overall dust risk during site construction activities is expected to be 'Low'.

Table H - Summary of Sensitivity of the Surrounding Area and Expected Dust Risk During Site Construction

Sensitivity of Surrounding Area		Summary of Dust Risk			
		Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	N/A	Low Risk	Low Risk	Low Risk
Human Health	Low	N/A	Negligible	Negligible	Negligible

Table I - Dust Emission Magnitude - Flint Street TRU Hub Operation Activities

Activity	Dust Emission Magnitude	Justification
Demolition	N/A	No demolition activities will occur.
Earthworks	N/A	No earthworks activities will occur.
Construction	N/A	No construction activities will occur.
Trackout	Medium	Between 20 and 50 outward HDV movements per day. Car park and access roads have hard surfacing; either asphalt or crushed gravel.

There are between 10 to 100 residential receptors, classed as high sensitivity, located within 20 m of the external trackout route extending 250 m from the site access and between 10 to 100 low sensitivity workplace receptors that may be sensitive to dust emissions. The sensitivity of the surrounding area to dust soiling is considered to be 'High'. As background annual mean PM_{10} concentrations are below 24 μg/m^3 in the area the sensitivity of the surrounding area to human health impacts is 'Low'.

The sensitivity of the surrounding area and potential risk from dust soiling and human health impacts, given the dust emissions magnitudes described above, is summarised in Table J. The overall dust risk is expected to be 'Medium'.

Table J - Summary of Sensitivity of the Surrounding Area and Expected Dust Risk During Site Use

Sensitivity of Surrounding Area		Summary of Dust Risk			
		Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	N/A	N/A	N/A	Medium Risk
Human Health	Low	N/A	N/A	N/A	Low Risk

Traffic Emissions

During site construction activities, modular prefabricated office buildings and construction equipment and materials will be delivered via HDV, the total number of vehicles is expected to be below 20 vehicles movements per day. During construction, 4 weekends between 09:00 and 16:00 will be utilised whilst the modular units are installed using a HIAB crane to avoid impact on local traffic. Traffic management will be provided during the installation.

When the site is in use as an office facility with parking, the estimated number of additional vehicle movements associated with use of the office facility is an increase in two way vehicle movements of up to 418 LDV and 92 HDV per day on the site access road with increases in two way vehicle movements of less than 418 LDV and 92 HDV on the local road network including Bradford Road, Flint Street, Alder Street, Leeds Road, Willow Lane East, Hillhouse Lane and Thistle Street. These traffic movements are below the traffic change criteria given in the IAQM Planning Guidance (change in Light Duty Vehicles of less than 500 AADT and change in Heavy Duty Vehicles of less than 100 outside an AQMA). Any effect on air quality from traffic during use of the Hub will be temporary and will cease when the works are complete.

Damage Cost Assessment

The WYLES Air Quality and Emissions Technical Planning Guidance includes a methodology for a pollutant emissions costs calculation to identify the environmental damage costs associated with the proposal and determine the amount (value) of mitigation that is expected to be spent on measures to mitigate the impacts. Given that the site activity is limited to 4 years and additional vehicle trips associated with the site activity does not exceed relevant traffic change criteria a damage cost assessment in accordance with the WYLES guidance was not considered necessary. The site will be operated in compliance with Network Rail's Environmental and Social Policy Statement - NR/L2/ENV/015 minimising the impact on the local environment and the neighbourhood.

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