HS2

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Air Quality Annual Report 2022

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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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Contents

List of figures

List of tables

Non-Technical Summary

This 2022 Annual Air Quality Report focuses on the air quality monitoring undertaken in the 2022 calendar year across HS2. The report details the monitoring undertaken during the construction works on Phase One and details of the monitoring survey commissioned to provide information on the baseline situation on Phase 2a before construction works begin.

The High Speed Two project (HS2) is the Government's proposal for a new, high speed, north-south railway. HS2 Phase One will connect London with Birmingham and the West Midlands; Phase Two will extend the route to Manchester and beyond.

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.

In February 2019, the Supplementary Environmental Statement 2 and Additional Provisions 2 Environmental Statement (SES2 and AP2 ES) was submitted to Parliament in support of the High Speed Rail (West Midlands – Crewe) Bill (Phase 2a). AP2 ES reports any likely significant environmental effects of the proposed amendments made to the scheme having taken into account the environmental information in the main ES as updated by SES1 and SES2, where appropriate. On 11 February 2021 Royal Assent was granted for HS2 Phase 2a, creating the High Speed Rail (West Midlands - Crewe) Act 2021.

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.

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, fifth and sixth annual reports focused on reporting monitoring data for air quality around highways, covering the 2018, 2019, 2020 and 2021 calendar years respectively during the early stages of construction activity. This seventh report covers the 2022 calendar year, includes the construction activities in Phase One and baseline conditions prior to the commencement of construction works in Phase 2a. This report makes reference 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. Potential significant effects in Phase 2a as a result of increased in nitrogen dioxide concentrations were identified at sensitive receptors close to

the M6. Therefore, the monitoring data discussed in this report covers the Greater London area for the pollutants nitrogen dioxide and particulate matter and locations close to the M6 for the pollutant nitrogen dioxide.

HS2 commenced a Phase One and Phase 2a baseline air quality survey at the end of June 2016 and January 2019 respectively. 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 2022 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 2022 monitoring data with the predictions from the air quality modelling undertaken for the Environmental Statement.

During 2022 Phase One was in construction, and early environmental works had commenced along the Phase 2a route. 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 Papers for Air Quality (E31 for Phase One and E14 for Phase 2a) set 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 2022 in Phase One are set out in Section 4.2 and will be reported across Phases 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

1.1.1 High Speed Two (HS2) is the Government's proposal for a new, high speed national railway. HS2 Phase One will connect London with Birmingham and the West Midlands; with Phase 2 planned to extend the route to Manchester and beyond.

1.1.2 The high-speed railway project is divided into 3 phases:

- Phase One linking London and the West Midlands;
- Phase 2a linking the West Midlands and the North via Crewe; and
- Phase 2b completing the railway to Manchester, the East Midlands and the North.

1.1.3 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.

1.1.4 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 Papers [1] summarise the impacts identified in the ES, as amended.

1.1.5 The High Speed Rail (West Midlands - Crewe) Bill ('the Bill') was submitted to Parliament together with an ES ('the main ES') in July 2017. If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain Phase 2a of HS2. Following the deposit of the Bill, the need for a number of amendments to the scheme (i.e. changes that require amendments to the Bill) was identified. These amendments were promoted in Parliament in March 2018 through an Additional Provision (referred to hereafter as 'AP1'), together with an ES ('the AP1 ES'). The AP1 ES was accompanied by a Supplementary ES ('the SES1'), which reported changes to the design which do not require amendments to the Bill, changes to construction assumptions, new environmental baseline information and corrections to the main ES.

[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
and HS2 Phase 2a Information Paper E14: Air Quality
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828982/E14_Air_Quality_v1.2.pdf

1.1.6 In February 2019, the Supplementary Environmental Statement 2 and Additional Provisions 2 Environmental Statement (SES2 and AP2 ES) was submitted to Parliament in support of the Bill (Phase 2a). AP2 ES reports any likely significant environmental effects of the proposed amendments made to the scheme having taken into account the environmental information in the main ES as updated by SES1 and SES2, where appropriate. On 11 February 2021 Royal Assent was granted for HS2 Phase 2a, creating the High Speed Rail (West Midlands - Crewe) Act 2021.

1.1.7 This 2022 Annual Air Quality Report focusses on monitoring undertaken in the 2022 calendar year during Phase One construction works and Phase 2a baseline survey.

1.1.8 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}).

1.1.9 Potential significant effects in Phase 2a, identified in the SES and AP2 ES, as a result of increased in nitrogen dioxide (NO_2) concentrations were identified at sensitive receptors close to the M6. Potential significant effects were predicted across the following local authority areas:

- Stafford seven (8) locations;
- Newcastle-under-Lyme one (1) location; and
- Cheshire East one (1) location.

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

1.1.11 The identified significant effects are largely as a result of the existing concentrations of air pollutants within the Greater London and M6 area 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 and this seventh report covered 2021 and 2022 calendar years, during the main phase of construction activities in Phase One and baseline conditions prior to the full commencement of works in Phase 2a. 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).

[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.

The area of focus is where significant effects were identified within the ES. These areas were within Greater London and at sensitive receptors along the M6 in Phase 2a, 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, and along the M6 in Phase 2a. 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 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 an eighth 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] National Atmospheric Emissions Inventory (NAEI), BEIS (2019) https://naei.beis.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 and Phase 2a 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 and certain locations adjacent to the M6. The Phase One survey has continued throughout the initial enabling works phase and will be continued into the main works construction phase. The Phase 2a baseline survey ran from January 2019 and will continue through early environmental works and into main works construction.

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, and at the beginning of January 2019 for locations along the M6 along the Phase 2a route. The surveys were planned, installed and is operated in accordance with Defra Local Air Quality Management Technical Guidance 2016 (LAQM.TG(16))[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(16) 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

[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, 2018, Local Air Quality Management Technical guidance. Available at: https://laqm.defra.gov.uk/technical-guidance/

returned to the laboratory for analysis at the end of each month and new diffusion tubes are deployed for the next month.

2.4.4 In accordance with Defra LAQM.TG(16) 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(16) 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 2022 in Phase One were supplied by SOCOTEC UK Limited. The diffusion tubes used in Phase 2a were supplied by Gradko International 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 2022 period were annualised and bias adjusted in accordance with Defra LAQM.TG(16) guidance.

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

[11] The Gradko 20% TEA in water diffusion tubes have a grey cap. The SOCOTEC diffusion tubes contain 20% TEA in de-ionised water and have a black cap.

2.4.11 Diffusion tube data for January to December 2022 were annualised in line with Defra LAQM.TG(16) 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. For Phase 2a, no diffusion tubes had a data capture of less than 75%, therefore none of the results were annualised.

2.4.12 Phase One bias adjustment factors for background, roadside and kerbside locations were derived using Defra's local bias adjustment factors spreadsheet[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.

2.4.13 As there were no local continuous monitors for co-location of diffusion tubes in Phase 2a, the national bias adjustment factor for 2021 was used for this survey analysis. The national bias adjustment factor for the latest published year (2021) was 0.84; the annual concentrations for all sites were therefore adjusted by multiplying by this factor.

2.4.14 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.

[12] Site location type are defined in Defra LAQM.TG(16):
- 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.

[13] Department of Environment, Food and Rural Affairs, 2011, local bias adjustment factors spreadsheet version 04. Available at: https://laqm.defra.gov.uk/bias-adjustment-factors/local-bias.html

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 2.1 - 2023) Construction-dust-2023-BG-v6-amendments.pdf (iaqm.co.uk)
[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 2022 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 2022 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(16) 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 116 locations where monitoring was undertaken in 2022, monitored concentrations from four tubes were 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 90 sites (100% of the overall sites), which were typically associated with locations on side streets away from major roads.
  - A further 26 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 116 locations where monitoring was undertaken in 2022, monitored concentrations from four tubes were within ±25% of the modelled concentrations.
- Where comparison has a difference of more than ±25%:
  - Modelled concentrations were higher than the monitored concentrations for 90 sites (100% of the overall sites), which were typically associated with locations on side streets away from major roads.
  - A further 26 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 2022 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 and concerns London i.e. the implementation of London Low Emission Zone in April 2019 and Ultra-Low Emission Zone which in October 2021.

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 116 diffusion tube monitoring locations in 2022, 65 locations indicated a reduction in monitored concentrations between 2021 and 2022, with 46 locations indicating a slight increase in monitored concentrations. A further 5 locations showed no increase or decrease between 2021 and 2022. The number of locations at which the monitored concentrations exceeded the Air Quality Objective decreased between 2021 and 2022. No additional locations are reporting an exceedance with the Air Quality Objective. Two (2) new locations noted compliance with the Air Quality Objective when compared to the 2021 monitoring results.

3.2 Phase 2a

3.2.1 Appendix E presents the Phase 2a 2022 baseline monitored results. There were ten (10) monitoring sites installed across the three study areas close to the M6 in Stafford, Newcastle-under-Lyme and Cheshire East, including:

- South-west of Stafford: eight (8) sites with duplicate tubes;
- Madeley Health: one (1) site with duplicate tubes; and
- Oakhanger: one (1) site with duplicate tubes.

3.2.2 Measurements of NO_2 concentrations were obtained on a monthly basis in 2022 and analysis was undertaken to compare data collated against the annual mean air quality standard of 40µg/m^3.

3.2.3 Measured NO_2 concentrations were well below the annual mean air quality standard of 40µg/m^3 at all sites.

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 Papers (E31: Phase One and E14: Phase 2a).

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.

4.2.3 As Phase 2a continues into early environmental works emission standards for construction vehicle emissions, NRMM and dust management will similarly be applied as in Phase One. Phase 2a Information Paper E14: Air Quality sets out these HS2 emission standards applicable from the start of works.

Vehicle and NRMM Emission Compliance

4.2.4 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.

4.2.5 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	

4.2.6 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.

4.2.7 The 2022 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%	97.7%
	HGV	100%	99.9%
	NRMM	100%	98.6%
Area Central	LDV	100%	95.1%
	HGV	100%	99.8%
	NRMM	100%	99.5%
Area South	LDV	100%	97.4%
	HGV	100%	99.9%
	NRMM (CAZ)	100%	97.9%
	NRMM (Greater London)	100%	99.8%

Innovations

4.2.8 Through 2022, 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].

4.2.9 Some of these projects include:

- Electric Drilling Rig;
- Electric Crawler Crane;
- Hydrogen Fuel Cell Generators;
- Clean Air Gas Engine (CAGE) Generator operating on Liquified Petroleum Gas (LPG);
- Alternative Biofuel trials; and
- Continued deployment of low / zero emitting plants.

4.2.10 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.

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

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

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**

Phase 2a

Significant effects in Phase 2a were predicted at 10 residential receptors for NO_2 concentrations near the M6. Potential significant effects were predicted across the following local authority areas:

- Stafford seven (8) locations;
- Newcastle-under-Lyme one (1) location; and
- Cheshire East one (1) location.

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

Appendix B – HS2 Air Quality monitoring survey locations

Table 6 and 7 gives details of the locations included in the HS2 NO_2 diffusion tube surveys during 2022 for Phase One and Phase 2a respectively. 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

Table 7: Details of HS2 Phase 2a 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
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	392247	319432	2.0	Predicted significant effect
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	392355	319784	2.0	Predicted significant effect
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	392217	319929	2.0	Predicted significant effect
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	391894	320423	2.0	Predicted significant effect
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	391717	320592	2.0	Predicted significant effect
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	391559	320699	2.1	Predicted significant effect
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	391539	320634	2.15	Predicted significant effect
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	391498	320799	2.0	Predicted significant effect
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	378110	345523	2.15	Predicted significant effect
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	377035	355030	2.0	Predicted significant effect

Appendix C – Annualisation and bias adjustment of NO_2 diffusion tubes

Table 8: Annualisation and bias adjustment factors applied to each monitoring site across Phase One

Site ID	Local authority	Site location	Location type	2022 annualisation factor[20]	2022 bias adjustment factor
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	Not annualised	0.77
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Location replaced by HS2-000020BQX	
HS2-000020BM7	Camden Council	Chalton Street	Roadside	Not Annualised	0.77
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	Not Annualised	0.77
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	Not Annualised	0.77
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	Not Annualised	0.77
HS2-000020BMB	Camden Council	Whitfield Street	Background	Not Annualised	0.76
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	Not Annualised	0.77
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	Not Annualised	0.77
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	Not Annualised	0.77
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	Not Annualised	0.76
HS2-000020BMH	Camden Council	Nash Street	Background	Not Annualised	0.76
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	Not Annualised	0.76
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	Not Annualised	0.77
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	Not Annualised	0.76
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	Not Annualised	0.77
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	Not Annualised	0.77
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	Not Annualised	0.77
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	Not Annualised	0.76

[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	2022 annualisation factor[20]	2022 bias adjustment factor
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	Not Annualised	0.77
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	Not Annualised	0.78
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	Not Annualised	0.77
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	Not Annualised	0.77
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	Not Annualised	0.77
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	Not Annualised	0.77
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	Not Annualised	0.77
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	Not Annualised	0.77
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	0.77
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	Not Annualised	0.77
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	Not Annualised	0.77
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	Not Annualised	0.77
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	Not Annualised	0.77
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	Not Annualised	0.77
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	Not Annualised	0.77
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	Not Annualised	0.76
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	Not Annualised	0.78
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	Not Annualised	0.77
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	Not Annualised	0.78
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	Not Annualised	0.77
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	Not Annualised	0.76
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	Not Annualised	0.76
HS2-000020BNQ	Camden Council	Camley Street	Background	Not Annualised	0.76

Site ID	Local authority	Site location	Location type	2022 annualisation factor[20]	2022 bias adjustment factor
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	0.9497	0.76
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	Not Annualised	0.76
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	Not Annualised	0.76
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	Not Annualised	0.77
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	Not Annualised	0.77
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	Not Annualised	0.77
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	Not Annualised	0.77
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	Not Annualised	0.77
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	Not Annualised	0.77
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	Not Annualised	0.77
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	Not Annualised	0.77
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	Not Annualised	0.78
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	Not Annualised	0.78
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	0.8866	0.77
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	Not Annualised	0.77
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	Not Annualised	0.77
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	Not Annualised	0.77

Site ID	Local authority	Site location	Location type	2022 annualisation factor[20]	2022 bias adjustment factor
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	Not Annualised	0.76
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	0.76
HS2-000020BPB	Camden Council	Camden High Street	Roadside	Not Annualised	0.77
HS2-000020BPC	Camden Council	Castlehaven Road	Background	Not Annualised	0.76
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	Not Annualised	0.77
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	Not Annualised	0.77
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	Not Annualised	0.76
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	Not Annualised	0.77
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	Not Annualised	0.77
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	Not Annualised	0.77
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	Not Annualised	0.77
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	Not Annualised	0.76
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	Not Annualised	0.77
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	Not Annualised	0.77
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	Not Annualised	0.77
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	Not Annualised	0.77
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	Not Annualised	0.77
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	Not Annualised	0.77
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	Not Annualised	0.77

Site ID	Local authority	Site location	Location type	2022 annualisation factor[20]	2022 bias adjustment factor
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	Not Annualised	0.77
HS2-000020BPX	Camden Council	Netley Street	Background	Not Annualised	0.76
HS2-000020BPY	Camden Council	Stanhope Street	Background	Not Annualised	0.76
HS2-000020BPZ	Camden Council	Albany Street	Roadside	Not Annualised	0.77
HS2-000020BQ0	Camden Council	Werrington Street	Background	Not Annualised	0.76
HS2-000020BQ1	Camden Council	Polygon Road	Background	Not Annualised	0.76
HS2-000020BQ2	Camden Council	Alexandra Place	Background	Not Annualised	0.76
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	Not Annualised	0.78
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	Not Annualised	0.76
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	Not Annualised	0.77
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	Not Annualised	0.76
HS2-000020BQ7	Camden Council	Arlington Road	Background	Not Annualised	0.76
HS2-000020BQ8	Camden Council	Clarkson Row	Background	Not Annualised	0.76
HS2-000020BQ9	Camden Council	Park Village East	Background	Not Annualised	0.76
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	Not Annualised	0.78
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	Not Annualised	0.76
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	Not Annualised	0.78
HS2-000020BQD	Camden Council	Drummond Crescent	Background	Not Annualised	0.76
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	Not Annualised	0.76
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	Not Annualised	0.77
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	Not Annualised	0.77
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	0.9008	0.77
HS2-000020BQJ	Camden Council	Grafton Way	Background	Not Annualised	0.76
HS2-000020BQL	Camden Council	Delancey Street	Roadside	Not Annualised	0.77
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	Not Annualised	0.77
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	Not Annualised	0.77
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	Not Annualised	0.78
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	Not Annualised	0.76

Site ID	Local authority	Site location	Location type	2022 annualisation factor[20]	2022 bias adjustment factor
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	Not Annualised	0.76
HS2-000020BQT	Camden Council	Drummond Street	Background	Not Annualised	0.76
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	Not Annualised	0.78
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	Not Annualised	0.78
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road (*replaced HS2-000020BNX*)	Kerbside	Not Annualised	0.78
HS2-000020BQX	Camden Council	Lamp Post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	Not Annualised	0.77
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	Not Annualised	0.77
HS2-000020BQZ	Ealing Council	Lamp post on Victoria Road opposite Tudor House	Kerbside	Not Annualised	0.78
HS2-000029BR0	Ealing Council	Sign post on Shaftesbury Gardens	Roadside	Not Annualised	0.77
HS2-000020BR1	Ealing Council	Lamp post on Midland Terrace	Background	Not Annualised	0.76
HS2-000020BR2	Ealing Council	Lamp post on Victoria Road outside Papa John's	Roadside	0.9897	0.77

Table 9: Annualisation and bias adjustment factors applied to each monitoring site across Phase 2a

Site ID	Local authority	Site location	Site location type	2021 annualisation factor[21]	2021 bias adjustment factor
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	Not Annualised	0.84
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	Not Annualised	0.84
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	Not Annualised	0.84
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	Not Annualised	0.84
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	Not Annualised	0.84
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	Not Annualised	0.84
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	Not Annualised	0.84
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	Not Annualised	0.84
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	Not Annualised	0.84
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	Not Annualised	0.84

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

Appendix D – Air Quality Monitoring Results

HS2 NO_2 diffusion tube results

Table 10: Annual mean Phase One NO_2 monitoring results for 2022

Site ID	Local authority	Site location	Location type	2022 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	32.8
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Site replaced by HS2-000020BQX
HS2-000020BM7	Camden Council	Chalton Street	Roadside	36.0
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	39.7
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	37.0
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	34.9
HS2-000020BMB	Camden Council	Whitfield Street	Background	27.9
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	**47.2**
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	39.1
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	**51.6**
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	24.4
HS2-000020BMH	Camden Council	Nash Street	Background	25.3
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	25.9
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	33.8
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	23.6
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	33.8
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	26.0
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	31.8
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	23.3
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	31.6
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	33.7
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	29.7
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	24.3

Site ID	Local authority	Site location	Location type	2022 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road32	Roadside	38.5
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	29.1
HS2-000020BMY	Westminster City Council	Lamp post54 between Blomfield Road and Edgware36 Road	Roadside	33.7
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	**49.7**
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	32.7
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	34.8
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	38.7
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	33.4
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	38.4
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	36.7
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	23.7
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	19.3
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	22.3
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	27.9
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	24.7
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	34.6
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	23.8
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	24.1
HS2-000020BNQ	Camden Council	Camley Street	Background	26.4
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	24.9
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	20.4
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	18.9
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	34.8
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	29.8
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	33.2
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	28.8
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	24.7
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	37.0

Site ID	Local authority	Site location	Location type	2022 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	35.1
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	28.9
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	**44.6**
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	**40.9**
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	**44.2**
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	35.5
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	**52.5**
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	26.5
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	25.1
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	19.3
HS2-000020BPB	Camden Council	Camden High Street	Roadside	**44.7**
HS2-000020BPC	Camden Council	Castlehaven Road	Background	23.4
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	21.4
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	26.6
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	27.7
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	25.9
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	27.5
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	25.9
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	28.8
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	21.1
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	27.0
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	26.7
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	34.8
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	27.7
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	32.4

Site ID	Local authority	Site location	Location type	2022 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	33.6
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	32.1
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	28.4
HS2-000020BPX	Camden Council	Netley Street	Background	25.6
HS2-000020BPY	Camden Council	Stanhope Street	Background	23
HS2-000020BPZ	Camden Council	Albany Street	Roadside	24.6
HS2-000020BQ0	Camden Council	Werrington Street	Background	21.7
HS2-000020BQ1	Camden Council	Polygon Road	Background	22.7
HS2-000020BQ2	Camden Council	Alexandra Place	Background	21.4
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	31.7
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	25.6
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	26.7
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	22.3
HS2-000020BQ7	Camden Council	Arlington Road	Background	21.5
HS2-000020BQ8	Camden Council	Clarkson Row	Background	23.8
HS2-000020BQ9	Camden Council	Park Village East	Background	21.6
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	34.6
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	22.9
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	28.6
HS2-000020BQD	Camden Council	Drummond Crescent	Background	27.7
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	22.1
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	39.4
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	31.6
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	30.7
HS2-000020BQJ	Camden Council	Grafton Way	Background	35
HS2-000020BQL	Camden Council	Delancey Street	Roadside	31.7
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	32.3
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	31.6
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	31.9
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	23.8
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	22.2
HS2-000020BQT	Camden Council	Drummond Street	Background	26.3
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	**42.4**
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	30.1

Site ID	Local authority	Site location	Location type	2022 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	28.8
HS2-000020BQX	Camden Council	Lamp Post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	28.2
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	33.0
HS2-000020BQZ	Ealing Council	Lamp post on Victoria Road opposite Tudor House	Kerbside	37.9
HS2-000029BR0	Ealing Council	Sign post on Shaftesbury Gardens	Roadside	24.2
HS2-000020BR1	Ealing Council	Lamp post on Midland Terrace	Background	22.8
HS2-000020BR2	Ealing Council	Lamp post on Victoria Road outside Papa John's	Roadside	38.2

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

Table 11: Annual mean Phase 2a NO_2 monitoring results for 2022

Site ID	Local authority	Site location	Location type	2022 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	9.5
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	13.1
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	20.3
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	21.5
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	20.3
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	17.8
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	15.1
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	17.2
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	20.3
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	13.1

Table 12: Full monthly raw Phase One NO_2 monitoring results for 2022 (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
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	55	40	48	42	34	34	39	41	45	Tube Missing	45	45	43	11
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Location moved – replaced with HS2-000020BQX													
HS2-000020BM7	Camden Council	Chalton Street	Roadside	Tube Missing	Tube Missing	62	46	41	38	Tube Missing	40	41	48	48	55	47	9
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	Tube Missing	51	59	49	51	45	49	47	49	56	60	50	51	11
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	61	44	58	47	38	38	42	49	51	46	50	49	48	12
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	Tube Missing	44	57	43	41	31	41	41	42	49	52	55	45	11
HS2-000020BMB	Camden Council	Whitfield Street	Background	51	37	50	35	28	26	28	30	32	36	40	46	37	12
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	70	52	71	55	52	54	60	58	63	69	67	61	61	12
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	56	48	69	53	45	42	47	49	50	48	51	49	51	12
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	76	Tube Missing	83	Tube Missing	61	56	65	68	69	61	66	64	67	10
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	42	27	55	28	25	21	23	27	29	33	35	37	32	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BMH	Camden Council	Nash Street	Background	46	31	45	28	26	26	27	29	28	36	36	40	33	12
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	41	31	47	33	28	25	27	31	31	36	34	42	34	12
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	56	Tube Missing	54	37	36	37	38	41	40	50	48	44	44	11
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	48	30	44	28	23	20	22	24	27	32	33	40	31	12
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	Tube Missing	49	52	37	44	Tube Missing	40	33	43	54	42	43	44	10
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	53	34	43	32	30	26	26	26	29	35	37	Tube Missing	34	11
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	51	30	60	40	33	33	37	39	38	44	45	45	41	12
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	49	31	43	29	24	18	22	26	28	27	32	38	31	12
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	50	41	50	38	36	31	34	40	44	42	Tube Missing	45	41	11
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	60	Tube Missing	53	44	35	31	33	43	45	42	40	52	43	11

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	53	37	53	37	32	29	32	34	39	32	38	44	38	12
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	57	Tube Missing	42	28	25	18	23	25	27	31	35	37	32	11
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	66	52	64	48	41	37	44	Tube Missing	50	48	46	53	50	11
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	53	37	41	28	30	21	34	33	40	43	45	47	38	12
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	62	45	50	34	Tube Missing	Tube Missing	39	35	Tube Missing	39	43	47	44	9
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	88	62	83	59	50	52	60	64	66	56	63	70	64	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	58	40	48	38	34	34	36	40	44	45	42	51	42	12
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Roadside	55	Tube Missing	54	42	35	38	41	40	46	49	50	48	45	11
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	66	48	58	44	37	44	44	46	54	54	54	52	50	12
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	55	34	50	42	Tube Missing	36	43	43	50	36	42	46	43	11
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	65	52	55	39	36	37	45	51	55	53	55	53	50	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	76	Tube Missing	46	41	45	39	41	38	49	Tube Missing	52	48	48	10
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	48	33	38	Tube Missing	21	22	Tube Missing	22	24	31	32	37	31	10
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	38	19	39	25	18	14	20	24	23	26	26	33	25	12
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	36	38	36	24	Tube Missing	23	21	21	23	31	34	Tube Missing	29	10
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	58	39	46	31	26	24	26	28	35	Tube Missing	41	44	36	11
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	50	Tube Missing	Tube Missing	Tube Missing	24	24	28	28	28	34	35	35	32	9
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	61	46	53	50	37	40	41	34	40	46	47	45	45	12
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	49	32	40	28	23	20	24	24	28	33	34	40	31	12
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	47	34	39	26	25	24	26	23	27	34	36	40	32	12
HS2-000020BNQ	Camden Council	Camley Street	Background	62	Tube Missing	42	32	30	22	22	27	28	35	39	41	35	11
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background	48	Tube Missing	Tube Missing	Tube Missing	Tube Missing	22	26	Tube Missing	34	33	36	42	34	7

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)													No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	43	25	38	25	19	14	17	Tube Missing	24	25	29	35	27	11
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	39	25	33	19	16	Tube Missing	13	17	23	26	31	32	25	11
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	60	47	49	41	36	39	39	40	44	46	50	51	45	12
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	50.8	Tube Missing	48	35	27	28	35	36	40	42	43	40	39	11
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	53	29	60	41	28	33	36	47	48	44	49	49	43	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	60	39	43	34	27	25	32	29	36	40	39	44	37	12
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	50	36	37	26	27	26	27	26	30	31	35	35	32	12
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	63	Tube Missing	56	42	38	40	Tube Missing	41	45	52	52	52	48	10
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	61	Tube Missing	58	41	35	36	35	39	43	45	50	58	45	11

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	59	40	48	33	33	29	31	30	35	33	39	40	37	12
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	78	84	73	51	53	50	46	48	48	54	54	54	58	12
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	74	50	76	49	41	41	49	48	55	51	48	52	53	12
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	Tube Missing	Tube Missing	67	Tube Missing	Tube Missing	Tube Missing	Tube Missing	Tube Missing	65	67	64	60	65	5
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	63	45	50	37	38	37	40	39	48	51	54	50	46	12
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	87	67	65	Tube Missing	66	66	62	54	71	68	74	Tube Missing	68	10

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	42	32	45	33	27	26	31	32	33	34	38	39	34	12
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	54	36	42	34	27	21	24	25	29	30	36	38	33	12
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	46	26	34	22	16	15	16	20	24	26	Tube Missing	34	25	11
HS2-000020BPB	Camden Council	Camden High Street	Roadside	78	Tube Missing	65	50	49	50	52	54	61	61	60	58	58	11
HS2-000020BPC	Camden Council	Castlehaven Road	Background	52	Tube Missing	39	27	24	18	22	22	27	37	33	38	31	11
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	46	32	37	25	19	17	18	20	24	29	31	36	28	12
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	55	41	39	28	32	22	29	27	32	33	38	38	34	12

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	54	38	49	31	26	24	29	31	33	37	40	44	36	12
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	53	35	48	27	29	20	25	28	30	35	35	41	34	12
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	Tube Missing	40	41	31	53	27	29	27	32	39	41	32	36	11
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	46	30	40	33	27	25	29	34	37	32	33	37	34	12
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	51	40	37	28	31	33	33	28	Tube Missing	45	40	44	37	11
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	46	27	36	24	Tube Missing	15	17	18	27	28	29	36	28	11
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	47	34	43	30	Tube Missing	19	29.1	28	36	38	40	40	35	11
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	53	Tube Missing	46	32	25	24	26	29	35	34	35	43	35	11
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	63	44	48	39	36	Tube Missing	42	40	50	43	48	45	45	11
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	Tube Missing	Tube Missing	Tube Missing	34	28	28	32	31	39	40	48	42	36	9

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	59	Tube Missing	56	36	28	34	35	37	45	44	49	40	42	11
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	61	42	49	38	36	35	40	43	46	44	40	48	43	12
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	Tube Missing	37	49	38	35	33	39	37	41	46	50	51	42	11
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	53	34	49	36	29	27	30	31	33	39	40	41	37	12
HS2-000020BPX	Camden Council	Netley Street	Background	48	30	50	34	26	18	27	33	33	32	36	35	33	12
HS2-000020BPY	Camden Council	Stanhope Street	Background	47	Tube Missing	46	31	25	21	23	22	23	27	29	36	30	11
HS2-000020BPZ	Camden Council	Albany Street	Roadside	31	29	45	31	26	24	26	28	30	38	38	38	32	12
HS2-000020BQ0	Camden Council	Werrington Street	Background	44	28	40	26	19	18	20	22	25	31	34	34	28	12
HS2-000020BQ1	Camden Council	Polygon Road	Background	44	31	42	28	Tube Missing	19	21	23	25	31	33	Tube Missing	30	10
HS2-000020BQ2	Camden Council	Alexandra Place	Background	45	30	42	26	22	17	22	21	24	27	29	32	28	12
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	55	Tube Missing	60	41	36	29	35	34	37	37	42	45	41	11

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	52	25	52	33	26	21	26	28	28	36	36	42	34	12
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	53	41	48	30	31	24	28	23	31	33	33	39	35	12
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	47	30	42	25	22	19	21	23	25	29	33	36	29	12
HS2-000020BQ7	Camden Council	Arlington Road	Background	46	28	38	25	22	18	20	22	26	25	31	38	28	12
HS2-000020BQ8	Camden Council	Clarkson Row	Background	48	33	44	27	25	23	24	25	26	32	33	36	31	12
HS2-000020BQ9	Camden Council	Park Village East	Background	Tube Missing	28	44	31	23	22	24	28	27	32	25	27	28	11
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	50	52	60	39	40	39	37	38	42	49	44	48	45	12
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	45	27	42	32	22	20	21	25	26	29	33	39	30	12
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	51	30	53	37	27	26	28	33	35	37	40	45	37	12
HS2-000020BQD	Camden Council	Drummond Crescent	Background	52	35	51	34	32	27	26	25	31	37	41	44	36	12
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	44	30	38	26	21	20	21	23	28	29	32	36	29	12
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	66	44	62	55		40	47	51	49	46	50	Tube Missing	51	11

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	Tube Missing	38	50	37	37	33	36	38	43	45	48	45	41	11
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	61	41	40	Tube Missing	No Access	No Access	43	40	47	Tube Missing	44	39	44	8
HS2-000020BQJ	Camden Council	Grafton Way	Background	Tube Missing	47	50	43	44	41	40	40	Tube Missing	48	57	50	46	10
HS2-000020BQL	Camden Council	Delancey Street	Roadside	60	37	57	43	33	26	35	36	39	38	43	46	41	12
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	53	36	56	40	Tube Missing	33	36	38	47	36	42	44	42	11
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	50	36	56	37	32	33	36	40	43	42	42	45	41	12
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	62	38	44	37	Tube Missing	27	34	Tube Missing	41	39	43	47	41	10
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	47	29	47	27	23	20	24	25	27	32	34	38	31	12
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	39	28	45	27	24	19	20	23	27	34	34	28	29	12
HS2-000020BQT	Camden Council	Drummond Street	Background	50	32	52	33	29	19	24	28	31	39	41	38	35	12
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	70	52	62	56	47	43	48	Tube Missing	Tube Missing	Tube Missing	52	63	55	9

Site ID	Local authority	Site location	Location type	NO_2 concentration (µg/m^3)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	58	33	50	35	32	28	30	34	42	38	42	45	39	12
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road (*replaced HS2-000020BNX*)	Kerbside	59	36	Tube Missing	34	26	Tube Missing	Tube Missing	29	35	33	38	44	37	9
HS2-000020BQX	Camden Council	Lamp post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	56	37	45	30	31	27	29	27	30	39	44	43	36	12
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	59	37	62	38	32	35	Tube Missing	36	50	42	Lost In Transit	38	43	10
HS2-000020BQZ	Ealing Council	Lamp post on Victoria Road opposite Tudor House	Kerbside	49	45	57	47	42	45	48	51	55	51	No Data		49	10
HS2-000029BR0	Ealing Council	Sign post on Shaftesbury Gardens	Roadside	50	33	40	30	24	21	27	29	33	27	No Data		31	10
HS2-000020BR1	Ealing Council	Lamp post on Midland Terrace	Background	43	30	38	30	21	24	24	26	33	30	No Data		30	10
HS2-000020BR2	Ealing Council	Lamp post on Victoria Road outside Papa John's	Roadside	Tube Missing	Tube Missing	62	Tube Missing	Tube Missing	Tube Missing	Tube Missing	44	44	Tube Missing	No Data		50	3

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.

Table 13: Full monthly raw Phase 2a NO_2 monitoring results for 2022 (prior to annualisation and bias adjustment)

Site ID	Local authority	Site location	Location type	NO_2 concentration ($\mu g/m^3$)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	No Data	6.2	8.5*	No Data				9.7	8.3	10.1	14.8	16.4	10.9	6
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	No Data	14.9	9.6*	No Data				12.9	15.4	14.9	18.8	20.5	16.2	6
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	No Data	28.4	15.5*	No Data				18.7	22.1	23.3	27.3	26.3	24.4	6
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	No Data	29.1	15.1*	No Data				20.5	24.4	25.7	30.0	29.0	26.5	6
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	No Data	30.4	13.9*	No Data				19.5	22.4	25.1	30.4	29.2	26.2	6
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	No Data	18.3	12.8*	No Data				15.9	19.4	20.7	22.2	24.8	20.2	6
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	No Data	13.2	Tube missing	No Data				17.5	17.3	Tube missing	20.1	21.7	18.0	4
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	No Data	23.3	10.2*	No Data				18.0	19.0	21.2	23.4	22.9	21.3	6

Site ID	Local authority	Site location	Location type	NO_2 concentration ($\mu g/m^3$)												No. of months of data
				Jan22	Feb22	Mar22	Apr22	May22	Jun22	Jul22	Aug22	Sep22	Oct22	Nov22	Dec22	Mean	
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	No Data	33.5	15.9*	No Data				18.4	22.0	25.4	27.9	27.4	25.8	6
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	No Data	9.2	10.5*	No Data				16.1	12.4	13.4	17.5	19.9	14.75	6

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 $40\mu g/m^3$.

Appendix E – Comparison of Phase One 2022 annual mean NO_2 diffusion tube results and the predicted NO_2 annual mean concentrations from the ES

Table 14 presents a comparison of the Phase One 2022 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 14: Comparison of the Phase One 2022 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	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Predicted significant effect	32.8	1-204	86.4	75.6	76.1	5	-42.8	-56.6	-43.3	-56.9
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	36.0	1-1	104.8	90.1	91.9	14	-54.1	-60.0	-55.9	-60.8
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Predicted significant effect	39.7	1-178	91.7	81	82.5	29	-41.3	-51.0	-42.8	-51.9
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Predicted significant effect	37.0	1-47	93.6	82.3	83.3	16	-45.3	-55.0	-46.3	-55.6
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Predicted significant effect	34.9	1-170	99.3	80	82.1	0	-45.1	-56.4	-47.2	-57.5

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BMB	Camden Council	Whitfield Street	Predicted significant effect	27.9	1-287	63.6	53.4	53.8	11	-25.5	-47.8	-25.9	-48.1
HS2-000020BMC	Camden Council	Hampstead Road	Predicted significant effect	**47.2**	1-165	83.1	66.6	67.5	9	-19.4	-29.1	-20.3	-30.1
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Predicted significant effect	39.1	1-42	89.6	75.7	76.4	49	-36.6	-48.3	-37.3	-48.8
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Predicted significant effect	**51.6**	1-279	86.1	72.8	73.4	17	-21.2	-29.1	-21.8	-29.7
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Predicted significant effect	24.4	1-79	50.4	43.4	43.7	0	-19.0	-43.8	-19.3	-44.2
HS2-000020BMH	Camden Council	Nash Street	Predicted significant effect	25.3	1-261	54.5	46.4	46.8	7	-21.1	-45.5	-21.5	-45.9
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Predicted significant effect	25.9	1-257	58.6	50.1	51.0	24	-24.2	-48.3	-25.1	-49.2
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Predicted significant effect	33.8	1-298	61.4	53.5	53.5	9	-19.7	-36.8	-19.7	-36.8
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Predicted significant effect	23.6	1-9	52	45.8	44.3	2	-22.2	-48.5	-20.7	-46.7
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Predicted significant effect	33.8	2-72	69.4	57.2	57.0	6	-23.4	-40.9	-23.2	-40.7
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Predicted significant effect	26.0	1-246	55.8	46.7	48.7	4	-20.7	-44.3	-22.7	-46.6
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Predicted significant effect	31.8	2-103	70.5	58.4	56.9	22	-26.6	-45.5	-25.1	-44.1

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Predicted significant effect	23.3	2-98	45.5	39.1	39.3	7	-15.8	-40.4	-16.0	-40.7
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Predicted significant effect	31.6	2-8	64.3	53.2	53.7	5	-21.6	-40.6	-22.1	-41.2
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Predicted significant effect	33.7	2-38	79.3	63.4	62.3	21	-29.7	-46.8	-28.6	-45.9
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Predicted significant effect	29.7	3-153	52.4	46.3	46.3	14	-16.6	-35.9	-16.6	-35.9
HS2-000020BMV	Camden Council	Primrose Hill Road	Predicted significant effect	24.3	3-213	55.2	46.7	45.1	32	-22.4	-48.0	-20.8	-46.1
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Predicted significant effect	38.5	3-60	64.9	53.6	53.8	8	-15.1	-28.2	-15.3	-28.4
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Predicted significant effect	29.1	1-141	65.1	55.7	56.1	24	-26.6	-47.8	-27.0	-48.1
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Predicted significant effect	33.7	4-65	64.2	54.1	53.9	13	-20.4	-37.7	-20.2	-37.5
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Predicted significant effect	**49.7**	3-96	70.4	56.4	56.4	8	-6.7	-11.9	-6.7	-11.9
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	32.7	4-193	62.3	53.2	53.3	4	-20.5	-38.5	-20.6	-38.6
HS2-000020BN2	Hammersmith & Fulham Council	Lamp post on Du Cane Road	Predicted significant effect	34.8	4-204	72.1	61.1	61.1	12	-26.3	-43.0	-26.3	-43.0

Site ID	Local authority	Site location	Site purpose	2022 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 (µg/m^3)	Modelled annual mean NO_2 2017 (without scheme, µg/m^3)	Modelled peak annual mean NO_2 (with scheme, µg/m^3)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Predicted significant effect	38.7	4-209	68.7	58.5	58.6	47	-19.8	-33.8	-19.9	-34.0
HS2-000020BN4	Hammersmith & Fulham Council	End of cycle lane sign on Old Oak Road	Predicted significant effect	33.4	4-155	88.7	76	76.1	18	-42.6	-56.1	-42.7	-56.1
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Predicted significant effect	38.4	4-12	64.6	52.6	56.0	3	-14.2	-27.0	-17.6	-31.4
HS2-000020BN7	Ealing Council	The Approach street sign	Predicted significant effect	36.7	4-152	83.3	69.6	69.6	20	-32.9	-47.3	-32.9	-47.3
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Predicted significant effect	23.7	3-193	47.4	39.4	38.2	2	-15.7	-39.8	-14.5	-38.0
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Predicted significant effect	19.3	1-70	49.4	42.7	43.1	22	-23.4	-54.8	-23.8	-55.2
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Predicted significant effect	22.3	1-281	61.1	52	52.4	15	-29.7	-57.1	-30.1	-57.4
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Predicted significant effect	27.9	4-120	53.7	46	46.1	14	-18.1	-39.3	-18.2	-39.5
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Predicted significant effect	24.7	2-85	61.6	51.3	51.0	18	-26.6	-51.9	-26.3	-51.6
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Predicted significant effect	34.6	1-242	69.7	57.4	58.2	10	-22.8	-39.7	-23.6	-40.5
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background not affected by scheme	23.8	No assessed receptor location nearby								
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background not affected by scheme	24.1	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BNQ	Camden Council	Camley Street	Background not affected by scheme	26.4	No assessed receptor location nearby								
HS2-000020BNR	Hammersmith & Fulham Council	Lamp posts in Shepherd's Bush Common	Background not affected by scheme	24.9	No assessed receptor location nearby								
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background not affected by scheme	20.4	No assessed receptor location nearby								
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background not affected by scheme	18.9	No assessed receptor location nearby								
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside not affected by scheme	34.8	No assessed receptor location nearby								
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside not affected by scheme	29.8	No assessed receptor location nearby								
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside not affected by scheme	33.2	No assessed receptor location nearby								
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside not affected by scheme	28.8	No assessed receptor location nearby								
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside not affected by scheme	24.7	No assessed receptor location nearby								
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside not affected by scheme	37.0	No assessed receptor location nearby								
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside not affected by scheme	35.1	No assessed receptor location nearby								
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside not affected by scheme	28.9	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Colocation kerbside	**44.6**	1-293	92	77.3	77.7	33	-32.7	-42.3	-33.1	-42.6
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Colocation kerbside	**40.9**	3-64	76.8	60.2	60.0	9	-19.3	-32.1	-19.1	-31.8
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Colocation roadside	**45.9**	1-1	104.8	90.1	91.9	32	-45.9	-50.9	-47.7	-51.9
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Colocation roadside	35.5	5-35	74.3	63.4	63.6	14	-27.9	-44.0	-28.1	-44.2
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Colocation roadside	**52.5**	5-49	89	76	76.0	102	-23.5	-30.9	-23.5	-30.9
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Colocation roadside	26.5	No assessed receptor location nearby								
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Colocation background	25.1	1-276	66.1	58.6	57.8	90	-33.5	-57.2	-32.7	-56.6

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 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	19.3	4-121	59.6	50.8	50.8	84	-31.5	-62.0	-31.5	-62.0
HS2-000020BPB	Camden Council	Camden High Street	Predicted significant effect	**44.7**	2-63	62.1	50.7	50.6	68	-6.0	-11.8	-5.9	-11.7
HS2-000020BPC	Camden Council	Castlehaven Road	Predicted significant effect	23.4	2-93	48.8	42.3	42.7	29	-18.9	-44.7	-19.3	-45.2
HS2-000020BPD	Camden Council	Prince of Wales Road	Predicted significant effect	21.4	No assessed receptor location nearby								
HS2-000020BPE	Camden Council	Haverstock Hill	Predicted significant effect	26.6	3-41	50.5	42.7	42.7	-9.8	-16.1	-37.7	-16.1	-37.7
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Predicted significant effect	27.7	3-130	46.3	40.7	40.6	-12.3	-13.0	-31.9	-12.9	-31.8
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Predicted significant effect	25.9	1-48	60.7	53	53.1	-24.7	-27.1	-51.1	-27.2	-51.2
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Predicted significant effect	27.5	1-62	61.5	51.5	51.8	-21.3	-24.0	-46.6	-24.3	-46.9
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Predicted significant effect	25.9	6-40	48.9	42.7	43.3	-14.9	-16.8	-39.3	-17.4	-40.2
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Predicted significant effect	28.8	6-31	68.1	59.5	60.6	-28.1	-30.7	-51.6	-31.8	-52.5

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background not affected by scheme	21.1	N/A (Background location not affected by the scheme)								
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Predicted significant effect	27.0	6-52	44.8	38.7	38.3	42	-11.7	-30.2	-11.3	-29.5
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Predicted significant effect	26.7	4-104	70.2	60.2	60.2	19	-33.5	-55.6	-33.5	-55.6
HS2-000020BPP	Hammersmith & Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Predicted significant effect	34.8	4-209	68.7	58.5	58.6	57	-23.7	-40.5	-23.8	-40.6
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Predicted significant effect	27.7	4-173	75.2	63.8	63.9	33	-36.1	-56.6	-36.2	-56.7
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Predicted significant effect	32.4	4-223	50.5	43.1	43.1	13	-10.7	-24.8	-10.7	-24.8
HS2-000020BPT	Hammersmith & Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Predicted significant effect	33.6	4-206	64.8	55.3	55.4	59	-21.7	-39.2	-21.8	-39.4
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Predicted significant effect	32.1	1-4	76.1	62.1	64.1	4	-30.0	-48.3	-32.0	-49.9
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Predicted significant effect	28.4	1-58	56.1	46.9	46.7	27	-18.5	-39.4	-18.3	-39.2
HS2-000020BPX	Camden Council	Netley Street	Predicted significant effect	25.6	1-292	83.2	66.6	67.5	87	-41.0	-61.6	-41.9	-62.1
HS2-000020BPY	Camden Council	Stanhope Street	Predicted significant effect	23	1-254	51.5	43.5	43.6	97	-20.5	-47.1	-20.6	-47.2

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BPZ	Camden Council	Albany Street	Predicted significant effect	24.6	1-283	54.1	46.3	45.7	32	-21.7	-46.9	-21.1	-46.2
HS2-000020BQ0	Camden Council	Werrington Street	Predicted significant effect	21.7	1-191	56.7	50.1	50.9	82	-28.4	-56.7	-29.2	-57.4
HS2-000020BQ1	Camden Council	Polygon Road	Predicted significant effect	22.7	1-208	50.2	43.1	43.2	57	-20.4	-47.3	-20.5	-47.5
HS2-000020BQ2	Camden Council	Alexandra Place	Predicted significant effect	21.4	No assessed receptor location nearby								
HS2-000020BQ3	Camden Council	Harrington Square	Predicted significant effect	31.7	1-134	61.5	52.2	53.5	38	-20.5	-39.3	-21.8	-40.7
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Predicted significant effect	25.6	1-166	65.4	54.4	54.2	39	-28.8	-52.9	-28.6	-52.8
HS2-000020BQ5	Camden Council	Adelaide Road	Predicted significant effect	26.7	3-211	46.2	39.3	39.5	109	-12.6	-32.1	-12.8	-32.4
HS2-000020BQ6	Camden Council	Mornington Terrace	Predicted significant effect	22.3	1-246	55.8	46.7	48.7	100	-24.4	-52.2	-26.4	-54.2
HS2-000020BQ7	Camden Council	Arlington Road	Predicted significant effect	21.5	1-198	51.9	44.1	43.2	23	-22.6	-51.2	-21.7	-50.2
HS2-000020BQ8	Camden Council	Clarkson Row	Predicted significant effect	23.8	1-253	50.9	43.8	43.3	56	-20.0	-45.7	-19.5	-45.0
HS2-000020BQ9	Camden Council	Park Village East	Predicted significant effect	21.6	No assessed receptor location nearby								
HS2-000020BQA	Camden Council	Eversholt Street	Predicted significant effect	34.6	1-192	57.7	51.2	52.0	13	-16.6	-32.4	-17.4	-33.5

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Predicted significant effect	22.9	1-322	63.6	50	51.5	5	-27.1	-54.2	-28.6	-55.5
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Predicted significant effect	28.6	1-71	63.1	53.5	54.8	32	-24.9	-46.5	-26.2	-47.8
HS2-000020BQD	Camden Council	Drummond Crescent	Predicted significant effect	27.7	1-186	66.7	56.8	57.8	58	-29.1	-51.2	-30.1	-52.1
HS2-000020BQE	Hammersmith & Fulham Council	Lamp post next to No 11 Wulfstan Street	Predicted significant effect	22.1	4-262	48.1	40.8	40.7	8	-18.7	-45.8	-18.6	-45.7
HS2-000020BQF	Ealing Council	Conway Drive sign post	Predicted significant effect	39.4	4-55	63.7	55.2	55.3	36	-15.8	-28.6	-15.9	-28.8
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Predicted significant effect	31.6	4-143	52.6	45.2	45.3	6	-13.6	-30.1	-13.7	-30.2
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Predicted significant effect	32.6	6-73	45.6	39.0	38.8	59	-8.3	-21.3	-8.1	-20.9
HS2-000020BQJ	Camden Council	Grafton Way	Predicted significant effect	35	1-4	76.1	62.1	64.1	109	-27.1	-43.6	-29.1	-45.4
HS2-000020BQL	Camden Council	Delancey Street	Predicted significant effect	31.7	2-87	62.5	51.4	50.0	19	-19.7	-38.3	-18.3	-36.6
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Predicted significant effect	32.3	6-62	64.5	54.5	53.8	21	-21.8	-40.0	-21.1	-39.2
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Predicted significant effect	31.6	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Predicted significant effect	31.9	4-217	61.5	51.7	51.9	16	-19.8	-38.3	-20.0	-38.5
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Predicted significant effect	23.8	1-284	53.4	45.5	43.0	28	-21.7	-47.7	-19.2	-44.7
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Predicted significant effect	22.2	1-269	57.4	51.3	51.7	22	-29.1	-56.7	-29.5	-57.1
HS2-000020BQT	Camden Council	Drummond Street	Predicted significant effect	26.3	1-169	64	52.6	51.6	13	-26.3	-50.0	-25.3	-49.0
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Predicted significant effect	**42.4**	1-25	100.3	86.8	86.6	2	-44.4	-51.2	-44.2	-51.0
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Predicted significant effect	30.1	4-182	59.5	50.8	50.9	1	-20.7	-40.7	-20.8	-40.9
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road (*replaced HS2-000020BNX*)	Predicted significant effect	28.8	No assessed receptor location nearby								
HS2-000020BQX	Camden Council	Lamp post on Brunswick Square *(replaced HS2-000020BM6)*	Predicted significant effect	28.2	1-7	61.1	52.5	52.4	67	-24.3	-46.3	-24.2	-46.2
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Predicted significant effect	33.0	No assessed receptor location nearby								
HS2-000020BQZ	Ealing Council	Lamp post on Victoria Road opposite Tudor House	TBC	37.9	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2022 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 2022 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2022 vs with-scheme modelled	% diff with scheme modelled vs 2022 monitored
HS2-000029BR0	Ealing Council	Sign post on Shaftesbury Gardens	TBC	24.2	No assessed receptor location nearby								
HS2-000020BR1	Ealing Council	Lamp post on Midland Terrace	TBC	22.8	No assessed receptor location nearby								
HS2-000020BR2	Ealing Council	Lamp post on Victoria Road outside Papa John's	TBC	37.8	No assessed receptor location nearby								

Notes:

- HS2-000020BQW replaces HS2-000020BNX as such ES scenario data for HS2-000020BNX6 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 15 and 16 presents a comparison of the annual mean NO_2 diffusion tube results across Phase One and Phase 2a, to date. Sites that were removed / replaced during 2018 have not been included in this comparison.

Table 15: Comparison of the Phase One annual mean NO_2 diffusion tube monitoring results (2016 – 2022)

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results (µg/m^3)						
				2016	2017	2018	2019	2020	2021	2022
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
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	**50.4**	**47.4**	**44**	**40.3**	**47.7**	Site replaced with HS2-000020BQX d	
HS2-000020BM7	Camden Council	Chalton Street	Roadside	**66.8**	**58.4**	**54.9**	**52.0**	**42.3**	36.5	36.0
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
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
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
HS2-000020BMB	Camden Council	Whitfield Street	Background	**46.7**	**45**	39	37.2	28.5	27.3	27.9
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	**68**	**59.1**	**61.4**	**61.5**	**48.2**	**51.7**	**47.2**
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
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**
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
HS2-000020BMH	Camden Council	Nash Street	Background	**42.5**	39.5	34.8	30.9	27.0	23.6	25.3
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
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
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
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
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
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	**61**	**48.6**	**53**	**44.8**	35.5	32.8	31.8
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

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
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
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
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
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	**43.4**	39.3	38.3	33.7	28.1	25.9	24.3
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
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
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
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**
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
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
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
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
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	**58.5**	**50.5**	**51.9**	**48.7**	37.4	39.3	38.4
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	**67.6**	**61.0**	**56**	**52.4**	**41.3**	36.4	36.7
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
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
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	**42.7**	**40.1**	35	31.8	22.9	22.5	22.3
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	**45.5**	38.6	39.6	38.0	31.7	28.9	27.9
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
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	**66.3**	**54.1**	**55**	**47.6**	35.7	32.9	34.6
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
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	38.6	36.9	35.6	31.3	25.0	24.5	24.1
HS2-000020BNQ	Camden Council	Camley Street	Background	**47.5**	**41.1**	37.4	29.6	27.1	27.6	26.4

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
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
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
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	-	30.6	25.3	23.4	20.3	21.0	18.9
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
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	-	37	**43**	37.7	30.5	29.9	29.8
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
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
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	36.4	37.4	35.8	31.7	27.1	24.8	24.7
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
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
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
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**
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**
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**
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
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**
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	-	-	37.8	36.4	27.5	26.5	26.5
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
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
HS2-000020BPB	Camden Council	Camden High Street	Roadside	**74.6**	**66**	**69.1**	**60.1**	**50.2**	**45.1**	**44.7**
HS2-000020BPC	Camden Council	Castlehaven Road	Background	**41**	36.6	31.5	32.1	26.1	24.3	23.4

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
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	36.8	34.4	33.8	30.0	24.4	20.7	21.4
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	**48.3**	**44.3**	**43**	**42.2**	32.9	27.3	26.6
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
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
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
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	-	-	35.8	34.9	27.8	27.7	25.9
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
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
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside			31	31.0	24.8	25.8	27.0
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
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
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
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
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
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
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
HS2-000020BPX	Camden Council	Netley Street	Background	**41.5**	36	35.9	33.2	25.5	27.1	25.6
HS2-000020BPY	Camden Council	Stanhope Street	Background	38.3	32.4	32.2	28.9	24.4	24.0	23
HS2-000020BPZ	Camden Council	Albany Street	Roadside	**47.4**	39.5	**40.4**	38.5	26.9	24.1	24.6
HS2-000020BQ0	Camden Council	Werrington Street	Background	**41.8**	33.9	32.1	29.4	25.5	21.0	21.7
HS2-000020BQ1	Camden Council	Polygon Road	Background	39.7	35	34	31.6	26.7	21.4	22.7
HS2-000020BQ2	Camden Council	Alexandra Place	Background	34.8	31.6	28.7	27.6	23.4	22.2	21.4
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	**53.8**	**45.5**	**44.6**	**40.6**	31.1	33.1	31.7
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
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	**54.6**	**43**	39.9	37.6	28.6	25.3	26.7

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
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	**47.8**	35.2	33.2	28.9	23.3	22.0	22.3
HS2-000020BQ7	Camden Council	Arlington Road	Background	**52.4**	34.9	32.1	28.9	25.5	22.4	21.5
HS2-000020BQ8	Camden Council	Clarkson Row	Background	-	35.3	32.6	28.9	24.9	25.0	23.8
HS2-000020BQ9	Camden Council	Park Village East	Background	**49**	32.7	30.8	27.1	23.1	23.6	21.6
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	**71.3**	**53.6**	**49**	**45.6**	33.6	32.3	34.6
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
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
HS2-000020BQD	Camden Council	Drummond Crescent	Background	**58.7**	**41.2**	39.5	35.3	30.7	28.9	27.7
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
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	**76.2**	**57**	**58.5**	**53.3**	**40.6**	**40.1**	39.4
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	**75**	**64**	**58**	**48.9**	39.4	31.5	31.6
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	-	37.2	**41.6**	38.1	29.8	30.8	30.7
HS2-000020BQJ	Camden Council	Grafton Way	Background	-	**54.2**	**51.2**	**51.3**	38.1	33.6	35
HS2-000020BQL	Camden Council	Delancey Street	Roadside	-	**49.3**	**51**	**44.8**	33.7	32.5	31.7
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	-	-	**50.1**	**44.5**	32.5	33.2	32.3
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	-	-	**41.8**	**40.9**	30.8	29.5	31.6
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
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	-	-	34.8	29.3	24.7	23.8	23.8
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	-	-	33.1	30.9	26.2	22.8	22.2
HS2-000020BQT	Camden Council	Drummond Street	Background	-	-	38.8	35.7	28.5	27.4	26.3
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	-	-	**61.9**	**61.6**	**40.0**	**44.4**	**42.4**
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	-	-	-	35.0	27.2	30.1	30.1
HS2-000020BQW	Hammersmith & Fulham Council	Lamp post on A402 Goldhawk Road (*replaced HS2-000020BNX*)	Kerbside	-	-	-	-	26.2	27.8	28.8
HS2-000020BQX	Camden Council	Lamp post on Brunswick Square *(replaced HS2-000020BM6)*	Roadside	-	-	-	-	29.0	25.8	28.2
HS2-000020BQY	Westminster City Council	Sign post on Ladbroke Grove *(replaced HS2-000020BN0)*	Roadside	-	-	-	-	-	35.3	33.0

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
HS2-000020BQZ	Ealing Council	Lamp post on Victoria Road opposite Tudor House	Kerbside	-	-	-	-	-	38.4	37.9
HS2-000029BR0	Ealing Council	Sign post on Shaftesbury Gardens	Roadside	-	-	-	-	-	27.8	24.2
HS2-000020BR1	Ealing Council	Lamp post on Midland Terrace	Background	-	-	-	-	-	26.9	22.8
HS2-000020BR2	Ealing Council	Lamp post on Victoria Road outside Papa John's	Roadside	-	-	-	-	-	38.9	38.2

Notes:

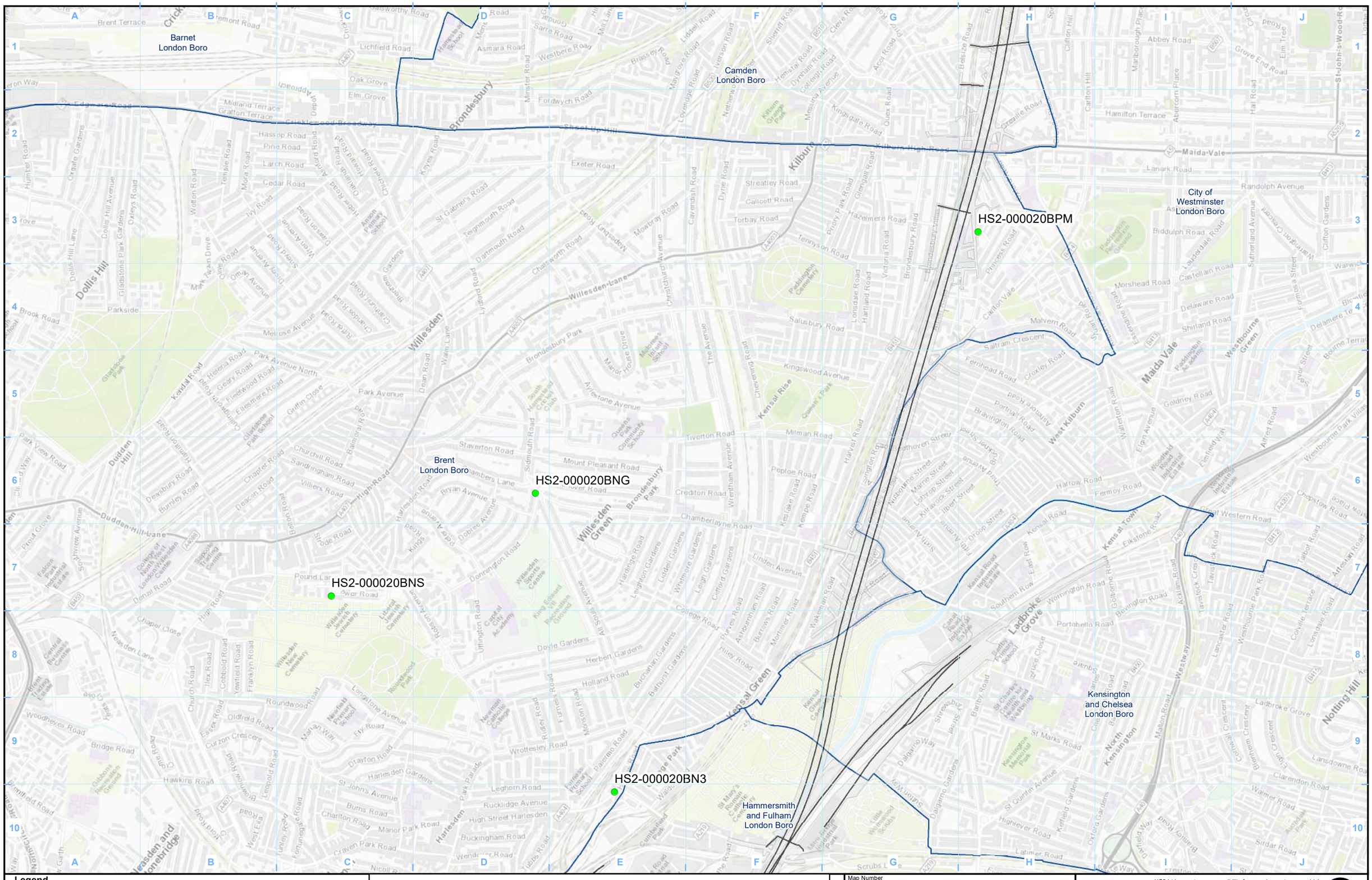
- Exceedances of the NO_2 annual mean air quality standard of 40 $\mu g/m^3$ are shown in bold.
- The impacts of Covid-19 national lockdowns, through the beginning of 2021, would have created lower traffic scenarios. As lockdown restrictions were lifted, it was expected that air pollution concentrations would increase in line with that experienced in previous years.

Table 16: Comparison of the Phase 2a annual mean NO_2 diffusion tube monitoring results (2019 – 2022)

Site ID	Local Authority	Site Location	Location Type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)			
				2019	2020	2021	2022
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	13.7	8.8	9.3	9.5
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	18.3	13.1	12.8	13.1
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	26.8	19.7	19.4	20.3
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	27.8	21.4	19.8	21.5
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	28.0	21.1	18.5	20.3
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	20.2	16.4	14.9	17.8
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	21.5	14.7	15.1	15.1
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	24.4	17.2	15.6	17.2
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	27.6	20.8	19.5	20.3
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	16.4	11.9	12.3	13.1

Appendix G – Maps of HS2 monitoring survey locations and 2022 results

Figure 1 - 10: Maps of HS2 monitoring survey locations and 2022 results



Legend

2022 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 Brent

(1 of 8)

Scale at A3: 1:15,000

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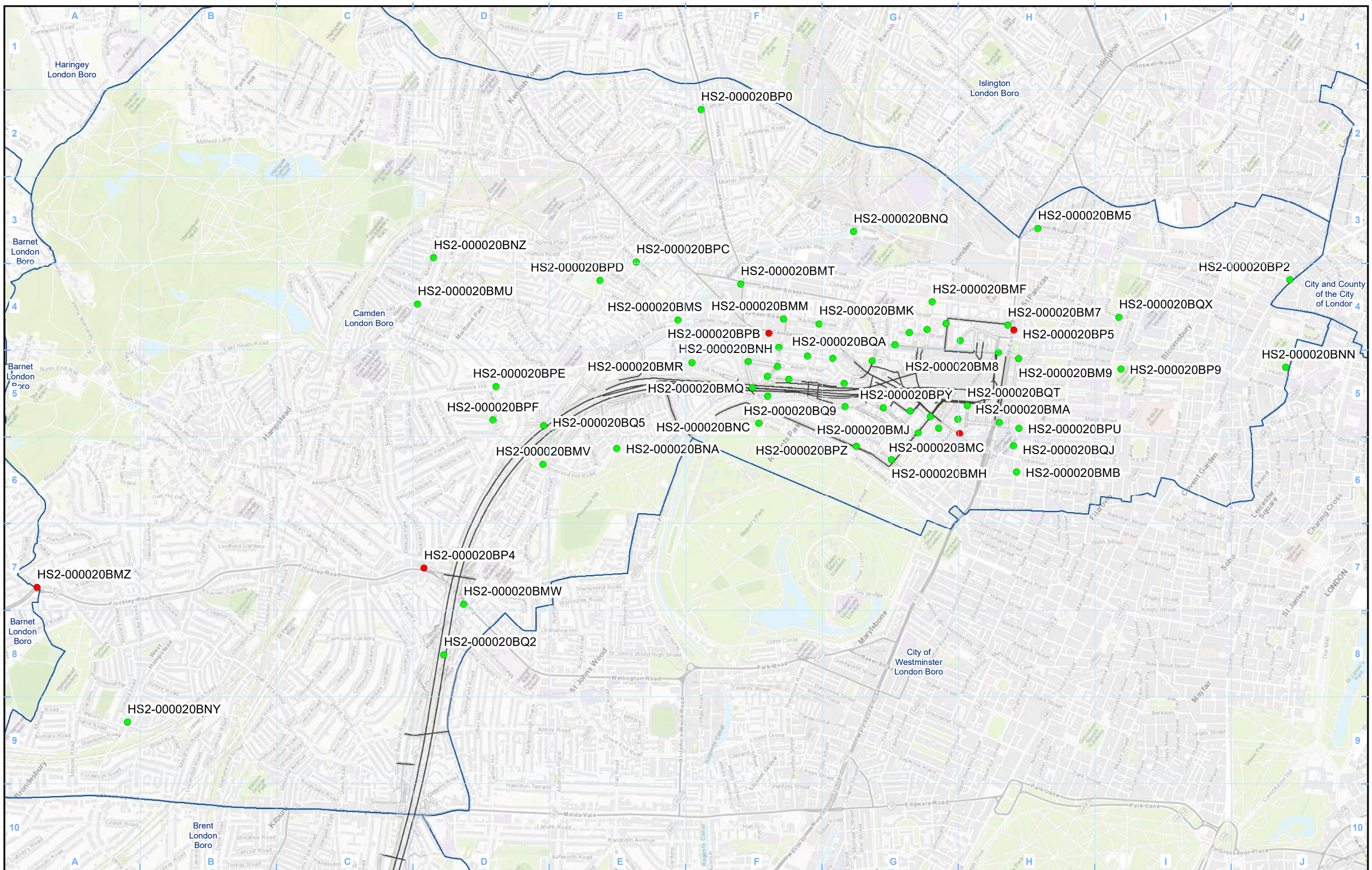
Metres

Doc Number:

Date: 05/07/23



Legend

2022 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

(2 of 8)

Scale at A3: 1:20,000

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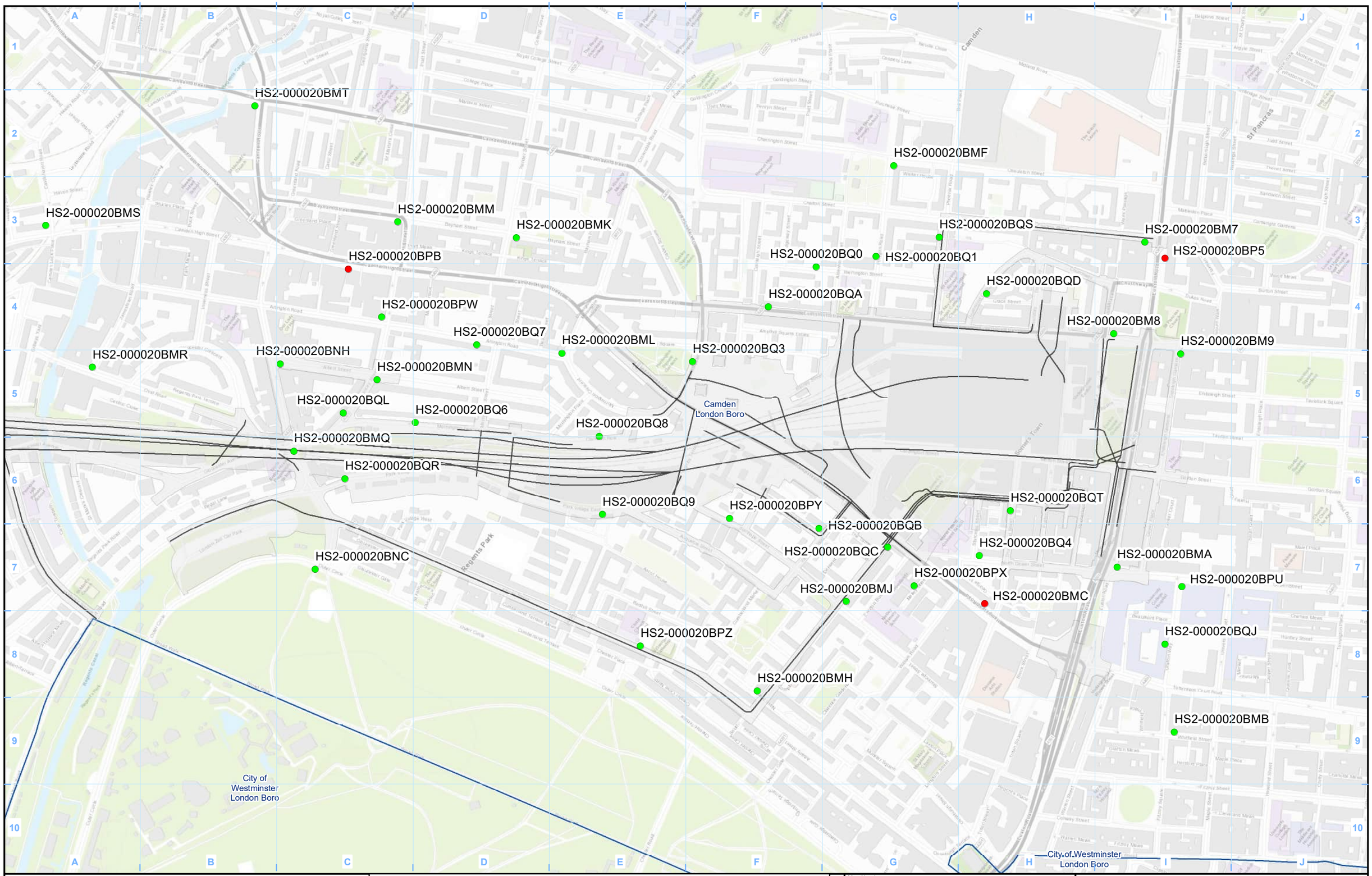
Doc Number:

Date: 06/07/23



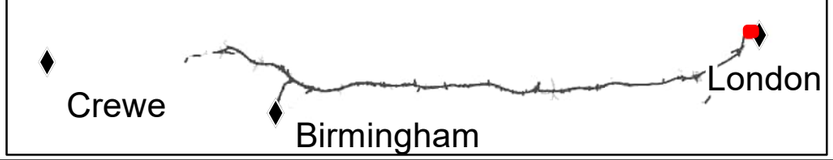
Legend

2022 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

(3 of 8)

Scale at A3: 1:6,000

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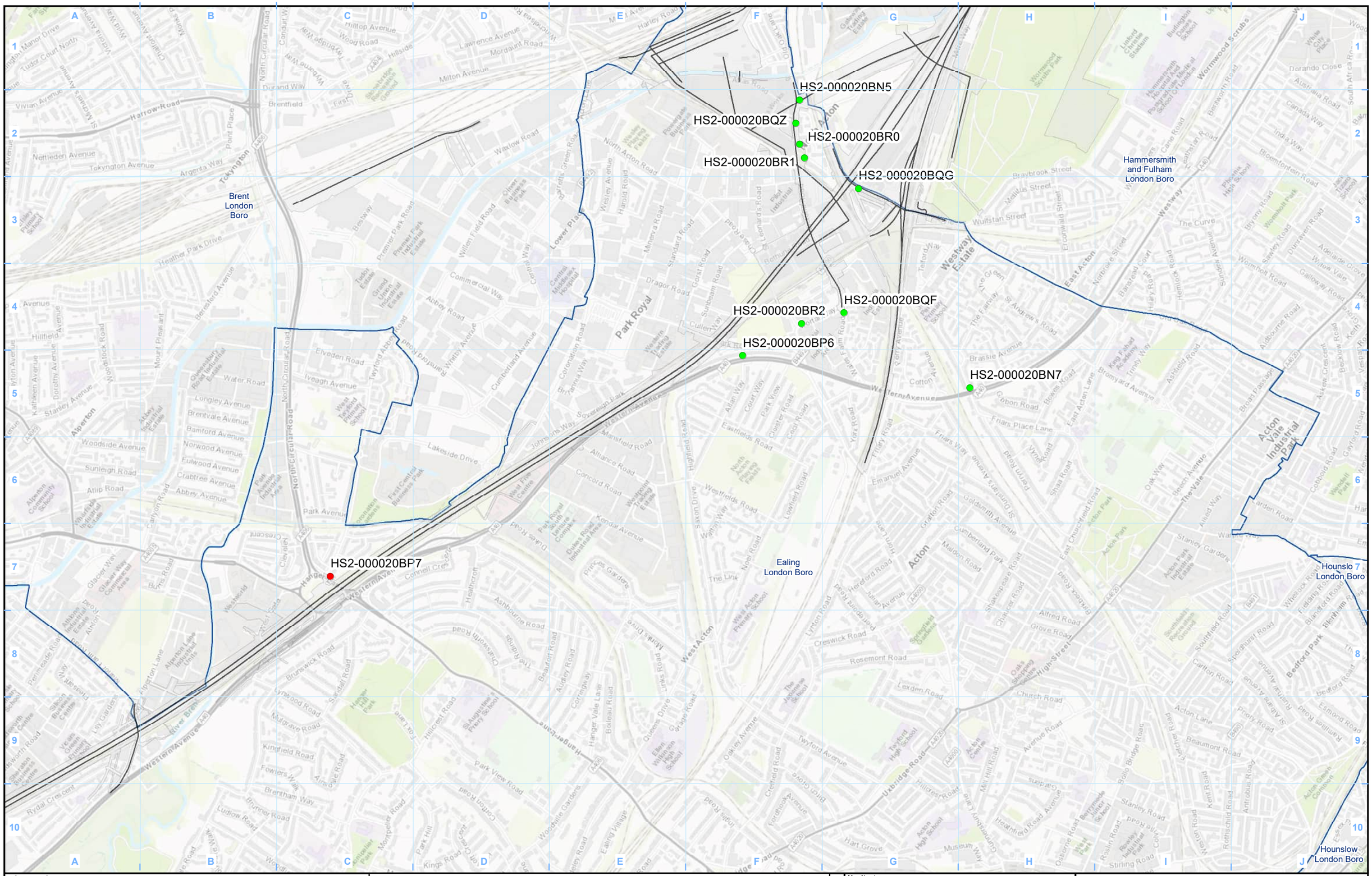
Metres

Doc Number:

Date: 06/07/23



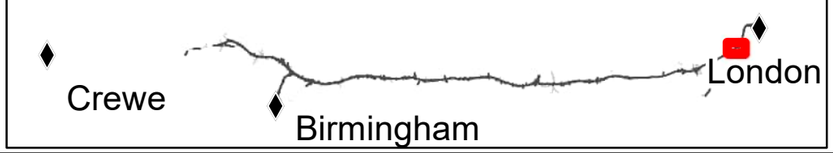
Legend

2022 NO_2 Monitoring

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

- 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 Ealing

(4 of 8)

Scale at A3: 1:15,000

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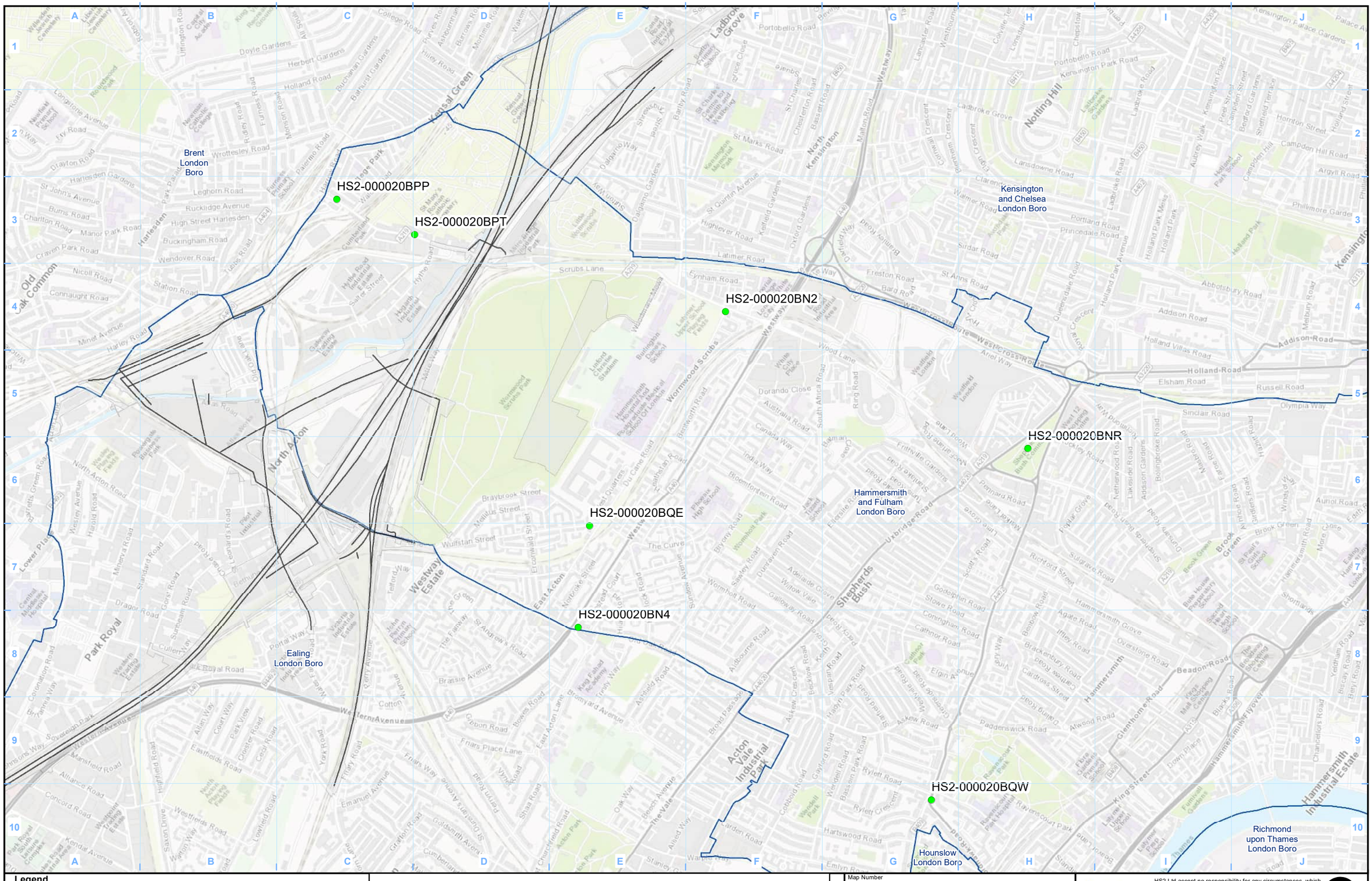
Metres

Doc Number:

Date: 05/07/23



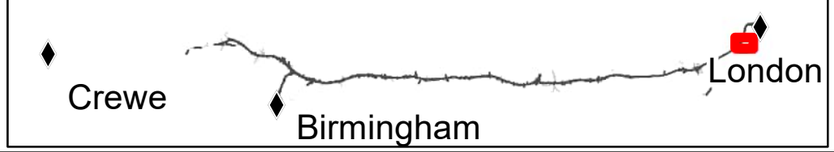
Legend

2022 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 Hammersmith and Fulham

(5 of 8)

Scale at A3: 1:15,000

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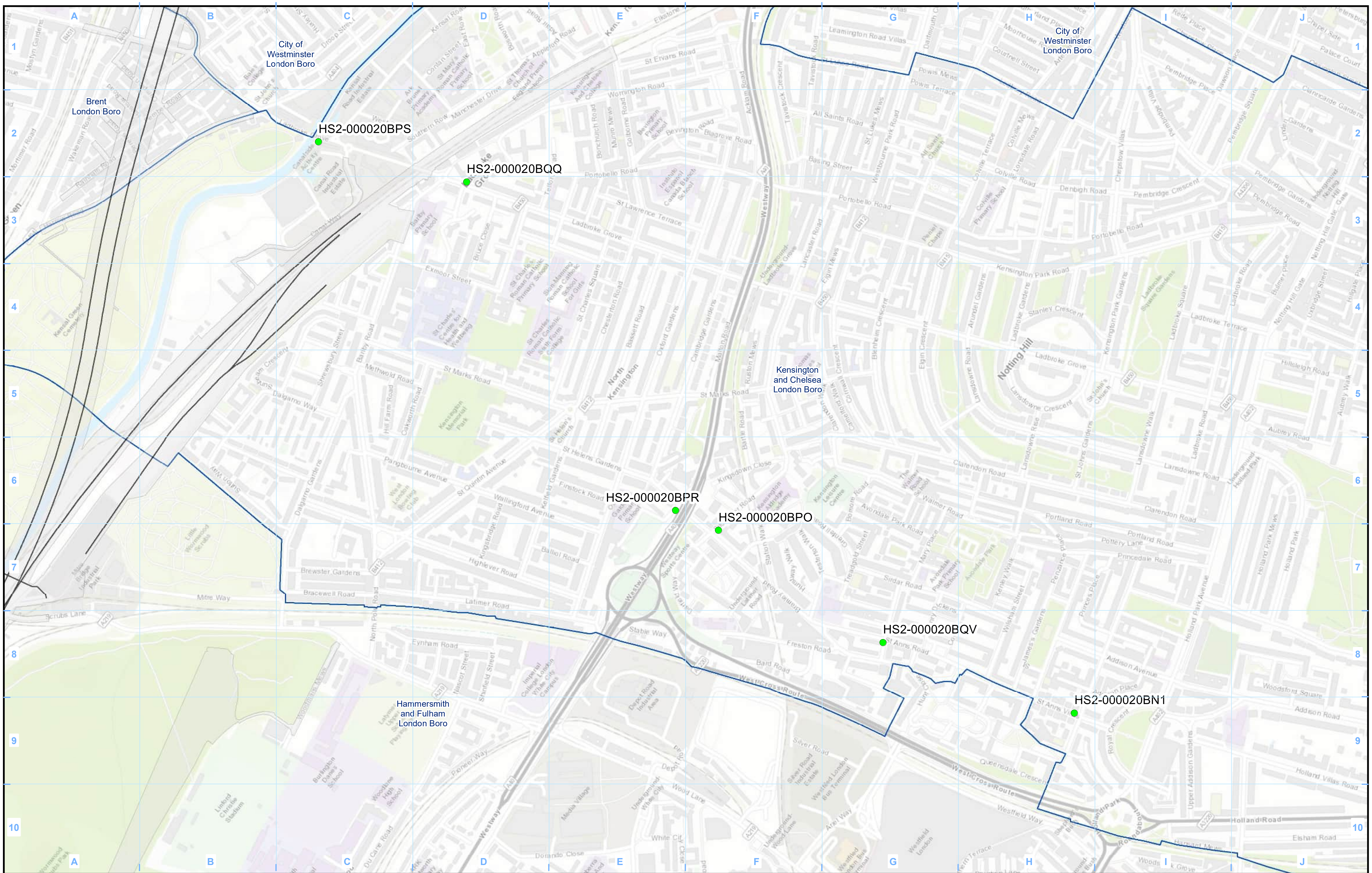
Metres

Doc Number:

Date: 06/07/23



Legend

2022 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)

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

Scale at A3: 1:8,000

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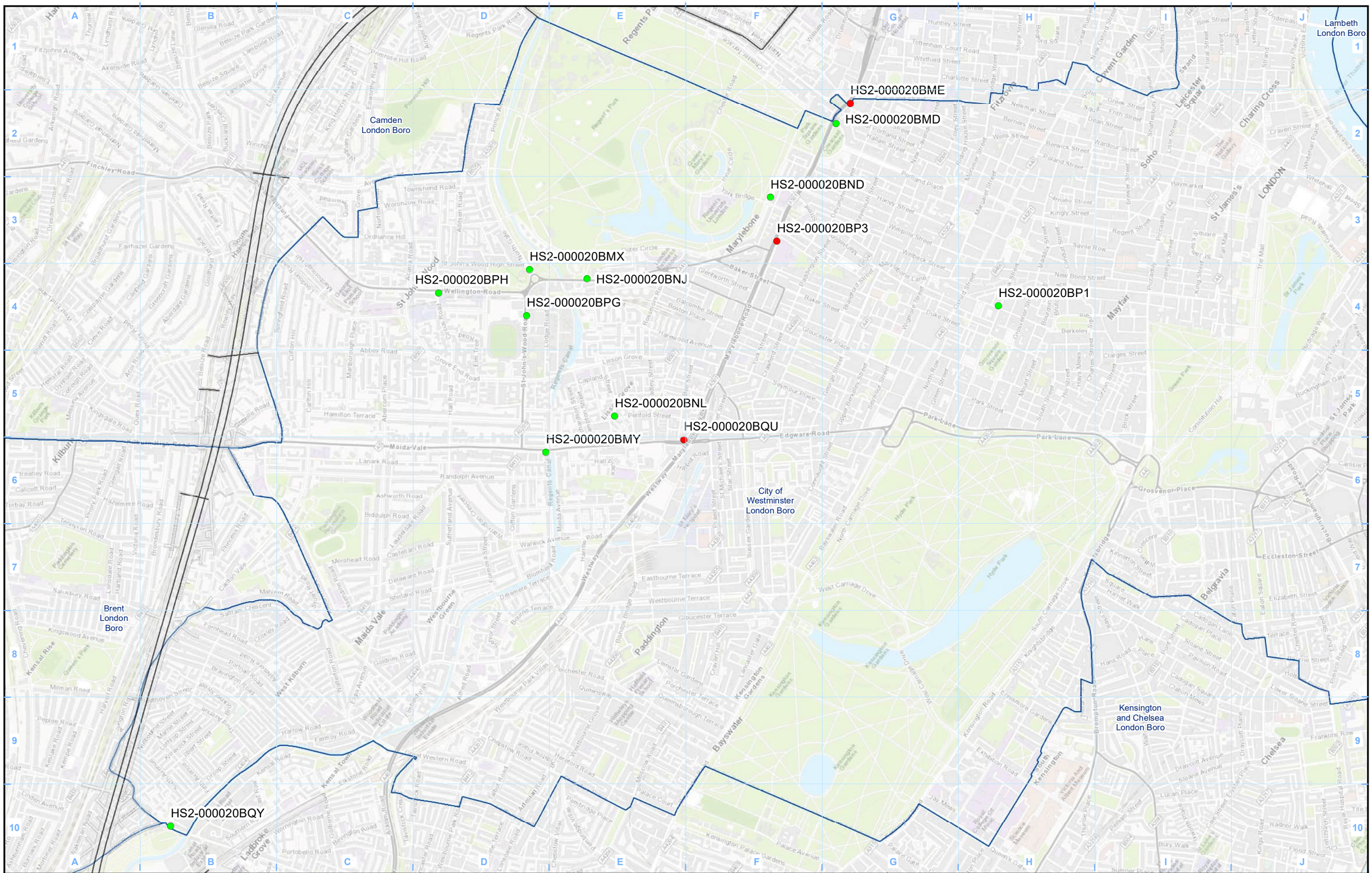
Doc Number:

Date: 05/07/23



Legend

2022 NO_2 Monitoring

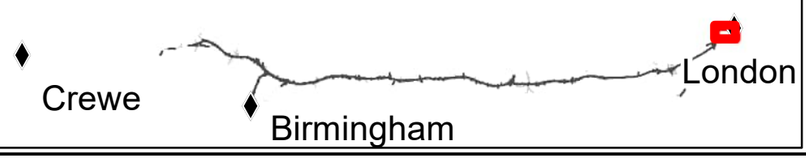
- < 40 µg/m³ (below AQS)
- > = 40 µg/m³ (above AQS)

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
City of Westminster

(7 of 8)

Scale at A3: 1:17,500

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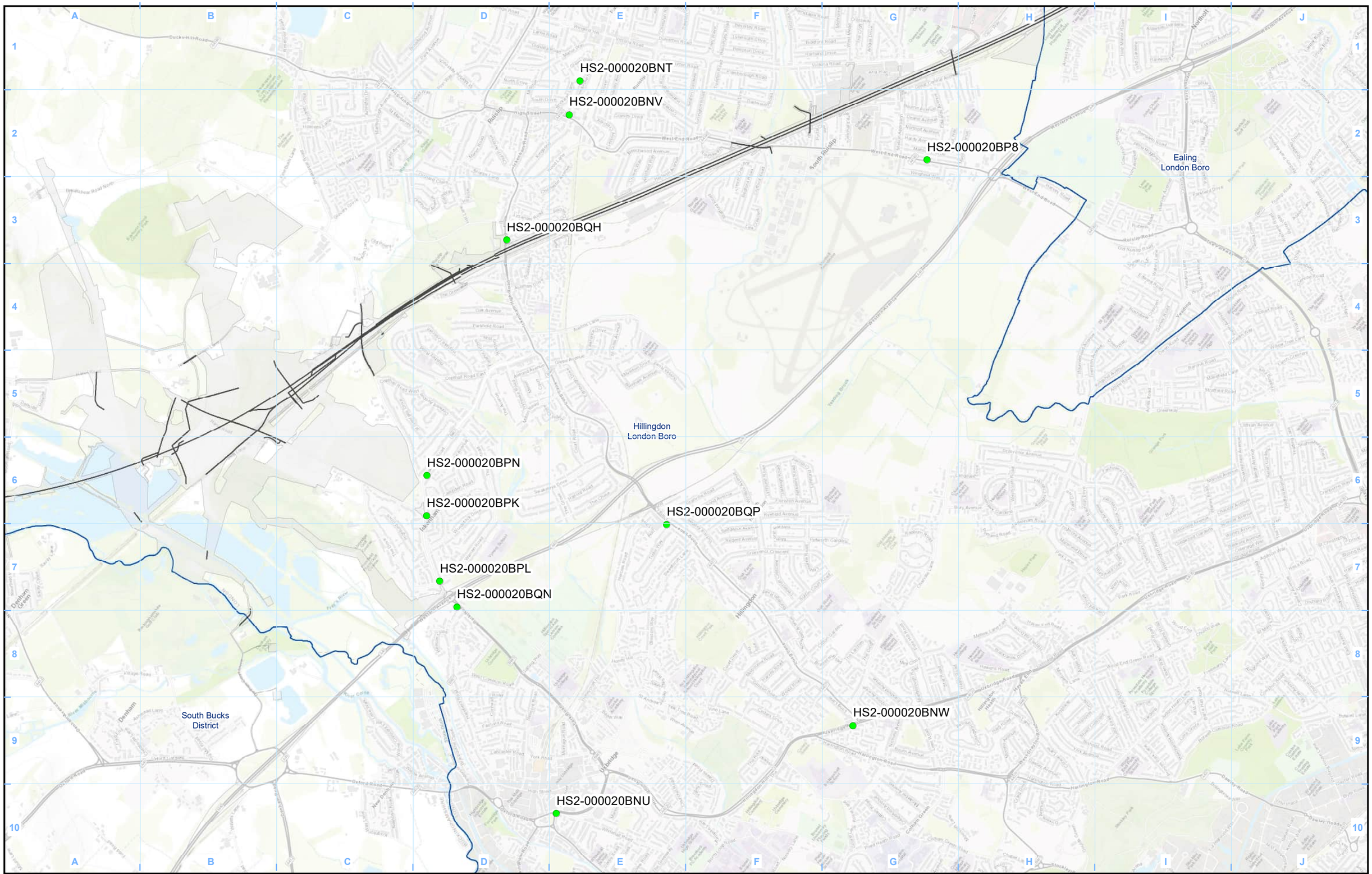
Metres

Doc Number:

Date: 05/07/23

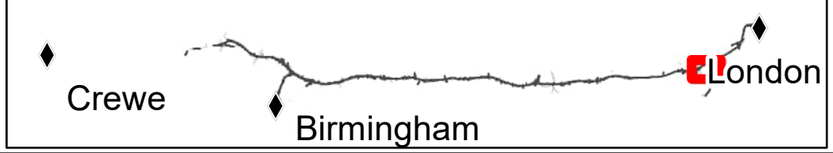


Legend

2022 NO_2 Monitoring

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

- 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)

Scale at A3: 1:25,000

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Doc Number:

Date: 05/07/23