HS2

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Air Quality Annual Report 2023

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Department for Transport

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Non-Technical Summary

This 2023 Annual Air Quality Report focuses on the air quality monitoring undertaken in the 2023 calendar year across HS2. The report details the monitoring undertaken during the construction works on Phase One.

HS2 is Great Britain's new high-speed railway. Once operational, HS2's British-built trains will provide zero-carbon journeys between the UK's two largest cities, Birmingham and London, with services continuing on to Manchester, the North-West and Scotland using the conventional railway network, cutting journey times.

In November 2013, HS2 deposited a Hybrid Bill with Parliament to seek powers for the construction and operation of Phase One of HS2 (referred to as 'the Proposed Scheme'). The results of the Environmental Impact Assessment were reported in an Environmental Statement which was submitted alongside the Bill. On 23 February 2017 Royal Assent was granted for HS2 Phase One, creating the High Speed Rail (London – West Midlands) Act 2017.

The HS2 Air Quality Strategy and HS2 Air Quality Information Paper, summarise the air quality effects identified in the Environmental Statement, as amended, and set out HS2's approach for managing air quality, which includes the publication of an annual review of air quality.

The first two annual reports published in 2018 (revised in 2019) focused on reporting monitoring data for air quality around highways and covered the 2016 period, based on 6 months of monitoring data and 2017 calendar year. These reports reviewed baseline conditions prior to the commencement of construction works.

The third, fourth, and fifth annual reports focused on reporting monitoring data for air quality around highways, covering the 2018, 2019, 2020 during the early stages of construction. The sixth, seventh and this eighth report covered 2021, 2022 and 2023 calendar years, during the main phase of construction activities on Phase One and baseline conditions prior to the proposed commencement of construction works in Phase 2a. The government changed the scope of Britian's new high speed railway cancelling Phase Two in October 2023. Therefore, monitoring locations along the previously proposed Phase 2a route have not been included in this 2023 report.

This report refers to the air pollutants and areas where significant effects were identified within the Environmental Statements, as amended. These significant effects along Phase One, for the pollutants nitrogen dioxide and particulate matter, are confined to a limited number of roads in the Greater London area. Therefore, the monitoring data discussed in this report covers the Greater London area for the pollutants nitrogen dioxide and particulate matter.

HS2 commenced a Phase One baseline air quality survey at the end of June 2016. These surveys use diffusion tubes to monitor nitrogen dioxide. The monitoring and reporting of these surveys have been undertaken following the Department for Environment, Food and Rural Affairs (Defra) Local Air Quality

Management best practice guidance. The results from this survey for 2023 are presented in table format in Appendix D and shown on maps, with monitoring sites colour coded based on the measured concentration, in Appendix G. Particulate matter monitoring around highways is available from sites operated by Defra or local authorities and a reference to the relevant reports, where this data is available, is provided. HS2 undertakes indicative monitoring of particulate matter for the purposes ensuring mitigations are effectively controlling dust emissions at high and medium risk construction sites, across the route.

The HS2 air quality monitoring survey is intended to supplement air quality monitoring that is being undertaken by other parties such as Defra, local authorities and in some areas, communities and academic institutions. Data from air quality monitoring surveys undertaken by other parties is not reproduced within this report.

This report provides a summary of the significant effects identified in the Environmental Statement, as amended, and a comparison of 2023 monitoring data with the predictions from the air quality modelling undertaken for the Environmental Statement.

During 2023, Phase One was in peak construction phase. HS2 have already made commitments for measures to reduce emissions generated by construction activities. The measures include:

- Construction vehicle emission standards and methods to manage their use via traffic management plans;
- Non-Road Mobile Machinery emission standards; and
- Dust mitigation measures.

The HS2 Information Paper for Air Quality (E31) sets out the HS2 emission standards for construction vehicles and Non-Road Mobile Machinery. The construction vehicle emission standards came into effect on 14 September 2017 with the commencement of early works, including ground investigation surveys, land preparation works, ecological surveys, etc. across Phase One.

Progress and a summary of the impact of these measures to improve air quality during 2023 in Phase One are set out in Section 4.2 and will continue to be reported across in future annual reports.

HS2 continues to monitor air quality in line with the Local Air Quality Management requirements as set out in the HS2 Phase One Code of Construction Practice. HS2 has also been liaising with relevant local authorities that are introducing Ultra-Low Emission and Clean Air Zones. Furthermore, HS2 has published an Air Quality Action Plan outlining the commitments made, and progress thereof in the management of the significant effects identified in the Environmental Statement, as amended.

1 Introduction

1.1 Background and Introduction

In October 2023, the government changed the scope of Britian's new high speed railway cancelling Phase Two to Manchester, as part of the Network North command paper. The revised route will see HS2 run between London and the West Midlands on a dedicated new line. HS2 services will then join the West Coast main line to the north of Birmingham at Handsacre, Staffordshire and run on the existing network to Manchester, the Northwest and Scotland.

1.1.1 In November 2013, HS2 deposited a Hybrid Bill with Parliament to seek powers for the construction and operation of Phase One of HS2. Royal Assent was granted for Phase One in February 2017. The results of the Environmental Impact Assessment (EIA) were reported in an Environmental Statement (ES), as amended, which was submitted alongside the Bill, which resulted in the Secretary of State publishing the Environmental Minimum Requirements (EMRs), including the Code of Construction Practise (CoCP), which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.

1.1.2 The ES, as amended, prepared as part of the Bill included an assessment of the impacts of the Proposed Scheme on air quality during both construction and operation. The HS2 Air Quality Strategy and HS2 Air Quality Information Paper[1] summarise the impacts identified in the ES, as amended.

1.1.3 This 2023 Annual Air Quality Report focusses on monitoring undertaken in the 2023 calendar year during Phase One construction works.

1.1.4 One of the key impacts of Phase One, identified in the ES, as amended, were the impacts from construction traffic and highway interventions. These impacts were predicted to result in temporary significant effects, along a limited number of roads within the Greater London Area, on local air quality. These effects are mostly from changes in nitrogen dioxide (NO_2) concentrations, and to a much less extent from variations in particulate matter less than 10 micrometres (µm) in diameter (PM_{10}).

1.1.5 NO_2 concentrations in these areas were predicted to exceed the air quality standard even without the Proposed Scheme.

[1] HS2 Phase One Information Paper E31: Air Quality
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672406/E31_-_Air_Quality_v1.5.pdf

1.1.6 The identified significant effects are largely as a result of the existing concentrations of air pollutants within the Greater London already being above government air quality standards.

1.2 Management of Air Quality

1.2.1 The HS2 Air Quality Strategy and HS2 Air Quality Information Papers, summarise the air quality effects identified in the Environmental Statement, as amended, and set out HS2's approach for managing air quality, which includes the publication of an annual review of air quality.

1.2.2 In order to manage significant impacts related to highway traffic changes and interventions, HS2 committed to putting in place a process to manage those impacts through measurement and regular assessments of air quality during the construction of the Proposed Scheme. Where significant effects are predicted, action plans will be put in place with the objective of removing those significant effects.

1.2.3 The HS2 Air Quality Action Plan (published in June 2019), is the first report that presents all the measures HS2 has committed to provide in relation to air quality, forming the baseline against which performance is compared in future years of construction and operation.

1.2.4 The management process is modelled on Defra's Local Air Quality Management (for which the statutory duties of local authorities and London boroughs are set out in Part IV of the Environment Act 1995), and the periodic reviews and action plans are envisaged as being similar to those produced in that process.

1.2.5 The management process comprises of measure – review – action plan. Baseline (pre-works) air quality monitoring is being undertaken in locations where potential significant effects have been predicted. Forecast baseline and 'with HS2 construction' traffic numbers used in the air quality modelling for the ES will be reviewed and updated in these locations, if necessary.

1.2.6 The baseline measurements will be reviewed, and an air quality assessment produced at appropriate stages of construction to determine whether significant effects are still predicted. Where significant effects are still predicted, the air quality monitoring will be continued, and an air quality action plan be developed, with the objective of removing the significant effects as soon and as far as practicable.

1.3 Purpose of this report

1.3.1 The first two annual reports published in 2018 (revised in 2019) focused on reporting monitoring data for air quality around highways and covered the 2016 period, based on 6

months of monitoring data and 2017 calendar year. These reports reviewed baseline conditions prior to the commencement of construction works[2].

1.3.2 The third, fourth and fifth annual reports focused on reporting monitoring data for air quality around highways, covering the 2018, 2019 and 2020 calendar years respectively, during the early stages of construction activity. The sixth, seventh and this eighth report covered 2021, 2022 and 2023 calendar years, during the main phase of construction activities in Phase One and baseline conditions prior to the proposed commencement of construction works in Phase 2a. In October 2023, the government changed the scope of Britian's new high speed railway cancelling Phase Two to Manchester, as part of the Network North command paper, therefore monitoring locations along the previously proposed Phase 2a route have not been included in this 2023 report. This report provides a comparison with the information previously presented in the main ES air quality chapters.

1.3.3 This annual report is focused on reporting monitoring data for air quality around highways. The air pollutants considered in this report are NO_2 and particulate matter (PM). The area of focus is where significant effects were identified within the ES. These areas were within Greater London and, as such the reporting of monitoring data is for these areas only. For other areas along the route, data from Defra and local authority monitoring surveys provides an indication of baseline. This data is not reproduced in this report and reference should be made to the relevant Defra and local authority publications and websites.

1.4 Summary of significant effects identified in the Environmental Statement

1.4.1 For the ES, calculations of changes in concentrations of NO_2 and PM_{10} were calculated. Concentrations of particulate matter with a diameter of less than 2.5 µm ($PM_{2.5}$) concentrations were considered. The ES predicted that changes in traffic emissions during construction of the Proposed Scheme would give rise to significant effects from changes in annual mean NO_2 concentrations around certain construction traffic routes in the Greater London area in Phase One. Significant effects from changes in the 24-hour daily mean PM_{10} concentrations were also predicted, but this was limited to the area in the immediate vicinity of Euston Road in London.

1.4.2 For the ES, best practice guidance published by the Institute of Air Quality Management (IAQM) was used to determine if there were significant impacts anticipated for air quality. This guidance determines the significant effect based on the change in pollutant concentration due to the Proposed Scheme relative to pollutant concentration for the baseline situation. Where the existing air quality is already above government air quality

[2] In some areas, survey work and ground investigation works were undertaken during 2016/2017. In addition, in the London Borough of Camden construction of housing to replace that which will be lost due to land required by HS2 was under construction during 2016/2017.

standards, a relatively smaller change in pollution concentration is considered to be a significant effect, than where existing air quality is below government air quality standards.

1.4.3 Where an effect on air quality is described as significant at a particular location, with respect to the air quality legislation, this does not denote a significant effect on human health. Much larger changes in air quality than what is predicted as a consequence of the Proposed Scheme would be needed to cause significant impacts on health at the level of an individual person.

1.4.4 A summary of the number of receptors with significant effects predicted in the Phase One ES are presented in Appendix A.

2 Air Quality monitoring data and comparison with the Air Quality Objectives and National Compliance

2.1 Pollutants

2.1.1 The main pollutants of concern for local air quality in relation to road traffic emissions are NO_2 and particulate matter (PM). Further details of each of these pollutants is given below.

Nitrogen dioxide (NO_2)

2.1.2 Nitrogen dioxide (NO_2) is a secondary pollutant produced by the oxidation of nitric oxide (NO). NO and NO_2 are collectively termed nitrogen oxides (NOx). Almost a third of the UK NOx emissions are from road transport. The majority of NOx 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 and can also enhance the response to allergens in sensitive individuals, whereas NO does not have any observable effect on human health at the range of concentrations found in ambient air. Elevated concentrations of oxides of nitrogen can have an adverse effect on vegetation, including leaf or needle damage and reduced growth. Deposition of pollutants derived from oxides of nitrogen emission contribute to acidification and/or eutrophication of sensitive habitats.

Particulate Matter (PM)

2.1.3 The principal sources of particles in the UK are combustion processes, which include traffic and industry. Particulate matter in vehicle exhaust gases consists of carbon nuclei onto which a wide range of compounds are absorbed. These particles have an effective aerodynamic diameter of less than 10 micrometres (μm). Particles in this size range are referred to as PM_{10}. Finer size fractions are referred to as $PM_{2.5}$. These particles have an effective aerodynamic diameter of less than 2.5μm. Diesel engines produce the majority of particulate emissions from the vehicle fleets. Approximately sixteen percent of primary PM_{10} emissions in the UK are derived from road transport[3]. Particulate matter is associated with a range of symptoms of ill health including effects on the respiratory and cardiovascular systems, on asthma and on mortality.

[3] Emissions of air pollutants in the UK – Particulate matter (PM10 and PM2.5) - GOV.UK (www.gov.uk)

2.2 Summary of relevant legislation

2.2.1 Air quality monitoring data has been compared against limit values and objectives set out in the following legislation:

- The Air Quality (England) Regulations 2000[4], Air Quality (England) (Amendment) Regulations 2002[5], the Air Quality Standards Regulations 2010[6] and the Air Quality Standards (Amendment) Regulations 2016[7]; and
- Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe[8].

2.2.2 Air quality limit values and objectives are quality standards that have been set for clean air and to protect human health. Some pollutants have standards expressed as annual average concentrations and others have standards expressed as 24-hour, 1-hour or 15-minute average concentrations. Some pollutants have standards expressed in terms of both long-term and short-term concentrations.

2.2.3 Table 1 sets out the EU air quality limit values and UK national air quality objectives for the pollutants NO_2 and PM_{10} for which significant effects were identified. $PM_{2.5}$ is also included for completeness. Within this report, the term 'air quality standards' refers to both the English air quality objectives and the air quality limit values introduced in the UK based on EU Directives.

Table 1: Relevant air quality standards

Pollutant	Averaging Period	Air Quality Standards
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
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
$PM_{2.5}$	Annual mean	25 µg/m^3 to be achieved by 2020
	3-year mean	Target of 15% reduction in concentration at urban background locations to be achieved between 2010 and 2020.

[4] Department for Environment, Food and Rural Affairs, 2000, The Air Quality (England) Regulations 2000, The Stationery Office
[5] Department for Environment, Food and Rural Affairs, 2002, The Air Quality (England) (Amendment) Regulations 2002, The Stationery Office
[6] Department for Environment, Food and Rural Affairs, 2010, The Air Quality Standards Regulations 2010, The Stationery Office
Department for Environment, Food and Rural Affairs, 2016, The Air Quality Standards (Amendment) Regulations 2016, The Stationary Office
[7] Department for Environment, Food and Rural Affairs, 2016, The Air Quality Standards (Amendment) Regulations 2016, The Stationary Office
[8] Official Journal of the European Union, 2008, Directive 2008/50/EC of the European Parliament and of the Council of the 21 May 2008 on ambient air quality and cleaner air for Europe, EU

2.3 Summary of monitoring undertaken by HS2

2.3.1 All HS2 air quality monitoring surveys are intended to supplement air quality monitoring that is being undertaken by other parties such as Defra, local authorities and in some area's communities and academic institutions. Data from surveys undertaken by other parties is not reproduced within this report.

2.3.2 HS2 commenced a Phase One baseline air quality survey at the end of June 2016 and January 2019 respectively in locations where there were predicted to be significant effects on air quality around highways. This baseline air quality survey measured annual mean NO_2, for which potential significant effects were predicted around certain construction traffic routes in the Greater London area. The Phase One survey has continued throughout the initial enabling works phase and will be continued into the main works construction phase.

2.3.3 In relation to where significant effects were identified for PM_{10} for air quality around highways, supplementary surveys are not being undertaken as existing monitoring sites operated by Defra and/or local authorities are considered to give sufficient coverage[9].

2.4 Summary of NO_2 monitoring methodology

2.4.1 A survey of NO_2 concentrations using diffusion tubes commenced at the end of June 2016 for locations within Greater London. The surveys were planned, installed and is operated in accordance with Defra Local Air Quality Management Technical Guidance 2022 (LAQM.TG(22))[10].

2.4.2 The sites selected for inclusion in the survey comprise of:

- Locations where the ES predicted significant effects;
- Co-located locations at pre-existing long-term continuous monitoring sites, operated to European Union reference method standards for bias adjustment; and
- Background and roadside sites where significant effects were not predicted to provide control locations not expected to be affected by the Proposed Scheme.

2.4.3 Diffusion tubes are a passive monitoring method, that has the benefit of not requiring mains power and can be deployed over a large number of locations. In accordance with Defra LAQM.TG(22) guidance, diffusion tubes are exposed for a 4 or 5 week period depending on the length of the month. The diffusion tubes are then collected and returned to the laboratory for analysis at the end of each month and new diffusion tubes are deployed for the next month.

[9] HS2 are undertaking surveys of indicative PM_{10} for the purposes of management of construction dust
[10] Department for Environment, Food and Rural Affairs, Local Air Quality Management Technical guidance. Available at: https://laqm.defra.gov.uk/guidance/

2.4.4 In accordance with Defra LAQM.TG(22) guidance, NO_2 diffusion tube surveys aim for a minimum data capture of 75% for each site for each year of the survey (i.e. there needs to be 9 out of 12 months with valid data at each site). This gives some allowance for the diffusion tube at a site to go missing or be damaged for a given month.

2.4.5 Where data capture over the year is less than 75% a process of annualisation can be applied in accordance with Defra LAQM.TG(22) guidance to calculate an annual mean equivalent for the site based on the comparison of the months with available data against a full dataset for a long term fixed continuous monitoring site operated by Defra or local authorities.

2.4.6 A process of bias adjustment is also undertaken each year. Triplicate sets of diffusion tubes are co-located at long term fixed continuous monitoring sites operated by Defra or local authorities. The average concentration from the triplicate diffusion tubes is compared to the concentrations measured at the long term fixed continuous monitoring site and a correction factor is applied to all sites in the survey to bring these into line with the long term fixed continuous monitoring site.

2.4.7 Details of the diffusion tube locations included in the HS2 air quality monitoring surveys are given in the table in Appendix B and maps in Appendix G.

2.4.8 The diffusion tubes used for the survey period between January and December 2023 in Phase One were supplied by SOCOTEC UK Limited. The diffusion tube preparation used was 20% triethanolamine (TEA) in de-ionised water[11].

Calculation of the annual mean NO_2 concentration

2.4.9 Data collected with the diffusion tubes for the January to December 2023 period were annualised and bias adjusted in accordance with Defra LAQM.TG(22) guidance.

Continuous monitoring data, used to annualise and bias adjust diffusion tube data, were downloaded from www.londonair.org.uk and www.airqualityengland.co.uk.

2.4.10 Diffusion tube data for January to December 2023 were annualised in line with Defra LAQM.TG(22) guidance. The background [12] continuous monitoring sites Camden – Bloomsbury and Kensington and Chelsea – North Kensington were used to derive an annualisation factor for the Phase One data set.

[11] The SOCOTEC diffusion tubes contain 20% TEA in de-ionised water and have a black cap.
[12] Site location type are defined in Defra LAQM.TG(22):

- Kerbside sites are within one metre of the kerb of a busy road.
- Roadside sites are typically within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases).
- Background sites in urban areas are distanced from sources and therefore broadly representative of city-wide background conditions, such as urban residential areas.

2.4.11 Phase One bias adjustment factors for background, roadside and kerbside locations were derived using Defra's Diffusion Tube Data Processing Tool [13]. Bias adjustment factors were derived using the data from diffusion tubes co-located with automatic monitoring sites. The background sites used were Camden – Bloomsbury and Kensington and Chelsea – North Kensington. The roadside sites used were, Camden – Euston Road, Ealing – Hanger Lane and Ealing – Western Avenue, and Hillingdon – South Ruislip. The kerbside sites used were Camden – Swiss Cottage and Westminster – Marylebone Road. Further details on the continuous monitoring sites are available at www.londonair.org.uk and at www.airqualityengland.co.uk. The precision of the tubes (the difference between the triplicate tubes at each location) was represented by calculating the coefficient of variation. It is considered that if the average coefficient of variation is below 10 percent, the survey is of good precision. All sites were found to have good precision and therefore all sites were used for bias adjustment. It should be noted though that Bloomsbury Square (Background) and Swiss Cottage (Kerbside) were found to have poor overall data capture and the bias adjustment factors should be treated with caution.

2.4.12 Full details of the annualisation and bias adjustment factors calculated are presented in Appendix C.

2.5 HS2 NO_2 survey monitoring results

2.5.1 Full monitoring results for the air quality NO_2 diffusion tube surveys are presented in the tables in Appendix D and maps in Appendix G.

[13] Department of Environment, Food and Rural Affairs, 2024, Diffusion Tube Data Processing Tool, Version 04. Available at: https://laqm.defra.gov.uk/

2.6 Particulate Matter monitoring results

2.6.1 HS2 has not undertaken supplementary surveys for particulate matter around highways, as existing monitoring sites operated by Defra and/or local authorities are considered to give sufficient coverage for the areas over which significant effects were identified. The most recent monitoring data from relevant Defra and local authority monitoring sites are presented in the London Air Quality Network Summary Report 2020[14], available at www.londonair.org.uk. The relevant monitoring sites are Camden – Bloomsbury, Camden – Euston Road, Camden – Swiss Cottage, Ealing – Hanger Lane, Ealing – Western Avenue, Kensington and Chelsea – North Kensington, Westminster – Marylebone Road and Hillingdon – South Ruislip (data for this site can be viewed and downloaded from www.airqualityengland.co.uk).

2.6.2 Dust is measured at appropriate locations at the construction site boundary and/or at sensitive receptors using instruments that provide continuous measurement of particulate matter as PM_{10}. As a minimum standard of measurement uncertainty, these instruments are certified through MCERTS as being indicative ambient particulate monitors. Monitoring is only undertaken at High or Medium dust risk sites, as determined through the Institute of Air Quality Monitoring (IAQM) Guidance on the assessment of dust from demolition and construction[15].

2.6.3 Where monitoring is undertaken, monthly summary reports are produced and published at https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2 providing commentary on visual inspections and relevant trigger levels, and summary statistics for each monitoring site including max, min, mean, number of exceedances of the trigger level and line charts of monthly data relevant to the trigger level. The trigger level is set in accordance with the IAQM Guidance on monitoring in the vicinity of demolition and construction sites[16].

[14] Kings College London, 2019, London Air Quality Network Summary Report 2018, October 2019.
[15] IAQM Guidance on the assessment of dust from demolition and construction (Version v2.2, Jan 2024)

[16] IAQM Guidance on Monitoring in the Vicinity of Demolition and Construction Sites (Version 1.1 – 2018)

3 Comparison to predictions in the Environmental Statement

3.1 Phase One

3.1.1 Appendix E presents a comparison between the calculated 2023 results, the modelled prediction for peak NO_2 annual mean concentrations from the ES for the scenario without and with the Proposed Scheme respectively in place[17]. Appendix F presents a comparison between the Phase One 2023 and previous years' monitored results.

3.1.2 This is an indicative comparison rather than an absolute one. There may be differences in the characteristics of the individual diffusion tube locations and the nearest receptor location assessed in the ES. For instance, receptor locations assessed in the ES were typically at the facades of properties adjacent to roads affected by the Proposed Scheme. However, due to the need to be able to access the sites to mount the diffusion tubes on a monthly basis they have typically been located on publicly accessible street furniture such as lampposts and signposts. The diffusion tube locations are intended to be representative of exposure locations along roads where significant effects were predicted during construction. In some instances, they are closer to roads than the locations where the public would typically be exposed.

3.1.3 Where comparisons of monitoring data and modelling prediction results are undertaken, Defra LAQM.TG(22) guidance suggests that if the difference is less than ±25% then the comparison can be considered acceptable.

3.1.4 The 2017 'without scheme' comparison of the monitored results indicates that:

- Of the 112 locations where monitoring was undertaken in 2023, monitored concentrations from one tube was within ±25% of the modelled concentrations.
- Where the comparison has a difference of more than ±25%:
  - Modelled concentrations were higher than the monitored concentrations for 89 sites (99% of the overall sites), which were typically associated with locations on side streets away from major roads.
  - A further 22 tubes are not located in proximity to modelled receptors and thus have not undergone a comparison.

3.1.5 The 'with scheme' comparison of the data from the closest representative modelled scenario from the main ES indicates that:

[17] Modelled annual mean NO_2 results are from the SES2 and AP3 Environmental Statement for locations east of the Edgware Road and from the SES and AP2 Environmental Statement for all other sites (predictions without Proposed Scheme concentrations are identical for the SES and AP2 and the SES3 and AP4 Environmental Statements).

- Of the 112 locations where monitoring was undertaken in 2023, monitored concentrations from one tube was within ±25% of the modelled concentrations.
- Where comparison has a difference of more than ±25%:
  - Modelled concentrations were higher than the monitored concentrations for 89 sites (99% of the overall sites), which were typically associated with locations on side streets away from major roads.
  - A further 22 tubes are not located in proximity to modelled receptors and thus have not undergone a comparison.

3.1.6 The key reasons for differences in the 2023 monitored annual mean NO_2 concentrations and the modelled annual mean NO_2 concentrations are as follows:

- For the ES modelling there was a more limited number of air quality monitoring sites available for model verification at the time the air quality modelling for the ES was undertaken;
- These sites were typically adjacent to high traffic roads recording concentrations well in excess of air quality standards;
- Monitoring sites representative of areas away from high traffic roads were limited so model performance in these areas could not be determined;
- This resulted in over adjustment of the air quality model for the locations away from high traffic roads and therefore higher predicted concentrations;
- For areas adjacent to high traffic flow roads and subject to congestion, the air quality modelling undertaken for the ES was not able to fully reflect the impacts of congestion[18]; and
- Policy changes and public awareness around Air Quality issues as well as uptake of zero or low emission vehicles i.e. the implementation of London Low Emission Zone in April 2019 and Ultra-Low Emission Zone to all London Boroughs in August 2023.

3.1.7 The ES determined significance of the air quality impacts based on the change in concentration relative to the modelled without Proposed Scheme concentrations. This approach and the relevant parameters to apply are set out in the Institute of Air Quality Management guidance, Planning for Air Quality (2017).

3.1.8 For the locations away from major roads where the modelled concentrations are higher than those monitored, then the modelling required a smaller change in concentrations due to the Proposed Scheme to give a significant effect. On this basis the modelling for the ES gave a worst-case view of the significant effects due to the Proposed Scheme.

3.1.9 For locations adjacent to high traffic flow roads, where the monitored concentrations were higher than the modelled concentrations, the modelled concentrations were higher than air quality standards so the changes in concentrations required for a significant effect is

[18] Where there is congestion the real-world speeds of traffic are typically lower that those that are used in the air quality model. A very detailed level of modelling is required to reflect congestion in an air quality model, which was not possible for the ES due to the large geographic area over which the air quality assessment was undertaken.

already small. On this basis the modelling or the ES did not underestimate the significant effects due to the Proposed Scheme for these locations.

3.1.10 Of the 112 diffusion tube monitoring locations in 2023, 111 locations indicated a reduction in monitored concentrations between 2022 and 2023, with 1 location indicating a slight increase in monitored concentrations. The number of locations at which the monitored concentrations exceeded the Air Quality Objective decreased between 2022 and 2023. No additional locations are reporting an exceedance with the Air Quality Objective. Five (5) new locations noted compliance with the Air Quality Objective when compared to the 2022 monitoring results.

4 Actions to improve air quality

4.1 Proposed actions

4.1.1 In developing an air quality action plan for the Proposed Scheme HS2 have already made commitments to measures to reduce emissions generated by construction activities. These measures are set out in the HS2 Phase 1 Code of Construction Practice (CoCP) and HS2 Air Quality Information Paper (E31).

4.1.2 These measures include:

- Construction vehicle emission standards requirements and methods to manage their use via traffic management plans;
- Non-Road Mobile Machinery (NRMM) emission standard requirements; and
- Dust mitigation measures as set out in the CoCP.

4.2 Phase One progress and impact of measures to address Air Quality

4.2.1 Phase One is currently in the main phase of construction. The year 2016 is considered a baseline period. The year 2017 also provides further baseline data due to the limited number of construction activities occurring during the year. The years 2018 to 2020 are representative of the enabling works and therefore early construction.

4.2.2 Phase One Information Paper E31: Air Quality sets out the HS2 emission standards for construction vehicle emissions, NRMM and dust management. The construction vehicle standards in Phase One came into effect on 14 September 2017 with the commencement of early works, including ground investigation surveys, land preparation works, ecological surveys, etc.

Vehicle and NRMM Emission Compliance

4.2.3 The HS2 Phase One route is divided into 3 areas to show compliance, Area North, Central and South, where:

- Area North begins south of Long Itchington Wood tunnel (south of Warwick) and proceeds to the Birmingham Interchange and Curzon Street Stations, to Handsacre where it connects with the West Coast Main Line at Lichfield.
- Area Central extends from the Colne valley viaduct and Chiltern Tunnels, through to the North Portal Chiltern tunnels to Brackley, to the Itchington Green Tunnel, south portal area.
- Area South covers the Central Activity Zone (CAZ) (including Euston) and the Greater London Area.

4.2.4 The emission targets and requirements are presented in Table 2. Opportunities for exemptions are made available to all contractors on the grounds of specialism, triviality or unforeseen circumstances. HS2 have committed to granting no more than 8% unique vehicle exemptions, across the Phase One route, on an annual basis.

Table 2: Construction Vehicle Emission Targets and Requirements

Vehicle Class & Minimum Vehicle Emission Standard	Area South	Rest of Route (Area Central and Area North)
Heavy Goods Vehicles (HGVs) • Euro VI	Target – 100% from start of works	Target – 100% from start of works
	Requirement – 100% from start of works	Requirement – as far as reasonably practicable, 100%
Light Duty Vehicles (LDVs) • Euro 6 Diesel • Euro 4 Petrol	Target – 100% from start of works	Target – 80% from start of works
	Requirement – 100% from 2020	Requirement – 100% from 2020
Exemptions	No more than 8% of unique vehicles on an annual basis	

4.2.5 Similar to HGV and LDVs, NRMM (of a net power between 37kW and 560kW) are categorised based on their emissions. HS2 committed to stricter requirements than the London Supplementary Planning Guidance (SPG) which includes requirements for NRMM used within Greater London and the Central Activity Zone to be of a certain standard, dependant on the year of use. The NRMM emission targets that HS2 has committed to are presented in Table 3.

Table 3: NRMM Emission Requirements

Area	London SPG Stage Requirements		HS2 Requirements	
	From 2015	From Sept 2020	From 2017	From 2020 (*)
Central Activity Zone (includes Euston)	Stage IIIB	Stage IV	Stage IV (1,2)	Stage V
Rest of Greater London	Stage IIIA	Stage IIIB	Stage IIIB (2)	Stage IV (1,2)
Rest of Country	Not Applicable	Not Applicable	Stage IIIB (2)	Stage IV (1,2)

Notes:
The above emission standard requirements should be read in conjunction with High Speed Two Information Paper, E31: Air Quality.
(1) Stage IIIB for 37 ≤ P ‹ 56kW, as there is no corresponding Stage (IV) at EU Level
(2) Stage IIIA for constant speed engines of any power, as there is no corresponding Stage IIIB or IV at EU level.
(*) Following an annual review of the NRMM requirements, as well as independent advice from the Energy Saving Trust, a Block Exemption was put in place for 2020 and 2021 extending the 2017 requirements.

4.2.6 The 2023 vehicle and NRMM emission compliance figures are presented in Table 4.

Table 4: Vehicle Emission Targets and Requirements

Area	Category	Requirement	Compliance Achieved
Area North	LDV	100%	95.9%
	HGV	100%	99.9%
	NRMM	100%	99.1%
Area Central	LDV	100%	99.9%
	HGV	100%	100%
	NRMM	100%	99.9%
Area South	LDV	100%	97.8%
	HGV	100%	99.8%
	NRMM (CAZ)	100%	100%
	NRMM (Greater London)	100%	99.8%

Across Phase One, there have been improvements in the HGV, LDV and NRMM compliances during 2023 compared to 2022. The HGV compliance remained at 99.99% in 2023 and 2022, LDV Compliance improved from 92.5% in 2022 to 97.8% in 2023 and NRMM compliance improved from 98.5% in 2022 to 99.7% in 2023.

Innovations

4.2.7 Through 2023, HS2 has continued to work with key partners within the industry in considering innovative means to reducing air quality emissions associated with our works. Many of these projects are still ongoing, as key milestones are met these will be publicly shared[19].

4.2.8 Some of these projects include:

- Use of alternative fuels trials including H2, bio-LPG, bio fuels and
- Continued trialling and deployment of low / zero emitting plants and vehicles (electric crawler cranes, electric piling rig, telehandlers, all-electric concrete mixer).
- HPUs

4.2.9 HS2 has also demonstrated innovation through the continued deployment and use of construction equipment with either zero (0) or significantly lower NOx emissions. Some aspects of construction have been undertaken using electric equipment and hybrid excavators, further reducing pollutant emissions from this site.

4.2.10 HS2 will continue to monitor air quality in line with the LAQM requirements as set out in the CoCP. In consideration of potential future local authority designated Clean Air Zones, HS2 has also been liaising with relevant local authorities and will consider these in future annual air quality reports. Furthermore, HS2 has published an Air Quality Action Plan to

[19] HS2 and Air Quality Webpage: https://www.hs2.org.uk/in-your-area/managing-impacts-of-construction/hs2-and-air-quality/

outline commitments made, and progress thereof in the management of the significant effects identified in the ES.

Appendix A – Summary of receptors with significant effects predicted in the ES

Phase One

The number of receptors with significant effects in Phase One is presented in Table 5. This has been calculated from the annual mean NO_2 modelling results presented in the ES, as amended. These calculations are a combination of results from the Supplementary Environmental Statement (SES) and Additional Provision (AP) 2, SES2 and AP3, SES3 and AP4. Air quality modelling was not undertaken for the SES4 and AP5 ES. The calculations use the latest reported modelling result for each receptor.

Table 5: Summary of number of receptors modelled in the ES with adverse and beneficial significant effects for Greater London Area

Significant Effect	Air Quality Impact Descriptor	Number of Receptors
Significant adverse	Substantial adverse	227
Significant adverse	Moderate adverse	199
Not significant	Slight adverse	10
Not significant	Negligible	241
Not significant	Slight beneficial	10
Significant beneficial	Moderate beneficial	39
Significant beneficial	Substantial beneficial	31
Total number of receptors		**757**

Appendix B – HS2 Air Quality monitoring survey locations

Table 6 gives details of the locations included in the HS2 NO_2 diffusion tube surveys during 2023 for Phase One. Appendix G presents maps of the locations, labelled with the site ID, colour coded based on the measured concentration.

Table 6: Details of HS2 Phase One air quality NO_2 diffusion tube monitoring survey locations

Site ID	Local authority	Site location	Location type	X coordinate	Y coordinate	Height (m)	Site purpose
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	530436	182929	2.3	Predicted significant effect
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	530321	182268	2.5	Predicted significant effect
HS2-000020BM7	Camden Council	Chalton Street	Roadside	529894	182702	2.3	Predicted significant effect
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	529737	182641	2.3	Predicted significant effect
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	529785	182529	2.4	Predicted significant effect
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	529429	182375	2.5	Predicted significant effect
HS2-000020BMB	Camden Council	Whitfield Street	Background	529273	182114	2.5	Predicted significant effect
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	529232	182511	2.3	Predicted significant effect
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	528776	182170	2.3	Predicted significant effect
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	528901	182180	2.3	Predicted significant effect
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	529715	183123	2.5	Predicted significant effect
HS2-000020BMH	Camden Council	Nash Street	Background	528861	182717	2.5	Predicted significant effect
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	529080	182698	2.5	Predicted significant effect
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	529196	183546	2.5	Predicted significant effect
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	529093	183356	2.5	Predicted significant effect
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	529084	183722	2.5	Predicted significant effect
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	528850	183573	2.5	Predicted significant effect
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	528662	183604	2.5	Predicted significant effect
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	528548	183967	2.5	Predicted significant effect
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	528685	184188	2.5	Predicted significant effect
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	529079	184043	2.3	Predicted significant effect
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	527783	185407	2.5	Predicted significant effect
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	527538	184250	2.5	Predicted significant effect
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	526619	184081	2.3	Predicted significant effect
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	527206	182887	2.3	Predicted significant effect
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	526549	182226	2.3	Predicted significant effect
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	525102	186042	2.3	Predicted significant effect

Site ID	Local authority	Site location	Location type	X coordinate	Y coordinate	Height (m)	Site purpose
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	523869	182465	2.3	Predicted significant effect
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	523998	180160	2.5	Predicted significant effect
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	523092	181264	2.5	Predicted significant effect
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	522335	182955	2.5	Predicted significant effect
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	521625	180871	2.3	Predicted significant effect
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	521443	182477	2.3	Predicted significant effect
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	520959	181102	2.3	Predicted significant effect
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	527884	183980	2.5	Predicted significant effect
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	528639	183518	2.5	Predicted significant effect
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	528528	183443	2.5	Predicted significant effect
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	528276	182185	2.5	Predicted significant effect
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	523110	184055	2.5	Predicted significant effect
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	528763	183720	2.5	Predicted significant effect
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	527359	182633	2.3	Predicted significant effect
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	526914	182077	2.3	Background not affected by scheme
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	530744	181308	2.5	Background not affected by scheme
HS2-000020BNQ	Camden Council	Camley Street	Background	529735	183737	2.3	Background not affected by scheme
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	523481	179871	2.5	Background not affected by scheme
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	522196	184448	2.5	Background not affected by scheme
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	509678	187214	2.5	Background not affected by scheme
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	505492	183926	2.5	Roadside not affected by scheme
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	509439	187117	2.3	Roadside not affected by scheme
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	507365	182687	2.5	Roadside not affected by scheme
HS2-000020BNX	Hammersmith & Fulham Council	Signpost on A402 Goldhawk Road	Roadside	522035	179199	2.5	Roadside not affected by scheme
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	524839	185136	2.5	Roadside not affected by scheme

Site ID	Local authority	Site location	Location type	X coordinate	Y coordinate	Height (m)	Site purpose
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	528050	185508	2.5	Roadside not affected by scheme
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	529708	184871	2.3	Roadside not affected by scheme
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	528597	180942	2.3	Roadside not affected by scheme
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	531149	181616	2.5	Roadside not affected by scheme
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	528125	182016	2.5	Colocation kerbside
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	526633	184392	3.0	Colocation kerbside
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	529895	182657	2.5	Colocation roadside
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	520430	181950	2.0	Colocation roadside
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	518537	182708	2.0	Colocation roadside
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	510858	184916	2.5	Colocation roadside
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	530120	182034	2.5	Colocation background
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	524045	181752	2.5	Colocation background
HS2-000020BPB	Camden Council	Camden High Street	Roadside	528966	183735	2.3	Predicted significant effect
HS2-000020BPC	Camden Council	Castlehaven Road	Background	528788	184591	2.5	Predicted significant effect
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	528571	184683	2.5	Predicted significant effect
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	527710	184749	2.5	Predicted significant effect
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	527549	184640	2.5	Predicted significant effect
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	527019	182748	2.3	Predicted significant effect
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	526818	183164	2.3	Predicted significant effect
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	506542	186037	2.2	Predicted significant effect
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	506240	185660	2.3	Predicted significant effect
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	525222	183309	2.5	Background not affected by scheme

Site ID	Local authority	Site location	Location type	X coordinate	Y coordinate	Height (m)	Site purpose
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	506767	186224	2.3	Predicted significant effect
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	523792	181066	2.5	Predicted significant effect
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	522378	182877	2.5	Predicted significant effect
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	523763	181172	2.5	Predicted significant effect
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	523886	182358	2.5	Predicted significant effect
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	522478	182517	2.5	Predicted significant effect
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	529476	182267	2.5	Predicted significant effect
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	528939	183637	2.5	Predicted significant effect
HS2-000020BPX	Camden Council	Netley Street	Background	529177	182625	2.5	Predicted significant effect
HS2-000020BPY	Camden Council	Stanhope Street	Background	529060	182947	2.5	Predicted significant effect
HS2-000020BPZ	Camden Council	Albany Street	Roadside	528790	182923	2.5	Predicted significant effect
HS2-000020BQ0	Camden Council	Werrington Street	Background	529493	183113	2.3	Predicted significant effect
HS2-000020BQ1	Camden Council	Polygon Road	Background	529574	183045	2.5	Predicted significant effect
HS2-000020BQ2	Camden Council	Alexandra Place	Background	526320	183980	2.5	Predicted significant effect
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	529228	183172	2.5	Predicted significant effect
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	529290	182572	2.5	Predicted significant effect
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	527713	184392	2.7	Predicted significant effect
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	528836	183474	2.5	Predicted significant effect
HS2-000020BQ7	Camden Council	Arlington Road	Background	529009	183479	2.5	Predicted significant effect
HS2-000020BQ8	Camden Council	Clarkson Row	Background	529024	183213	2.5	Predicted significant effect
HS2-000020BQ9	Camden Council	Park Village East	Background	528923	183121	2.5	Predicted significant effect
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	529386	183132	2.5	Predicted significant effect
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	529147	182816	2.5	Predicted significant effect
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	529199	182704	2.5	Predicted significant effect
HS2-000020BQD	Camden Council	Drummond Crescent	Background	529648	182856	2.5	Predicted significant effect

Site ID	Local authority	Site location	Location type	X coordinate	Y coordinate	Height (m)	Site purpose
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	521996	181118	2.5	Predicted significant effect
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	520856	181733	2.5	Predicted significant effect
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	521312	182033	2.5	Predicted significant effect
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	508451	186879	2.4	Predicted significant effect
HS2-000020BQJ	Camden Council	Grafton Way	Background	529380	182225	2.5	Predicted significant effect
HS2-000020BQL	Camden Council	Delancey Street	Roadside	528768	183581	2.4	Predicted significant effect
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	506176	185444	2.4	Predicted significant effect
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	507614	184663	2.1	Predicted significant effect
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	524036	182034	2.1	Predicted significant effect
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	528682	183505	2.4	Predicted significant effect
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	529670	182982	2.3	Predicted significant effect
HS2-000020BQT	Camden Council	Drummond Street	Background	529385	182581	2.2	Predicted significant effect
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	527048	181731	2.2	Predicted significant effect
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	523838	180606	2.4	Predicted significant effect
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road *(replaced HS2-000020BNX)*	Kerbside	522037	179209	2.2	Predicted significant effect
HS2-000020BQX	Camden Council	Lamp Post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	530344	182236	2.5	Predicted significant effect
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Gove	Roadside	523867	182466	2.5	Predicted significant effect
HS2-000020BQZ	Ealing Council	Lamp post on Victoria Road opposite Tudor House	Kerbside	521354	182425	2.2	Predicted significant effect
HS2-000029BR0	Ealing Council	Sign post on Shaftesbury Gardens	Roadside	521295	182354	2.2	Predicted significant effect
HS2-000020BR1	Ealing Council	Lamp post on Midland Terrace	Background	521263	182298	2.2	Predicted significant effect
HS2-000020BR2	Ealing Council	Lamp post on Victoria Road outside Papa John's	Roadside	520702	181844	2.2	Predicted significant effect

Appendix C – Annualisation and bias adjustment of NO_2 diffusion tubes

Table 7: Annualisation and bias adjustment factors applied to each monitoring site across Phase One

Site ID	Local authority	Site location	Location type	2023 annualisation factor[20]	2023 bias adjustment factor
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	Not annualised	0.75
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Location replaced by HS2-000020BQX	
HS2-000020BM7	Camden Council	Chalton Street	Roadside	Not Annualised	0.75
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	Not Annualised	0.75
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	Not Annualised	0.75
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	Not Annualised	0.75
HS2-000020BMB	Camden Council	Whitfield Street	Background	Not Annualised	0.81
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	Not Annualised	0.75
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	Not Annualised	0.75
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	Not Annualised	0.75
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	Not Annualised	0.81
HS2-000020BMH	Camden Council	Nash Street	Background	Not Annualised	0.81
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	Not Annualised	0.81
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	Not Annualised	0.75
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	Not Annualised	0.81
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	Not Annualised	0.75
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	Not Annualised	0.75
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	Not Annualised	0.75
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	Not Annualised	0.81

[20] Sites have not been annualised where there is greater than 75% or less than 25% data capture

Site ID	Local authority	Site location	Location type	2023 annualisation factor[20]	2023 bias adjustment factor
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	Not Annualised	0.75
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	Not Annualised	0.82
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	Not Annualised	0.75
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	Not Annualised	0.75
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	Not Annualised	0.75
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	Not Annualised	0.75
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	Not Annualised	0.75
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	Not Annualised	0.75
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	Location replaced by HS2-000020BQZ	
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	Not Annualised	0.75
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	Not Annualised	0.75
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	Not Annualised	0.75
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	Not Annualised	0.75
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	Not Annualised	0.75
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	Not Annualised	0.75
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	Not Annualised	0.75
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	Not Annualised	0.81
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	Not Annualised	0.82
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	Not Annualised	0.75
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	Not Annualised	0.82
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	Not Annualised	0.75
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	Not Annualised	0.81
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	Not Annualised	0.81
HS2-000020BNQ	Camden Council	Camley Street	Background	Not Annualised	0.81

Site ID	Local authority	Site location	Location type	2023 annualisation factor[20]	2023 bias adjustment factor
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	0.9497	0.81
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	Not Annualised	0.81
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	Not Annualised	0.81
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	Not Annualised	0.75
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	Not Annualised	0.75
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	Not Annualised	0.75
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	0.9387	0.75
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	Not Annualised	0.75
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	Not Annualised	0.75
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	Not Annualised	0.75
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	Not Annualised	0.75
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	Not Annualised	0.82
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	Not Annualised	0.82
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	Not Annualised	0.75
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	Not Annualised	0.75
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	Not Annualised	0.75
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	Not Annualised	0.75

Site ID	Local authority	Site location	Location type	2023 annualisation factor[20]	2023 bias adjustment factor
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	Not Annualised	0.81
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	Not Annualised	0.81
HS2-000020BPB	Camden Council	Camden High Street	Roadside	Not Annualised	0.75
HS2-000020BPC	Camden Council	Castlehaven Road	Background	Not Annualised	0.81
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	Not Annualised	0.75
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	Not Annualised	0.75
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	Not Annualised	0.81
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	Not Annualised	0.75
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	Not Annualised	0.75
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	Not Annualised	0.75
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	Not Annualised	0.75
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	Not Annualised	0.81
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	Not Annualised	0.75
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	Not Annualised	0.75
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	Not Annualised	0.75
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	Not Annualised	0.75
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	Not Annualised	0.75
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	Not Annualised	0.75
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	Not Annualised	0.75

Site ID	Local authority	Site location	Location type	2023 annualisation factor[20]	2023 bias adjustment factor
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	Not Annualised	0.75
HS2-000020BPX	Camden Council	Netley Street	Background	Not Annualised	0.81
HS2-000020BPY	Camden Council	Stanhope Street	Background	Not Annualised	0.81
HS2-000020BPZ	Camden Council	Albany Street	Roadside	Not Annualised	0.75
HS2-000020BQ0	Camden Council	Werrington Street	Background	Not Annualised	0.81
HS2-000020BQ1	Camden Council	Polygon Road	Background	Not Annualised	0.81
HS2-000020BQ2	Camden Council	Alexandra Place	Background	Not Annualised	0.81
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	Not Annualised	0.82
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	Not Annualised	0.81
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	Not Annualised	0.75
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	Not Annualised	0.81
HS2-000020BQ7	Camden Council	Arlington Road	Background	Not Annualised	0.81
HS2-000020BQ8	Camden Council	Clarkson Row	Background	Not Annualised	0.81
HS2-000020BQ9	Camden Council	Park Village East	Background	Not Annualised	0.81
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	Not Annualised	0.82
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	Not Annualised	0.81
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	Not Annualised	0.82
HS2-000020BQD	Camden Council	Drummond Crescent	Background	Not Annualised	0.81
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	Not Annualised	0.81
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	Not Annualised	0.75
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	Not Annualised	0.75
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	1.0602	0.75
HS2-000020BQJ	Camden Council	Grafton Way	Background	Not Annualised	0.81
HS2-000020BQL	Camden Council	Delancey Street	Roadside	Not Annualised	0.75
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	Not Annualised	0.75
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	Not Annualised	0.75
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	Not Annualised	0.82
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	0.8479	0.81

Site ID	Local authority	Site location	Location type	2023 annualisation factor[20]	2023 bias adjustment factor
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	Not Annualised	0.81
HS2-000020BQT	Camden Council	Drummond Street	Background	Not Annualised	0.81
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	Not Annualised	0.82
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	Not Annualised	0.82
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road (*replaced HS2-000020BNX*)	Kerbside	Not Annualised	0.82
HS2-000020BQX	Camden Council	Lamp Post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	Not Annualised	0.75
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	Not Annualised	0.75

Appendix D – Air Quality Monitoring Results

HS2 NO_2 diffusion tube results

Table 8: Annual mean Phase One NO_2 monitoring results for 2023

Site ID	Local authority	Site location	Location type	2023 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	28..3
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Site replaced by HS2-000020BQX
HS2-000020BM7	Camden Council	Chalton Street	Roadside	31.1
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	31.6
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	28.4
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	29.5
HS2-000020BMB	Camden Council	Whitfield Street	Background	25.5
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	39.7
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	32.2
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	**44.6**
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	22.1
HS2-000020BMH	Camden Council	Nash Street	Background	20.7
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	22.0
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	28.9
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	21.6
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	32.4
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	20.9
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	25.7
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	21.5
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	27.8
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	29.6
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	26.1
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	20.1

Site ID	Local authority	Site location	Location type	2023 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road32	Roadside	31.6
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	24.8
HS2-000020BMY	Westminster City Council	Lamp post54 between Blomfield Road and Edgware36 Road	Roadside	26.3
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	**41.3**
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	Site replaced by HS2-000020BQY
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	26.1
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	26.3
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	31.8
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	26.8
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	33.0
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	28.1
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	19.0
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	17.1
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	18.6
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	22.5
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	24.2
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	28.2
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	21.1
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	21.7
HS2-000020BNQ	Camden Council	Camley Street	Background	21.5
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	24.1
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	17.4
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	14.6
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	27.7
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	23.4
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	26.1
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	22.4
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	21.9
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	31.6

Site ID	Local authority	Site location	Location type	2023 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	26.8
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	23.7
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	39.0
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	35.2
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	**43.1**
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	30.6
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	**41.3**
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	21.9
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	23.0
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	19.4
HS2-000020BPB	Camden Council	Camden High Street	Roadside	36.3
HS2-000020BPC	Camden Council	Castlehaven Road	Background	22.1
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	15.6
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	20.8
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	25.0
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	21.9
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	22.4
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	21.3
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	21.6
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	18.8
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	21.7
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	19.0
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	25.7
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	21.6
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	25.7

Site ID	Local authority	Site location	Location type	2023 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	28.2
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	27.4
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	22.9
HS2-000020BPX	Camden Council	Netley Street	Background	21.7
HS2-000020BPY	Camden Council	Stanhope Street	Background	19.0
HS2-000020BPZ	Camden Council	Albany Street	Roadside	19.9
HS2-000020BQ0	Camden Council	Werrington Street	Background	19.3
HS2-000020BQ1	Camden Council	Polygon Road	Background	19.4
HS2-000020BQ2	Camden Council	Alexandra Place	Background	19.0
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	26.9
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	23.5
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	20.6
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	19.8
HS2-000020BQ7	Camden Council	Arlington Road	Background	19.2
HS2-000020BQ8	Camden Council	Clarkson Row	Background	18.8
HS2-000020BQ9	Camden Council	Park Village East	Background	19.1
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	31.5
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	19.4
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	25.0
HS2-000020BQD	Camden Council	Drummond Crescent	Background	24.9
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	19.4
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	33.2
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	30.6
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	29.4
HS2-000020BQJ	Camden Council	Grafton Way	Background	32.5
HS2-000020BQL	Camden Council	Delancey Street	Roadside	26.1
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	24.3
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	22.8
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	30.2
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	19.9
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	21.8
HS2-000020BQT	Camden Council	Drummond Street	Background	24.0
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	38.4
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	24.6

Site ID	Local authority	Site location	Location type	2023 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road (*replaced HS2-000020BNX*)	Kerbside	24.3
HS2-000020BQX	Camden Council	Lamp Post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	23.4
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	26.2

Notes:
Exceedances of the NO_2 annual mean air quality standard of 40 µg/m^3 are shown in bold.

Table 9: Full monthly raw Phase One NO_2 monitoring results for 2023 (prior to annualisation and bias adjustment)

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	45	46	37	40	36	36	30	35	42	42	43	19	38	12
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Location moved – replaced with HS2-000020BQX													
HS2-000020BM7	Camden Council	Chalton Street	Roadside	50	53	48	41	36	30	33	31	45	48	39	Tube Missing	41	11
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	48	62	41	Tube Missing	42	43	38	37	50	46	40	18	42	11
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	43	50	25	47	49	46	31	36	49	47	9	21	38	12
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	51	59	37	Tube Missing	37	34	34	32	46	49	Tube Missing	14	39	10
HS2-000020BMB	Camden Council	Whitfield Street	Background	38	43	33	33	29	30	21	24	32	38	41	17	32	12
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	56	69	63	52	52	53	47	44	69	64	40	26	53	12
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	45	52	43	Tube Missing	45	50	34	40	53	45	43	20	43	11
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	52	68	69	60	61	64	46	52	69	64	49	Tube Missing	59	11
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	36	34	24	28	30	Tube Missing	18	18.3	33	36	30	13	27	11
HS2-000020BMH	Camden Council	Nash Street	Background	37	30	24	24	21	20	21	21	30	34	30	15	26	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	37	37	14	29	25	25	20	20	42	34	30	14	27	12
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	47	52	38	40	38	38	34	38	37	45	36	19	38	12
HS2-000020BML	Camden Council	Junction of Arlington Road & Mornington Crescent	Background	35	37	Tube Missing	26	25	25	18	21	28	34	33	14	27	11
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	57	59	35	39	32	48	38	39	49	49	49	23	43	12
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	41	46	23	24	21	24	25	24	31	33	25	15	28	12
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	42	42	30	Tube Missing	35	34	26	28	45	37	41	17	34	11
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	32	38	27	28	25	24	18	21	28	34	32	14	27	12
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	43	45	36	35	38	35	30	32	43	42	47	18	37	12
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	48	50	31	38	40	34	28	29	40	42	39	16	36	12
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	44	45	38	36	33	35	27	29	41	37	37	16	35	12
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	35	44	29	25	25	25	17	20	27	30	29	15	27	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	Tube Missing	50	33	41	42	43	34	40	66	48	48	18	42	11
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	41	43	34	32	29	24	28	30	32	42	44	18	33	12
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	47	50	30	32	30	30	30	Tube Missing	41	42	Tube Missing	18	35	10
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	71	67	53	62	53	60	40	49	62	61	59	23	55	12
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	Location moved – replaced with HS2-000020BQY													
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	44	44	34	35	Tube Missing	31	27	30	41	43	39	17	35	11
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	42	45	21	37	31	34	32	34	39	46	43	16	35	12
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	53	54	43	47	55	41	34	37	49	52	22	21	42	12
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	49	50	22	46	41	40	26	33	35	41	28	15	36	12
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	57	60	37	Tube Missing	42	43	38	40	54	55	42	16	44	11
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	50	48	29	37	27	32	36	37	44	49	41	19	37	12
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	36	37	25	25	19	19	16	21	30	31	34	11	25	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	27	27	21	21	21	21	Tube Missing	16	22	26	24	9	21	11
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	32	36	24	22	17	12	Tube Missing	20	Tube Missing	24	Tube Missing	18	23	11
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	44	44	32	Tube Missing	24	24	21	24	31	35	38	14	30	11
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	32	40	30	29	27	Tube Missing	20	21	30	32	36	Tube Missing	30	10
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	46	50	41	30	31	Tube Missing	33	Tube Missing	38	43	45	19	38	10
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	29	38	26	27	22	22	20	20	29	32	34	13	26	12
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	36	36	24	Tube Missing	21	20	23	23	31	32	33	17	27	11
HS2-000020BNQ	Camden Council	Camley Street	Background	25	41	26	29	24	23	21	20	32	33	29	16	27	12
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	45	43	Tube Missing	37	25	Tube Missing	20	30	27	38	18	14	30	10
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	27	34	17	23	Tube Missing	18	14	15	20	32	26	12	21	11
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	17	30	15	20	15	16	14	16	20	26	16	11	18	12
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	52	45	36	27	35	35	36	36	41	43	39	19	37	12
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	42	41	35	Tube Missing	32	32	24	32	37	40	15	14	31	11

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	44	47	39	40	35	35	22	31	37	38	35	14	35	12
HS2-000020BNX	Hammersmith & Fulham Council	Signpost on A402 Goldhawk Road	Roadside	Location Moved – now HS2-000020BQW													
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	35	32	Tube Missing	32	Tube Missing	Tube Missing	25	30	38	40	39	17	32	9
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	40	44	27	23	19	25	28	25	34	38	31	16	29	12
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	46	56	42	43	40	40	36	40	50	51	Tube Missing	19	42	11
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	50	47	Tube Missing	37	33	36	27	32	35	Tube Missing	41	20	36	10
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	41	40	32	30	27	25	25	28	33	35	43	19	31	12
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	57	54	43	45	38	47	44	42	54	55	46	48	48	12
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	51	54	45	42	47	40	32	38	47	46	42	34	43	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	46	64	59	Tubes Missing	59	59	53	49	72	65	46	Tubes Missing	57	10
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	44	49	37	38	33	34	34	36	54	55	42	34	41	12
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	71	63	57	48	42	49	57	53	69	54	49	49	55	12
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	37	39	29	29	27	29	21	24	29	35	29	21	29	12
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	39	40	30	30	27	21	16	19	26	29	33	29	28	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	34	33	22	Tubes Missing	16	16	15	18	22	41	23	24	24	11
HS2-000020BPB	Camden Council	Camden High Street	Roadside	60	65	40	49	50	47	47	Tube Missing	64	Tube Missing	38	23	48	10
HS2-000020BPC	Camden Council	Castlehaven Road	Background	39	39	30	26	21	Tube Missing	Tube Missing	22	27	28	29	13	27	10
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	31	35	16	27	19	17	14	17	23	25	14	12	21	12
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	36	39	27	24	22	Tube Missing	24	25	36	28	Tube Missing	16	28	10
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	42	42	33	27	25	27	22	24	35	41	36	16	31	12
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	28	43	28	30	26	28	Tube Missing	22	33	33	35	14	29	11
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	41	43	30	22	24	Tube Missing	23	26	34	30	36	19	30	11
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	39	40	30	27	32	24	21	24	28	35	29	12	28	12
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	45	42	24	2	24	25	37	29	39	36	35	6	29	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	36	37	22	19	18	19	16	19	24	29	30	11	23	12
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	37	42	24	30	28	27	24.5	24	32	35	31	12	29	12
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	17	40	27	21	25	23	19	23	29	33	34	14	25	12
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	37	46	Tube Missing	38	35	29	29	31	38	44	Tube Missing	16	34	10
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	Tube Missing	41	32	29	29	27	24	Tube Missing	31	42	15	16	29	10
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	44	43	37	36	34	30	24	30	36	38	41	18	34	12
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	47	44	34	Tube Missing	33	35	24	Tube Missing	38	46	38	Tube Missing	38	9
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	51	47	36	Tube Missing	34	30	29	31	39	42	42	20	36	11
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	40	45	30	28	26	28	23	25	34	38	36	14	30	12
HS2-000020BPX	Camden Council	Netley Street	Background	32	Tube Missing	21	31	30	27	18	20	33	30	37	15	27	11
HS2-000020BPY	Camden Council	Stanhope Street	Background	31	37	19	25	19	19	Tube Missing	16	20	29	30	11	23	11

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BPZ	Camden Council	Albany Street	Roadside	27	40	25	27	25	22	18	22	33	37	29	14	27	12
HS2-000020BQ0	Camden Council	Werrington Street	Background	34	35	19	24	20	19	16	18	Tube Missing	34	32	11	24	11
HS2-000020BQ1	Camden Council	Polygon Road	Background	30	36	22	25	23	19	17	19	28	28	28	13	24	12
HS2-000020BQ2	Camden Council	Alexandra Place	Background	32	35	23	24	20	22	16	20	25	25	28	11	23	12
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	42	38	26	33	41	31	24	28	38	45	Tube Missing	16	33	11
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	43	41	28	26	27	23	21	20	30	34	28	Tube Missing	29	11
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	35	41	17	Tube Missing	25	23	24	23	30	33	35	15	27	11
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	34	34	26	25	22	21	18	18	27	30	29	11	24	12
HS2-000020BQ7	Camden Council	Arlington Road	Background	33	35	24	25	Tube Missing	Tube Missing	16	16	22	29	26	12	24	10
HS2-000020BQ8	Camden Council	Clarkson Row	Background	39	39	25	25	Tube Missing	20	17	18	27	27	7	12	23	11
HS2-000020BQ9	Camden Council	Park Village East	Background	30	33	17	22	20	18	17	19	26	30	39	13	24	12
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	52	45	34	38	35	37	35	36	46	50	39	16	39	12
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	30	34	27	24	21	21	16	17	25	30	31	13	24	12
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	40	40	33	25	34	27	21	22	32	42	37	15	31	12
HS2-000020BQD	Camden Council	Drummond Crescent	Background	38	33	Tube Missing	Tube Missing	31	30	24	23	36	41	36	16	31	10

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	31	33	25	20	20	20	20	24	26	29	31	11	24	12
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	58	57	44	46	42	41	37	41	43	54	46	21	44	12
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	53	48	37	42	31	36	33	37	45	Tube Missing	46	Tube Missing	41	10
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	38	47	Tube Missing	Tube Missing	34	39	31	33	Tube Missing	Tube Missing	Tube Missing	Tube Missing	37	7
HS2-000020BQJ	Camden Council	Grafton Way	Background	56	56	38	34	36	33	36	34	38	48	53	20	40	12
HS2-000020BQL	Camden Council	Delancey Street	Roadside	46	50	Tube Missing	34	31	39	22	26	40	44	37	14	35	11
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	42	40	18	41	36	Tube Missing	23	Tube Missing	38	38	35	13	32	10
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	16	42	25	36	35	33	25	27	37	40	35	13	30	12
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	45	47	27	35	37	38	30	35	42	49	44	15	37	12
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	36	40	26	29	Tube Missing	Tube Missing	Tube Missing	Tube Missing	Tube Missing	31	Tube Missing	13	29	6
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	37	36	25	26	23	23	17	Tube Missing	29	34	34	13	27	11
HS2-000020BQT	Camden Council	Drummond Street	Background	42	46	29	31	28	25	19	23	32	35	29	18	30	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan23	Feb23	Mar23	Apr23	May23	Jun23	Jul23	Aug23	Sep23	Oct23	Nov23	Dec23	Mean	
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	41	60	48	49	51	49	Tube Missing	47	55	54	43	20	47	11
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	46	43	Tube Missing	22	27	27	23	27	32	34	35	15	30	11
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road *(replaced HS2-000020BNX)*	Kerbside	45	41	Tube Missing	Tube Missing	31	34	21	24	33	29	25	15	30	10
HS2-000020BQX	Camden Council	Lamp post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	44	46	32	30	24	21	23	25	30	42	38	19	31	12
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	42	37	34	41	39	40	25	33	34	43	36	16	35	12

Notes:

- Table contains raw data as presented in laboratory reports. Mean concentrations have not been annualised or bias adjusted and are not directly comparable to the NO_2 annual mean air quality standard of 40µg/m^3.

Appendix E – Comparison of Phase One 2023 annual mean NO_2 diffusion tube results and the predicted NO_2 annual mean concentrations from the ES

Table 10 presents a comparison of the Phase One 2023 annual mean NO_2 diffusion tube results and the predicted 2012 and 2017 NO_2 annual mean concentrations from the ES for the scenario without the Proposed Scheme in place.

Table 10: Comparison of the Phase One 2023 annual mean NO_2 diffusion tube results and the predicted 2012 and 2017 NO_2 annual mean concentrations from the ES

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Predicted significant effect	28.3	1-204	86.4	75.6	76.1	5	-47.3	-62.6	-47.8	-62.8
HS2-000020BM6	Camden Council	Brunswick Square	Predicted significant effect	-	1-7	61.1	52.5	52.4	67	Site replaced with HS2-000020BQX			
HS2-000020BM7	Camden Council	Chalton Street	Predicted significant effect	31.1	1-1	104.8	90.1	91.9	14	-59.0	-65.5	-60.8	-66.2
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Predicted significant effect	31.6	1-178	91.7	81	82.5	29	-49.4	-61.0	-50.9	-61.7
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Predicted significant effect	28.4	1-47	93.6	82.3	83.3	16	-53.9	-65.5	-54.9	-65.9
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Predicted significant effect	29.5	1-170	99.3	80	82.1	0	-50.5	-63.1	-52.6	-64.1

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BMB	Camden Council	Whitfield Street	Predicted significant effect	25.5	1-287	63.6	53.4	53.8	11	-27.9	-52.2	-28.3	-52.6
HS2-000020BMC	Camden Council	Hampstead Road	Predicted significant effect	39.7	1-165	83.1	66.6	67.5	9	-26.9	-40.4	-27.8	-41.2
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Predicted significant effect	32.2	1-42	89.6	75.7	76.4	49	-43.5	-57.5	-44.2	-57.9
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Predicted significant effect	**44.6**	1-279	86.1	72.8	73.4	17	-28.2	-38.7	-28.8	-39.2
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Predicted significant effect	22.1	1-79	50.4	43.4	43.7	0	-21.3	-49.1	-21.6	-49.4
HS2-000020BMH	Camden Council	Nash Street	Predicted significant effect	20.7	1-261	54.5	46.4	46.8	7	-25.7	-55.4	-26.1	-55.8
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Predicted significant effect	22.0	1-257	58.6	50.1	51.0	24	-28.1	-56.1	-29.0	-56.9
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Predicted significant effect	28.9	1-298	61.4	53.5	53.5	9	-24.6	-46.0	-24.6	-46.0
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Predicted significant effect	21.6	1-9	52	45.8	44.3	2	-24.2	-52.8	-22.7	-51.2
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Predicted significant effect	32.4	2-72	69.4	57.2	57.0	6	-24.8	-43.4	-24.6	-43.2
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Predicted significant effect	20.9	1-246	55.8	46.7	48.7	4	-25.8	-55.2	-27.8	-57.1
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Predicted significant effect	25.7	2-103	70.5	58.4	56.9	22	-32.7	-56.0	-31.2	-54.8

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Predicted significant effect	21.5	2-98	45.5	39.1	39.3	7	-17.6	-45.0	-17.8	-45.3
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Predicted significant effect	27.8	2-8	64.3	53.2	53.7	5	-25.4	-47.7	-25.9	-48.2
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Predicted significant effect	29.6	2-38	79.3	63.4	62.3	21	-33.8	-53.3	-32.7	-52.5
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Predicted significant effect	26.1	3-153	52.4	46.3	46.3	14	-20.2	-43.6	-20.2	-43.6
HS2-000020BMV	Camden Council	Primrose Hill Road	Predicted significant effect	20.1	3-213	55.2	46.7	45.1	32	-26.6	-57.0	-25.0	-55.4
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Predicted significant effect	31.6	3-60	64.9	53.6	53.8	8	-22.0	-41.0	-22.2	-41.3
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Predicted significant effect	24.8	1-141	65.1	55.7	56.1	24	-30.9	-55.5	-31.3	-55.8
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Predicted significant effect	26.3	4-65	64.2	54.1	53.9	13	-27.8	-51.4	-27.6	-51.2
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Predicted significant effect	**41.3**	3-96	70.4	56.4	56.4	8	-15.1	-26.8	-15.1	-26.8
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Predicted significant effect	-	4-225	77.1	66.2	66.3	14	Site replaced with HS2-000020BQY			
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Predicted significant effect	26.1	4-193	62.3	53.2	53.3	4	-27.1	-50.9	-27.2	-51.0
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Predicted significant effect	26.3	4-204	72.1	61.1	61.1	12	-34.8	-57.0	-34.8	-57.0

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Predicted significant effect	31.8	4-209	68.7	58.5	58.6	47	-26.7	-45.6	-26.8	-45.7
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Predicted significant effect	26.8	4-155	88.7	76	76.1	18	-49.2	-64.7	-49.3	-64.8
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Predicted significant effect	33.0	4-12	64.6	52.6	56.0	3	-19.6	-37.3	-23.0	-41.1
HS2-000020BN7	Ealing Council	The Approach street sign	Predicted significant effect	28.1	4-152	83.3	69.6	69.6	20	-41.5	-59.6	-41.5	-59.6
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Predicted significant effect	19.0	3-193	47.4	39.4	38.2	2	-20.4	-51.8	-19.2	-50.3
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Predicted significant effect	17.1	1-70	49.4	42.7	43.1	22	-25.6	-60.0	-26.0	-60.3
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Predicted significant effect	18.6	1-281	61.1	52	52.4	15	-33.4	-64.2	-33.8	-64.5
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Predicted significant effect	22.5	4-120	53.7	46	46.1	14	-23.5	-51.1	-23.6	-51.2
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Predicted significant effect	24.2	2-85	61.6	51.3	51.0	18	-27.1	-52.8	-26.8	-52.5
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Predicted significant effect	28.2	1-242	69.7	57.4	58.2	10	-29.2	-50.9	-30.0	-51.5
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background not affected by scheme	21.1	No assessed receptor location nearby								
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background not affected by scheme	21.7	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BNQ	Camden Council	Camley Street	Background not affected by scheme	21.5	No assessed receptor location nearby								
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background not affected by scheme	24.1	No assessed receptor location nearby								
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background not affected by scheme	17.4	No assessed receptor location nearby								
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background not affected by scheme	14.6	No assessed receptor location nearby								
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside not affected by scheme	27.7	No assessed receptor location nearby								
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside not affected by scheme	23.4	No assessed receptor location nearby								
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside not affected by scheme	26.1	No assessed receptor location nearby								
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside not affected by scheme	24	No assessed receptor location nearby								
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside not affected by scheme	21.9	No assessed receptor location nearby								
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside not affected by scheme	31.6	No assessed receptor location nearby								
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside not affected by scheme	26.8	No assessed receptor location nearby								
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside not affected by scheme	23.7	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Colocation kerbside	39.0	1-293	92	77.3	77.7	33	-38.3	-49.5	-38.7	-49.8
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Colocation kerbside	35.2	3-64	76.8	60.2	60.0	9	-25.0	-41.5	-24.8	-41.3
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Colocation roadside	**43.1**	1-1	104.8	90.1	91.9	32	-47.0	-52.2	-48.8	-53.1
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Colocation roadside	30.6	5-35	74.3	63.4	63.6	14	-32.8	-51.7	-33.0	-51.9
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Colocation roadside	**41.3**	5-49	89	76	76.0	102	-34.7	-45.7	-34.7	-45.7
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Colocation roadside	21.9	No assessed receptor location nearby								
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Colocation background	23.0	1-276	66.1	58.6	57.8	90	-35.6	-60.7	-34.8	-60.2

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Colocation background	19.4	4-121	59.6	50.8	50.8	84	-31.4	-61.8	-31.4	-61.8
HS2-000020BPB	Camden Council	Camden High Street	Predicted significant effect	36.3	2-63	62.1	50.7	50.6	68	-14.4	-28.4	-14.3	-28.3
HS2-000020BPC	Camden Council	Castlehaven Road	Predicted significant effect	22.1	2-93	48.8	42.3	42.7	29	-20.2	-47.8	-20.6	-48.2
HS2-000020BPD	Camden Council	Prince of Wales Road	Predicted significant effect	15.6	No assessed receptor location nearby								
HS2-000020BPE	Camden Council	Haverstock Hill	Predicted significant effect	20.8	3-41	50.5	42.7	42.7	-9.8	-21.9	-51.3	-21.9	-51.3
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Predicted significant effect	25.0	3-130	46.3	40.7	40.6	-12.3	-15.7	-38.6	-15.6	-38.4
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Predicted significant effect	21.9	1-48	60.7	53	53.1	-24.7	-31.1	-58.7	-31.2	-58.8
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Predicted significant effect	22.4	1-62	61.5	51.5	51.8	-21.3	-29.1	-56.5	-29.4	-56.8
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Predicted significant effect	21.3	6-40	48.9	42.7	43.3	-14.9	-21.4	-50.1	-22.0	-50.8
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Predicted significant effect	21.6	6-31	68.1	59.5	60.6	-28.1	-37.9	-63.7	-39.0	-64.4

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background not affected by scheme	18.8	N/A (Background location not affected by the scheme)								
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Predicted significant effect	21.7	6-52	44.8	38.7	38.3	42	-17.0	-43.9	-16.6	-43.3
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Predicted significant effect	19.0	4-104	70.2	60.2	60.2	19	-41.2	-68.4	-41.2	-68.4
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Predicted significant effect	25.7	4-209	68.7	58.5	58.6	57	-32.8	-56.1	-32.9	-56.1
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Predicted significant effect	21.6	4-173	75.2	63.8	63.9	33	-42.2	-66.1	-42.3	-66.2
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Predicted significant effect	25.7	4-223	50.5	43.1	43.1	13	-17.4	-40.4	-17.4	-40.4
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Predicted significant effect	28.2	4-206	64.8	55.3	55.4	59	-27.1	-49.0	-27.2	-49.1
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Predicted significant effect	27.4	1-4	76.1	62.1	64.1	4	-34.7	-55.9	-36.7	-57.3
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Predicted significant effect	22.9	1-58	56.1	46.9	46.7	27	-24.0	-51.2	-23.8	-51.0
HS2-000020BPX	Camden Council	Netley Street	Predicted significant effect	21.7	1-292	83.2	66.6	67.5	87	-44.9	-67.4	-45.8	-67.9
HS2-000020BPY	Camden Council	Stanhope Street	Predicted significant effect	19.0	1-254	51.5	43.5	43.6	97	-24.5	-56.3	-24.6	-56.4

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BPZ	Camden Council	Albany Street	Predicted significant effect	19.9	1-283	54.1	46.3	45.7	32	-26.4	-57.0	-25.8	-56.5
HS2-000020BQ0	Camden Council	Werrington Street	Predicted significant effect	19.3	1-191	56.7	50.1	50.9	82	-30.8	-61.5	-31.6	-62.1
HS2-000020BQ1	Camden Council	Polygon Road	Predicted significant effect	19.4	1-208	50.2	43.1	43.2	57	-23.7	-55.0	-23.8	-55.1
HS2-000020BQ2	Camden Council	Alexandra Place	Predicted significant effect	19.0	No assessed receptor location nearby								
HS2-000020BQ3	Camden Council	Harrington Square	Predicted significant effect	26.9	1-134	61.5	52.2	53.5	38	-25.3	-48.5	-26.6	-49.7
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Predicted significant effect	23.5	1-166	65.4	54.4	54.2	39	-30.9	-56.8	-30.7	-56.6
HS2-000020BQ5	Camden Council	Adelaide Road	Predicted significant effect	20.6	3-211	46.2	39.3	39.5	109	-18.7	-47.6	-18.9	-47.8
HS2-000020BQ6	Camden Council	Mornington Terrace	Predicted significant effect	19.8	1-246	55.8	46.7	48.7	100	-26.9	-57.6	-28.9	-59.4
HS2-000020BQ7	Camden Council	Arlington Road	Predicted significant effect	19.2	1-198	51.9	44.1	43.2	23	-24.9	-56.5	-24.0	-55.6
HS2-000020BQ8	Camden Council	Clarkson Row	Predicted significant effect	18.8	1-253	50.9	43.8	43.3	56	-25.0	-57.0	-24.5	-56.5
HS2-000020BQ9	Camden Council	Park Village East	Predicted significant effect	19.1	No assessed receptor location nearby								
HS2-000020BQA	Camden Council	Eversholt Street	Predicted significant effect	31.5	1-192	57.7	51.2	52.0	13	-19.7	-38.5	-20.5	-39.4

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Predicted significant effect	19.4	1-322	63.6	50	51.5	5	-30.6	-61.2	-32.1	-62.3
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Predicted significant effect	25.0	1-71	63.1	53.5	54.8	32	-28.5	-53.3	-29.8	-54.4
HS2-000020BQD	Camden Council	Drummond Crescent	Predicted significant effect	24.9	1-186	66.7	56.8	57.8	58	-31.9	-56.2	-32.9	-56.9
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Predicted significant effect	19.4	4-262	48.1	40.8	40.7	8	-21.4	-52.4	-21.3	-52.3
HS2-000020BQF	Ealing Council	Conway Drive sign post	Predicted significant effect	33.2	4-55	63.7	55.2	55.3	36	-22.0	-39.9	-22.1	-40.0
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Predicted significant effect	30.6	4-143	52.6	45.2	45.3	6	-14.6	-32.3	-14.7	-32.5
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Predicted significant effect	29.4	6-73	45.6	39.0	38.8	59	-9.6	-24.6	-9.4	-24.2
HS2-000020BQJ	Camden Council	Grafton Way	Predicted significant effect	32.5	1-4	76.1	62.1	64.1	109	-29.6	-47.7	-31.6	-49.3
HS2-000020BQL	Camden Council	Delancey Street	Predicted significant effect	26.1	2-87	62.5	51.4	50.0	19	-25.3	-49.2	-23.9	-47.8
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Predicted significant effect	24.3	6-62	64.5	54.5	53.8	21	-30.2	-55.4	-29.5	-54.8
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Predicted significant effect	22.8	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2023 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2023 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2023 vs 2017 with-scheme modelled	% diff with scheme modelled vs 2023 monitored
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Predicted significant effect	30.2	4-217	61.5	51.7	51.9	16	-21.5	-41.6	-21.7	-41.8
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Predicted significant effect	19.9	1-284	53.4	45.5	43.0	28	-25.6	-56.2	-23.1	-53.7
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Predicted significant effect	21.8	1-269	57.4	51.3	51.7	22	-29.5	-57.5	-29.9	-57.8
HS2-000020BQT	Camden Council	Drummond Street	Predicted significant effect	24.0	1-169	64	52.6	51.6	13	-28.6	-54.3	-27.6	-53.5
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Predicted significant effect	38.4	1-25	100.3	86.8	86.6	2	-48.4	-55.8	-48.2	-55.7
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Predicted significant effect	24.6	4-182	59.5	50.8	50.9	1	-26.2	-51.6	-26.3	-51.7
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road *(replaced HS2-000020BNX)*	Predicted significant effect	24.3	No assessed receptor location nearby								
HS2-000020BQX	Camden Council	Lamp post on Brunswick Square *(replaced HS2-000020BM6)*	Predicted significant effect	23.4	1-7	61.1	52.5	52.4	67	-29.1	-55.4	-29.0	-55.3
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Predicted significant effect	26.2	No assessed receptor location nearby								

Notes:

- HS2-000020BQW replaces HS2-000020BNX as such ES scenario data for HS2-000020BNX is used for HS2-000020BQW.
- HS2-000020BQX replaces HS2-000020BM6 as such ES scenario data for HS2-000020BM6 is used for HS2-000020BQX.

Appendix F – Comparison of the annual mean NO_2 diffusion tube monitoring results

Table 11 presents a comparison of the annual mean NO_2 diffusion tube results across Phase One, to date. Sites that were removed / replaced during 2018 have not been included in this comparison.

Table 11: Comparison of the Phase One annual mean NO_2 diffusion tube monitoring results (2016 – 2023)

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)							
				2016	2017	2018	2019	2020	2021	2022	2023
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	**59.8**	**50.4**	**50.4**	**45.9**	36.3	31.3	32.8	28.3
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	**50.4**	**47.4**	**44**	**40.3**	**47.7**	Site replaced with HS2-000020BQX		
HS2-000020BM7	Camden Council	Chalton Street	Roadside	**66.8**	**58.4**	**54.9**	**52.0**	**42.3**	36.5	36.0	31.1
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	**66.9**	**58**	**59.3**	**56.3**	**42.1**	37.2	39.7	31.6
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	**59.5**	**52.4**	**57.9**	**49.1**	39.5	35.9	37.0	28.4
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	**70.1**	**60.3**	**58.7**	**51.4**	39.3	35.0	34.9	29.5
HS2-000020BMB	Camden Council	Whitfield Street	Background	**46.7**	**45**	39	37.2	28.5	27.3	27.9	25.5
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	**68**	**59.1**	**61.4**	**61.5**	**48.2**	**51.7**	**47.2**	39.7
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	**74.2**	**67.4**	**66.2**	**60.0**	38.6	37.2	39.1	32.2
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	**96.7**	**81.6**	**85.5**	**77.2**	**51.5**	**49.8**	**51.6**	**44.6**
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	**42.4**	35.8	29.7	28.6	23.7	23.5	24.4	22.1
HS2-000020BMH	Camden Council	Nash Street	Background	**42.5**	39.5	34.8	30.9	27.0	23.6	25.3	20.7
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	**44.1**	39.1	33.7	29.8	27.6	27.3	25.9	22.0
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	**60.5**	**51.4**	**49.6**	**48.2**	**40.6**	35.2	33.8	28.9
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	**44.9**	38.2	34	30.1	27.1	23.9	23.6	21.6
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	**71.4**	**67.3**	**57.4**	**51.3**	**41.5**	38.6	33.8	32.4
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	**45.6**	**41.9**	39.5	36.9	31.1	24.8	26.0	20.9
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	**61**	**48.6**	**53**	**44.8**	35.5	32.8	31.8	25.7
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	**43.2**	**40.1**	35.7	31.8	26.4	25.4	23.3	21.5
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	**61**	**50.6**	**54.6**	**46.9**	38.5	32.6	31.6	27.8

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)							
				2016	2017	2018	2019	2020	2021	2022	2023
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	**88.1**	**62.4**	**48.7**	**44.3**	32.8	33.3	33.7	29.6
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	**45**	37.3	**41.1**	37.5	31.6	28.8	29.7	26.1
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	**43.4**	39.3	38.3	33.7	28.1	25.9	24.3	20.1
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	**63.7**	**55.5**	**52.9**	**47.4**	36.2	38.9	38.5	31.6
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	**59.3**	**51.7**	**49.5**	**43.0**	31.5	26.8	29.1	24.8
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	**64.4**	**57.4**	**55.9**	**49.4**	35.6	32.7	33.7	26.3
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	**93.4**	**83.9**	**81.9**	**75.1**	**53.6**	**48.1**	**49.7**	**41.3**
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	**50.9**	**45.8**	**48**	**48.7**	36.2	Site replaced with HS2-000020BQY		
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	**53.9**	**43.1**	**44.5**	**42.6**	36.0	33.3	32.7	26.1
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	**61.2**	**57.8**	**55.1**	**44.8**	36.2	34.8	34.8	26.3
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	**65.7**	**52.5**	**56.1**	**50.2**	**42.3**	**41.5**	38.7	31.8
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	**68.7**	**52.6**	**51.9**	**44.0**	36.6	35.2	33.4	26.8
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	**58.5**	**50.5**	**51.9**	**48.7**	37.4	39.3	38.4	33.0
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	**67.6**	**61.0**	**56**	**52.4**	**41.3**	36.4	36.7	28.1
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	**42.3**	38.5	36.5	31.4	24.8	22.8	23.7	19.0
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	**50.2**	**42.4**	**43.5**	33.4	Site replaced with HS2-000020BQR			
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	32.4	28.8	30.2	25.6	18.4	19.8	19.3	17.1
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	**42.7**	**40.1**	35	31.8	22.9	22.5	22.3	18.6
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	**45.5**	38.6	39.6	38.0	31.7	28.9	27.9	22.5
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	**49.6**	39.8	38.2	34.5	26.4	26.0	24.7	24.2
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	**66.3**	**54.1**	**55**	**47.6**	35.7	32.9	34.6	28.2
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	**46.4**	**43.8**	38.5	31.8	27.5	24.4	23.8	21.1
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	38.6	36.9	35.6	31.3	25.0	24.5	24.1	21.7
HS2-000020BNQ	Camden Council	Camley Street	Background	**47.5**	**41.1**	37.4	29.6	27.1	27.6	26.4	21.5
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	**49.5**	39.6	38.9	34.2	29.8	27.3	24.9	24.1

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)							
				2016	2017	2018	2019	2020	2021	2022	2023
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	34.1	30.6	27.4	25.3	21.9	20.6	20.4	17.4
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	-	30.6	25.3	23.4	20.3	21.0	18.9	14.6
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	-	**47**	**45.8**	**41.1**	33.7	33.9	34.8	27.7
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	-	37	**43**	37.7	30.5	29.9	29.8	23.4
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	-	**43.3**	**46.4**	**40.9**	31.9	33.1	33.2	26.1
HS2-000020BNX	Hammersmith & Fulham Council	Signpost on A402 Goldhawk Road	Roadside	**48.5**	38.6	**41.8**	39.5	Site replaced with HS2-000020BQW			
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	**43.8**	**42.7**	**41.8**	39.3	30.8	29.2	28.8	22.4
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	36.4	37.4	35.8	31.7	27.1	24.8	24.7	21.9
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	**60.6**	**55**	**61.1**	**50.7**	**40.6**	39.4	37.0	31.6
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	**61.8**	**58.7**	**63.3**	**54.0**	34.7	33.9	35.1	26.8
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	**52**	**46.8**	**48.7**	**43.8**	30.5	27.5	28.9	23.7
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	**86.8**	**74.3**	**69.9**	**58.3**	**42.4**	**46.3**	**44.6**	39.0
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	**66.6**	**62.1**	**60.6**	**44.2**	33.8	**42.3**	**40.9**	35.2
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	**86.7**	**76.2**	**80.8**	**66.2**	**46.9**	**46.7**	**44.2**	**43.1**
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	**64.7**	**57.3**	**56.2**	**50.6**	**40.5**	35.9	35.5	30.6
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	**72.3**	**71.9**	**70.2**	**63.1**	**51.0**	**48.6**	**52.5**	**41.3**
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	-	-	37.8	36.4	27.5	26.5	26.5	21.9
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	39.2	38.7	35.7	32.5	27.9	24.4	25.1	23.0
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	36.2	30.7	28.4	26.2	22.5	21.6	19.3	19.4
HS2-000020BPB	Camden Council	Camden High Street	Roadside	**74.6**	**66**	**69.1**	**60.1**	**50.2**	**45.1**	**44.7**	36.3
HS2-000020BPC	Camden Council	Castlehaven Road	Background	**41**	36.6	31.5	32.1	26.1	24.3	23.4	22.1
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	36.8	34.4	33.8	30.0	24.4	20.7	21.4	15.6
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	**48.3**	**44.3**	**43**	**42.2**	32.9	27.3	26.6	20.8

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)							
				2016	2017	2018	2019	2020	2021	2022	2023
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	**40.9**	37.2	31.9	31.8	28.4	25.8	27.7	25.0
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	**49.8**	**43.2**	**43.4**	38.5	28.3	27.2	25.9	21.9
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	**49**	**45.7**	**42.7**	39.5	30.2	28.0	27.5	22.4
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	-	-	35.8	34.9	27.8	27.7	25.9	21.3
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	-	-	**41.3**	37.6	31.4	28.1	28.8	21.6
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	38	32.1	27.8	27.2	23.1	20.5	21.1	18.8
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside			31	31.0	24.8	25.8	27.0	21.7
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	**45.3**	38.5	38.7	36.7	28.4	26.5	26.7	19.0
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	**54.4**	**46.3**	**46.3**	**46.5**	38.1	34.6	34.8	25.7
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	**49.2**	**43**	**43.7**	**41.0**	31.1	26.8	27.7	21.6
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	**54.2**	**44.5**	**45.6**	**45.6**	36.7	32.4	32.4	25.7
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	**57.3**	**45.5**	**47.6**	**47.0**	37.3	32.6	33.6	28.2
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	**59.7**	**51.5**	**50.5**	**47.6**	35.4	31.2	32.1	27.4
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	**53.4**	**42.9**	**45**	**40.2**	32.3	29.0	28.4	22.9
HS2-000020BPX	Camden Council	Netley Street	Background	**41.5**	36	35.9	33.2	25.5	27.1	25.6	21.7
HS2-000020BPY	Camden Council	Stanhope Street	Background	38.3	32.4	32.2	28.9	24.4	24.0	23	19.0
HS2-000020BPZ	Camden Council	Albany Street	Roadside	**47.4**	39.5	**40.4**	38.5	26.9	24.1	24.6	19.9
HS2-000020BQ0	Camden Council	Werrington Street	Background	**41.8**	33.9	32.1	29.4	25.5	21.0	21.7	19.3
HS2-000020BQ1	Camden Council	Polygon Road	Background	39.7	35	34	31.6	26.7	21.4	22.7	19.4
HS2-000020BQ2	Camden Council	Alexandra Place	Background	34.8	31.6	28.7	27.6	23.4	22.2	21.4	19.0
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	**53.8**	**45.5**	**44.6**	**40.6**	31.1	33.1	31.7	26.9
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	**43.8**	39.2	37.7	33.2	28.4	27.0	25.6	23.5
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	**54.6**	**43**	39.9	37.6	28.6	25.3	26.7	20.6
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	**47.8**	35.2	33.2	28.9	23.3	22.0	22.3	19.8
HS2-000020BQ7	Camden Council	Arlington Road	Background	**52.4**	34.9	32.1	28.9	25.5	22.4	21.5	19.2

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)							
				2016	2017	2018	2019	2020	2021	2022	2023
HS2-000020BQ8	Camden Council	Clarkson Row	Background	-	35.3	32.6	28.9	24.9	25.0	23.8	18.8
HS2-000020BQ9	Camden Council	Park Village East	Background	**49**	32.7	30.8	27.1	23.1	23.6	21.6	19.1
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	**71.3**	**53.6**	**49**	**45.6**	33.6	32.3	34.6	31.5
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	**54.1**	33.4	35	29.0	24.1	23.2	22.9	19.4
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	**59.3**	39.7	**41.3**	36.3	28.2	28.2	28.6	25.0
HS2-000020BQD	Camden Council	Drummond Crescent	Background	**58.7**	**41.2**	39.5	35.3	30.7	28.9	27.7	24.9
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	**52.7**	36.8	32.6	28.6	25.5	23.0	22.1	19.4
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	**76.2**	**57**	**58.5**	**53.3**	**40.6**	**40.1**	39.4	33.2
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Ln	Roadside	**75**	**64**	**58**	**48.9**	39.4	31.5	31.6	30.6
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	-	37.2	**41.6**	38.1	29.8	30.8	30.7	29.4
HS2-000020BQJ	Camden Council	Grafton Way	Background	-	**54.2**	**51.2**	**51.3**	38.1	33.6	35	32.5
HS2-000020BQL	Camden Council	Delancey Street	Roadside	-	**49.3**	**51**	**44.8**	33.7	32.5	31.7	26.1
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	-	-	**50.1**	**44.5**	32.5	33.2	32.3	24.3
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	-	-	**41.8**	**40.9**	30.8	29.5	31.6	22.8
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	-	-	**48.2**	**44.3**	34.2	31.2	31.9	30.2
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	-	-	34.8	29.3	24.7	23.8	23.8	19.9
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	-	-	33.1	30.9	26.2	22.8	22.2	21.8
HS2-000020BQT	Camden Council	Drummond Street	Background	-	-	38.8	35.7	28.5	27.4	26.3	24.0
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	-	-	**61.9**	**61.6**	**40.0**	**44.4**	**42.4**	38.4
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	-	-	-	35.0	27.2	30.1	30.1	24.6
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road *(replaced HS2-000020BNX)*	Kerbside	-	-	-	-	26.2	27.8	28.8	24.3
HS2-000020BQX	Camden Council	Lamp post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	-	-	-	-	29.0	25.8	28.2	23.4
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	-	-	-	-	-	35.3	33.0	26.2

Notes:

- Exceedances of the NO_2 annual mean air quality standard of 40 $\mu g/m^3$ are shown in bold.

Appendix G – Maps of HS2 monitoring survey locations and 2023 results

Figure 1 - 8: Maps of HS2 monitoring survey locations and 2023 results

HS2-000020BPM

HS2-000020BNG

HS2-000020BNS

HS2-000020BN3

Barnet London Boro

Camden London Boro

City of Westminster London Boro

Brent London Boro

Kensington and Chelsea London Boro

Hammersmith and Fulham London Boro

Legend

2023 NO_2 Monitoring

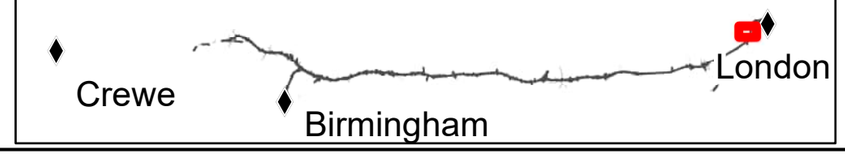
- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

Work Sections Centreline

Consolidated Land Boundary

District Borough Unitary Boundaries

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Map Number

HS2-HS2-EV-REP-000-000201

Map Name

Phase 1 NO_2 Monitoring Positions
London Borough of Brent

(1 of 8)

Scale at A3: 1:15,000

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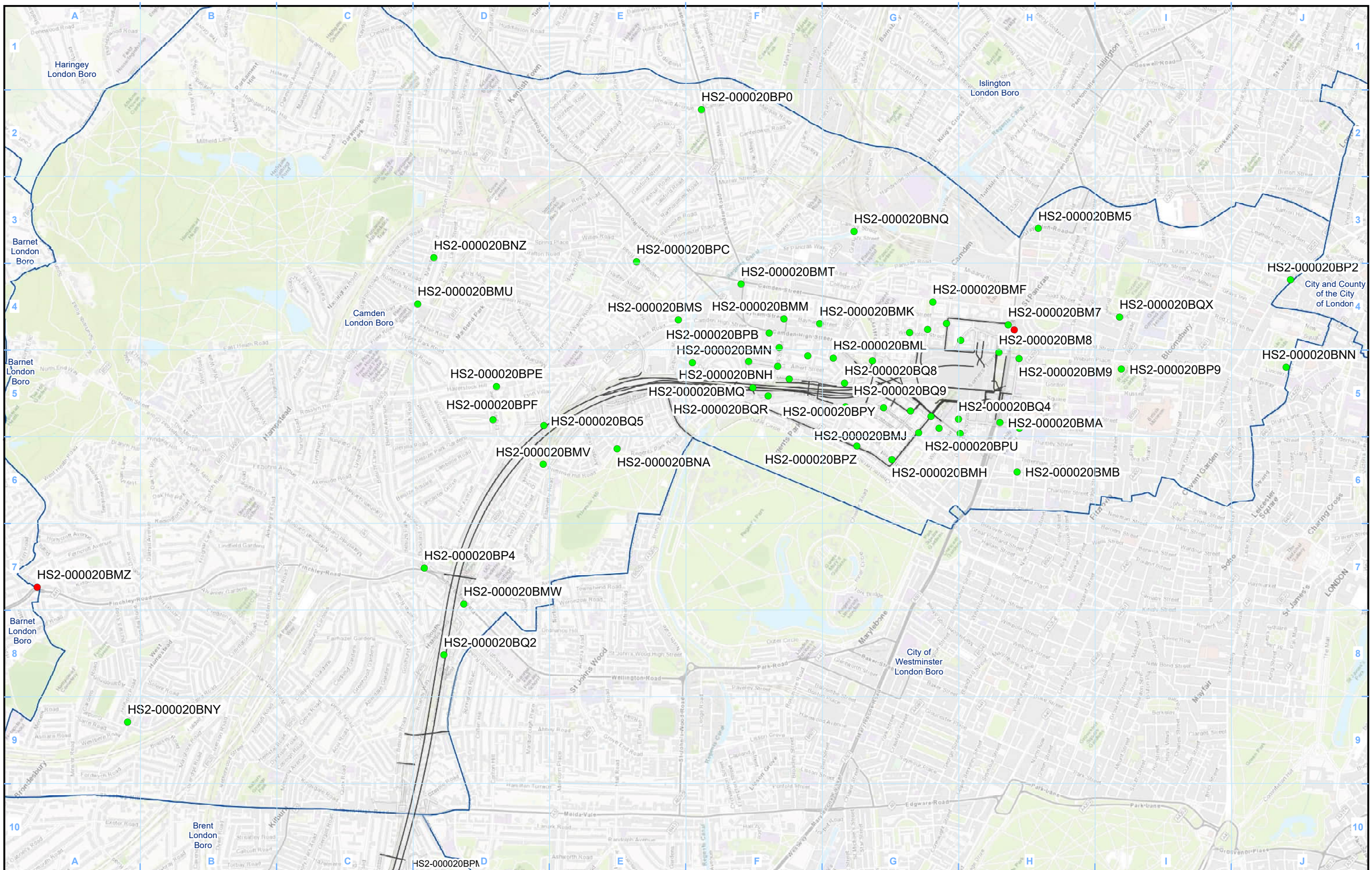
Doc Number:

Date: 06/08/24



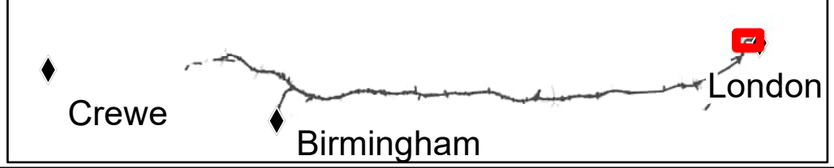
Legend

2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

- Work Sections Centreline
- Consolidated Land Boundary
- District Borough Unitary Boundaries

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
London Borough of Camden
(Camden 1 of 2)

(2 of 8)

Scale at A3: 1:20,000

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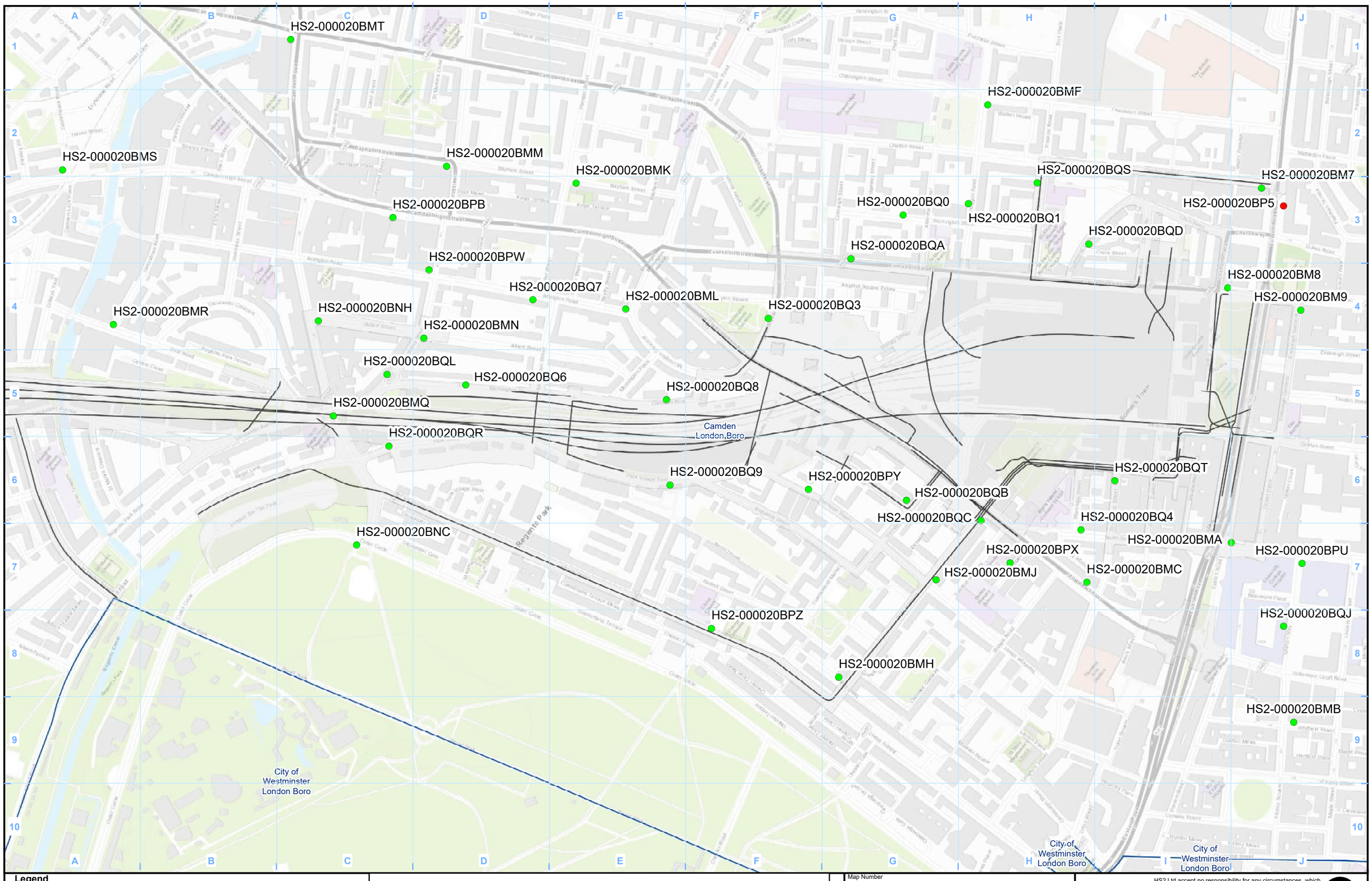
Doc Number:

Date: 06/08/24

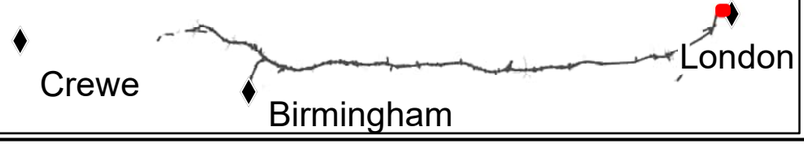


Legend

2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

- Work Sections Centreline
- Consolidated Land Boundary
- District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
London Borough of Camden
(Camden 2 of 2)

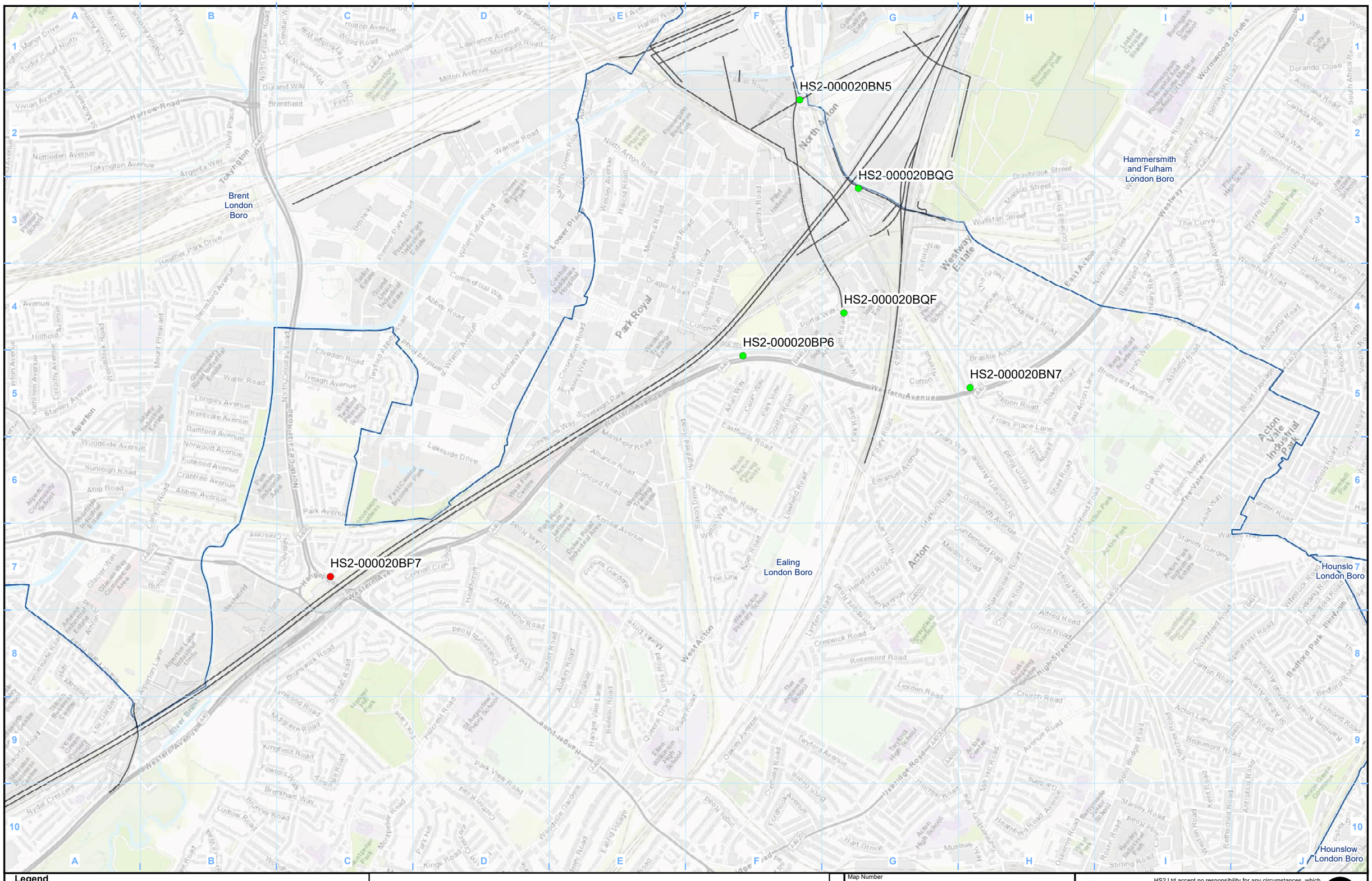
(3 of 8)

Scale at A3: 1:5,500

0 50 100 150 200
Metres

Doc Number:

Date: 06/08/24



Legend

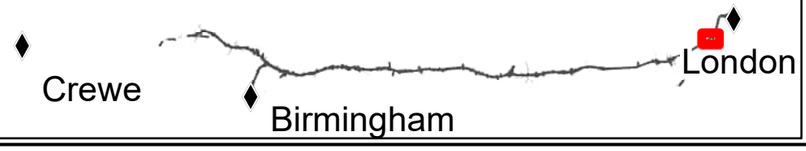
2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

Work Sections Centreline

Consolidated Land Boundary

District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
London Borough of Ealing

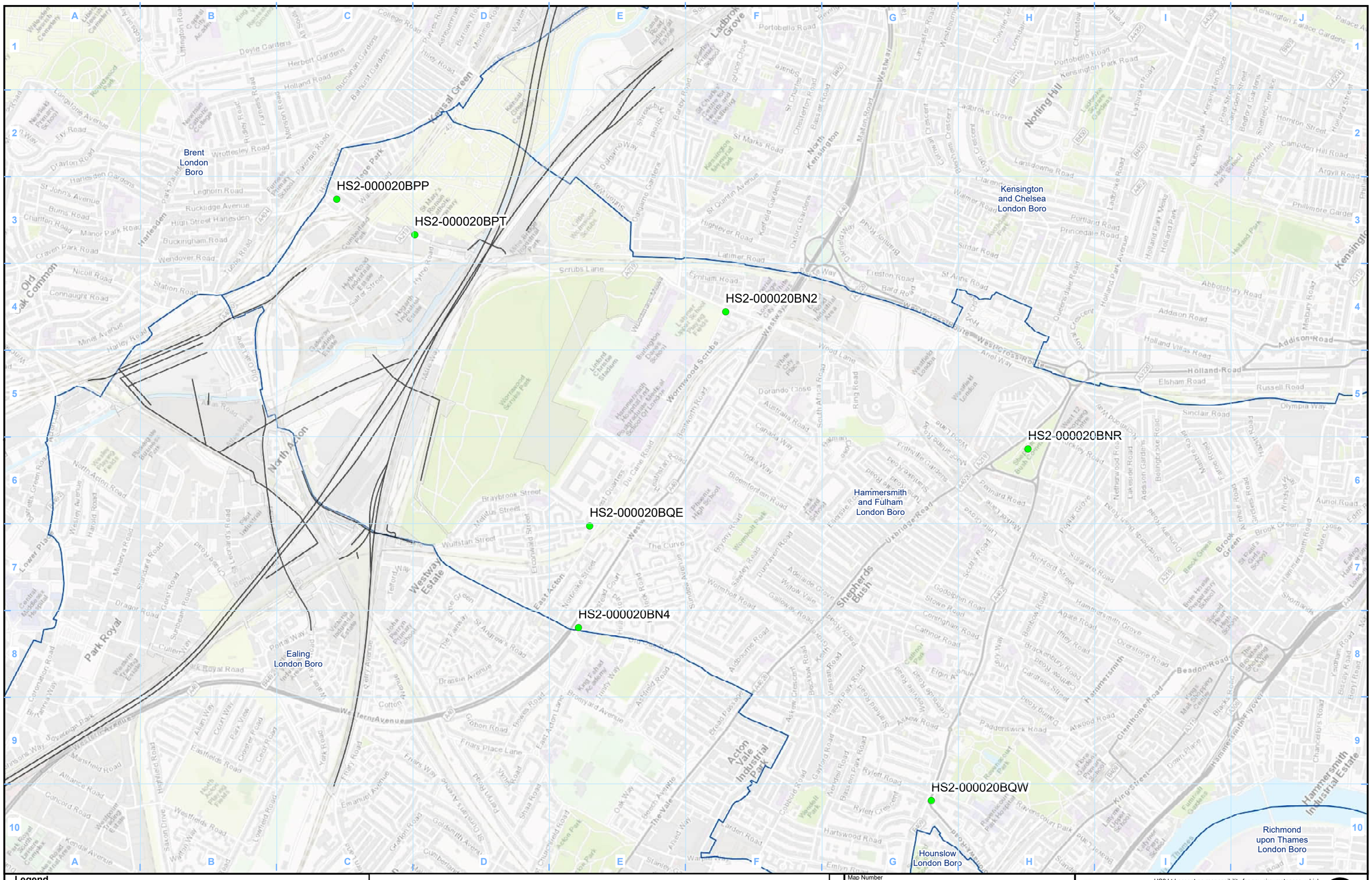
(4 of 8)

Scale at A3: 1:15,000

0 150 300 450 600
Metres

Doc Number:

Date: 06/08/24



Legend

2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

- Work Sections Centreline
- Consolidated Land Boundary
- District Borough Unitary Boundaries

Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
London Borough of Hammersmith and Fulham

(5 of 8)

Scale at A3: 1:15,000

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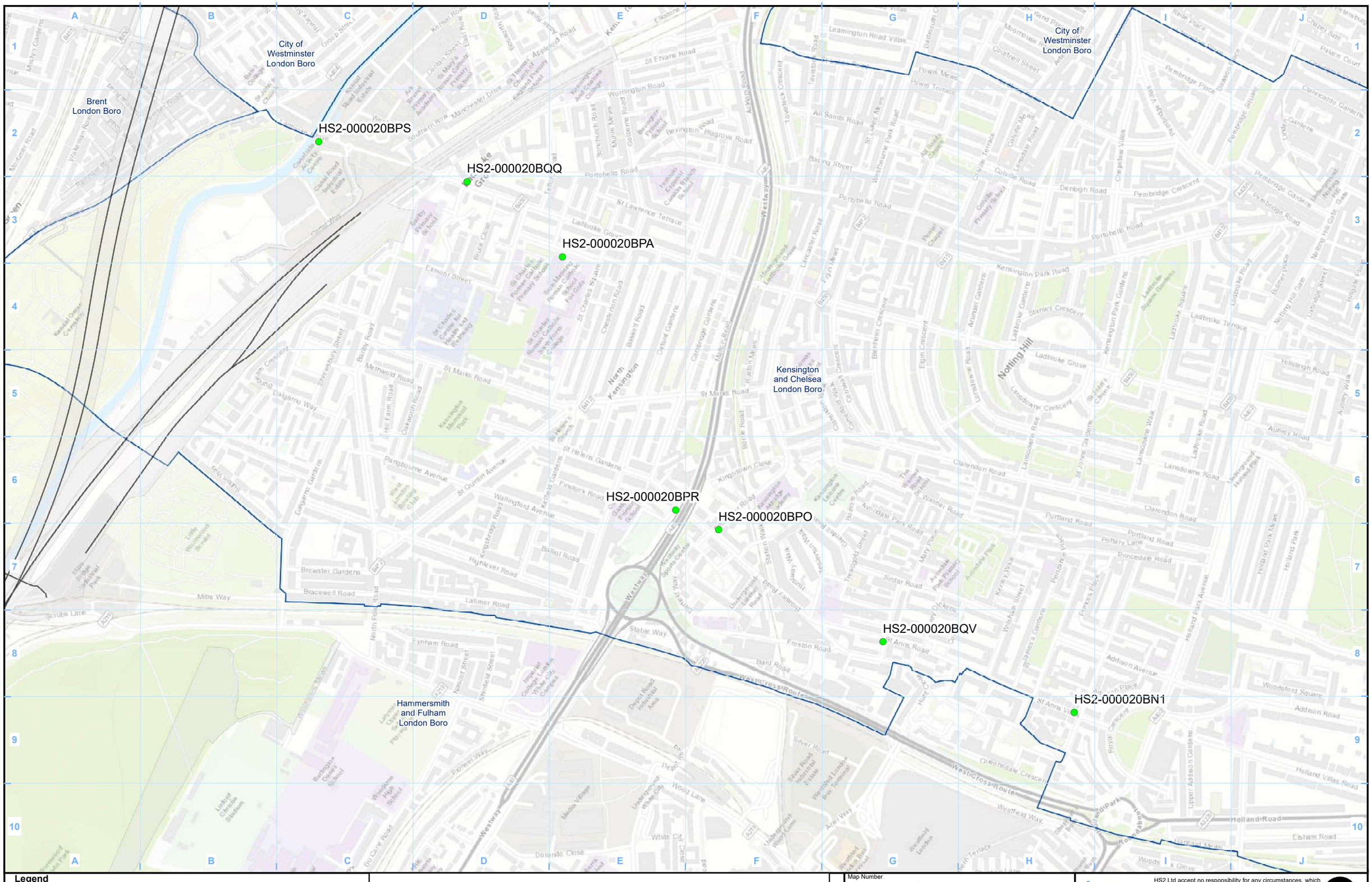
Metres

Doc Number:

Date: 06/08/24



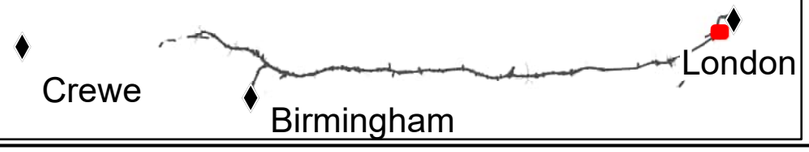
Legend

2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

- Work Sections Centreline
- Consolidated Land Boundary
- District Borough Unitary Boundaries

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
London Borough of Kensington and Chelsea

(6 of 8)

Scale at A3: 1:8,000

0 80 160 240 320
Metres

Doc Number:

Date: 06/08/24

HS2-000020BME
HS2-000020BMD
HS2-000020BND
HS2-000020BP3
HS2-000020BMX
HS2-000020BPH
HS2-000020BNJ
HS2-000020BPG
HS2-000020BP1
HS2-000020BNL
HS2-000020BQU
HS2-000020BMY
HS2-000020BQY

Camden London Boro
Lambeth London Boro
City of Westminster London Boro
Brent London Boro
Kensington and Chelsea London Boro

Legend

2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

Work Sections Centreline
Consolidated Land Boundary
District Borough Unitary Boundaries

Crewe — Birmingham — London

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
City of Westminster

(7 of 8)

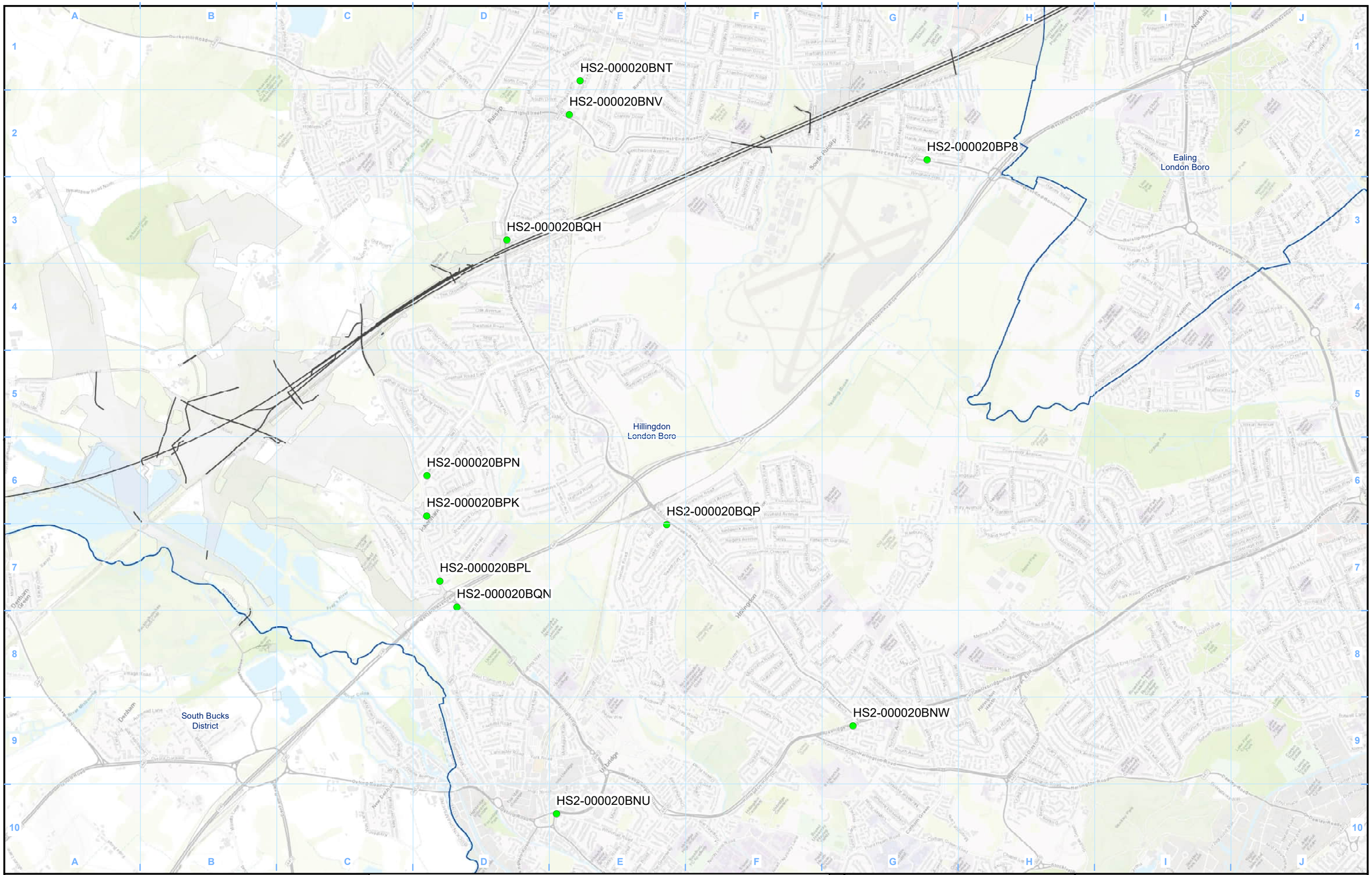
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:17,500

0 175 350 525 700
Metres

Doc Number:

Date: 06/08/24

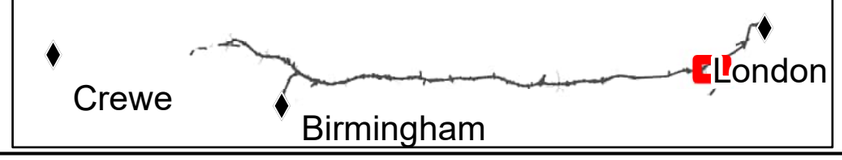


Legend

2023 NO_2 Monitoring

- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

- Work Sections Centreline
- Consolidated Land Boundary
- District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO_2 Monitoring Positions
London Borough of Hillingdon

(8 of 8)

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:25,000

0 250 500 750 1,000
Metres

Doc Number:

Date: 06/08/24