HS2

September 2023

Air Quality and Dust Monitoring Monthly Report – September 2023

London Borough of Hillingdon

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Department for Transport

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Monthly Summary

1.1.1 This Summary Report is published in fulfilment of commitments detailed in the High Speed Rail (London-West Midlands) Environmental Minimum Requirements, Annex 1: Code of Construction Practice, for the nominated undertaker to present the results of air quality and dust monitoring undertaken in the London Borough of Hillingdon (LBH) during August and September 2023 respectively.

1.1.2 Figure 1 to Figure 4 in Appendix A indicate the current worksites, together with air quality monitoring locations.

1.1.3 This summary should be read in conjunction with the overview monitoring report available from www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2, which highlights: the applicable standards and guidance, as well as the air quality and dust monitoring methodologies to be implemented by nominated undertakers throughout construction.

1.1.4 The current phase of works commenced in November 2019 and is expected to be completed by 2025. The current worksites, as presented in Appendix A, Figure 1 to Figure 4, include:

- Gatemead and West Ruislip Embankment, Breakspear Road South and River Pinn Underbridge piling operations, concreting, groundworks and materials management;
- Groundworks, materials management, concreting and shuttering works at Copthall North;
- West Ruislip Portal materials management (tunnel boring machine arisings);
- South Ruislip vent shaft construction, ground works, concrete works and materials management;
- Northern Sustainable Placement Area (NSPA) materials management and groundworks; and
- Southern Sustainable Placement Area (SSPA) spoil treatment area construction, materials movements and groundworks.

CVV Dews Lane

- HOAC Compound: operation;
- Haul Road and Jetty Maintenance: operation and maintenance;
- Ground Investigation Works: GI works;
- Pier Construction: arch from deck for FRC works for pile cap and pier, standard piers FRC works for pile cap and pier, post-tensioning of AFD legs and tower crane mob / demob;
- ATFS: site preparation, bulk earthworks fill and tree removal;
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;

- South Abutment: earthworks/stabilisation, FRC early works on SE and drainage works, South Abutment construction stage 1 - continuity of activity 41.04, South Abutment construction stage 2, South Abutment construction stage 2 – earthworks, yard supporting activities, piling platform construction (Harvil Road) and load transfer platform construction (7-8);
- Grand Union Canal Work: operation and maintenance;
- Fencing;
- Environmental Maintenance;
- Stockpiling Activity HOAC: stockpile of material coming from other sites;
- RC Crossing: the emergency dismantling of obstruction;
- Launching Girder and Deck Works: span segmental erection with launching gantry, shoring steel structure erection and dismantling, external PT, internal PT stressing & grouting and crane assembly/disassembly;
- Deck Finishes Logistics: preparation and operation of storage yards and installation of below deck access provision, traffic management on the deck surface, installation of parapets, noise barriers, troughs, pipes, steel works and other minor material to the storage yards and deck, installation of access at the top of the deck (HAKI stairs) and finishes support plan;
- Deck Finishes – On-deck Construction: construction of robust kerbs, installation of parapets, construction of concrete stitch, filling of voids and top openings, verge deck waterproofing, trough installation and noise barriers installation;
- Deck Finishes – In-deck Construction: diaphragm walls, concrete works within the deck, drainage works within the deck and steel works within the deck;
- Landscaping: advanced works including removal of cofferdam, early earthworks including ground profiling and cut, initial ground drainage including manhole chamber, early soil placement and tree removal & vegetation clearance; and
- GUC Scaffold Bridge.

CVV Moorhall Road

- North and South Moorhall Road: compound operation;
- Haul Road and Jetty Maintenance: operation and maintenance;
- Ground Investigation Works: GI works;
- Pier Construction: arch from deck and standard piers FRC works for pile cap and pier, post tensioning of AFD legs and tower crane mob / demob;
- ATFS: site preparation, bulk earthworks fill and tree removal (Harvil Road);
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;
- Fencing;
- Environmental Maintenance;
- RC Crossing: the emergency dismantling of obstruction;
- Launching Girder and Deck Works: span segmental erection with launching gantry, shoring steel structure erection and dismantling, internal PT stressing & grouting, external PT, Moorhall Road crossing – removal/demob works, span segmental erection

with crawler crane (P27 and P26), V-pier infill segment erection with crawler crane (P30 and P22) and crane assembly/ disassembly;

- Deck Finishes Logistics: preparation and operation of storage yards and installation of below deck access provision, traffic management on the deck surface, installation of parapets, noise barriers, troughs, pipes, steel works and other minor material to the storage yards and deck, installation of accesses top of the deck (HAKI stairs) and deck finishes support plan;
- Deck Finishes – On-deck Construction: construction of robust kerbs, installation of parapets, construction of concrete stitch, filling of voids and top openings, verge deck waterproofing, trough installation and noise barriers installation;
- Deck Finishes: In-deck Construction: diaphragm walls, concrete works within the deck, drainage works within the deck and steel works within the deck; and
- Landscaping: advanced works including removal of cofferdam, early earthworks including ground profiling and cut, initial ground drainage including manhole chamber, early soil placement and tree removal & vegetation clearance.

1.1.5 Fifteen (15) dust monitors are installed around worksites, where works are underway. These sites returned a low to high dust risk rating.

1.1.6 Dust monitoring locations and results are presented in Appendix B, Table 2, together with line charts of monthly data from each dust monitor in Figure 5. All continuous dust monitoring is undertaken using indicative monitors. Despite being Environment Agency (MCERTS) certified, indicative monitors carry a higher level of uncertainty than reference monitors, and therefore cannot be strictly compared with Air Quality Standards for human health and the environment. The purpose of the monitoring undertaken is to ensure the effectiveness of the on-site mitigation.

1.1.7 The trigger level for PM_{10} concentrations of 190µg/m^3, over a 1-hour period, in accordance with the updated guidance document *'Guidance on Monitoring in the Vicinity of Demolition and Construction Sites – (October 2018)'* has been applied.

1.1.8 Dust trigger alerts were recorded during the monitoring period (September 2023) and are reported in Appendix B, Table 3.

1.1.9 Data capture was below 90% for multiple monitors in September 2023. For monitors AQ047 and AQ049 this was due to both monitors being powered by hydrogen generators that needed replenishing/exchange of hydrogen cylinders. Data Capture was below 90% for AQ040 due to loss of power, subsequently restored.

1.1.10 Diffusion tube monitoring of Nitrogen Dioxide (NO_2) is undertaken at eleven (11) locations around highways within the LBH as part of the management of air quality where significant effects may occur as a result of the scheme.

1.1.11 Diffusion tube monitoring results are as provided from the laboratory analysis, and therefore still require various analysis and adjustments to be undertaken. Final corrected

results will be presented and described in the annual report. However, based on results to date, no unexpected values were recorded during the monitoring period.

1.1.12 NO_2 monitoring locations and results are presented in Appendix C, Table 4, together with the 2023 running mean.

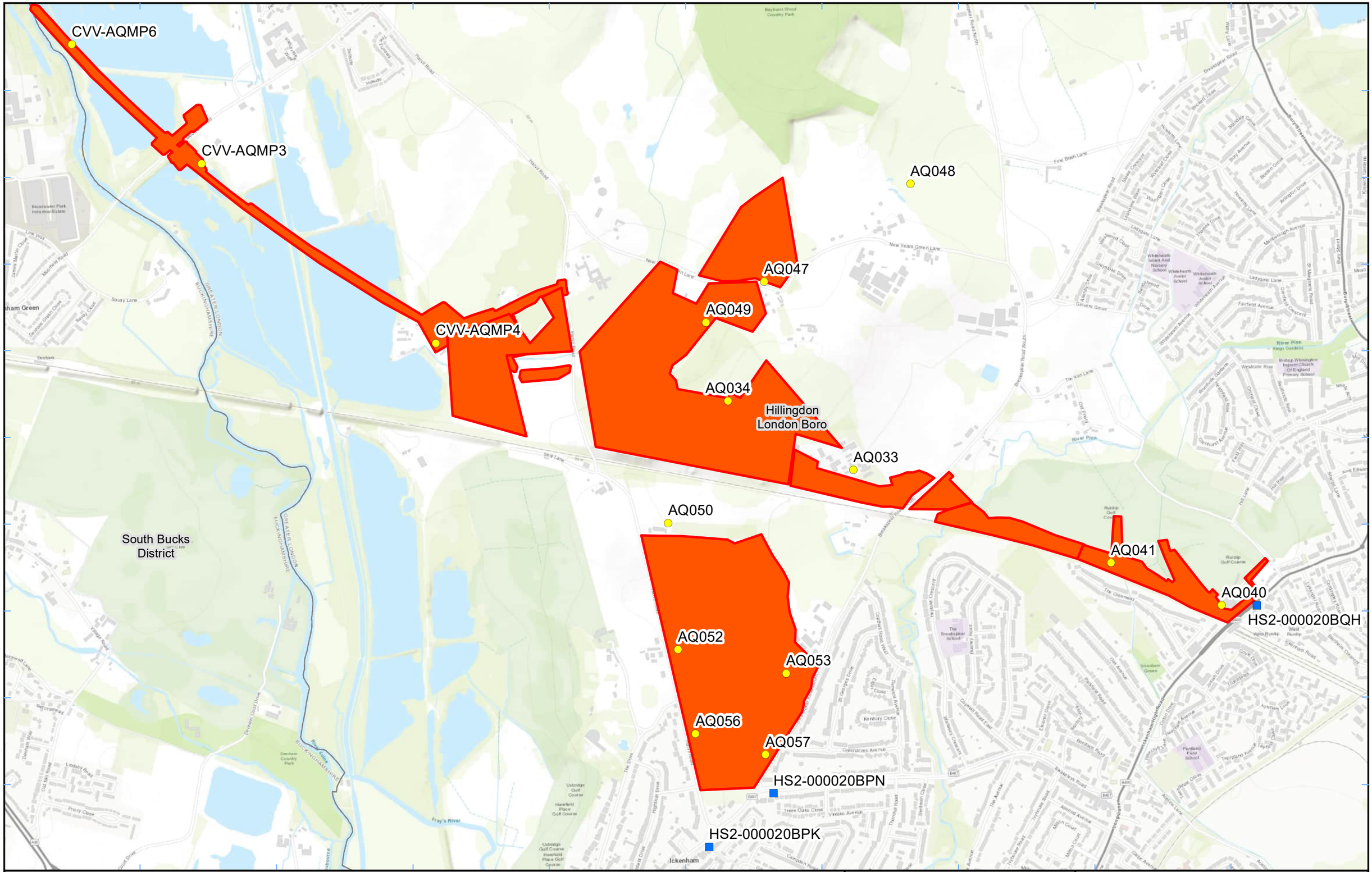
1.1.13 Table 1 provides a summary of the complaint information relating to dust and air quality received during the reporting period, together with the findings of any related investigations.

Table 1: Summary of complaints received during September 2023

Complaint Reference No.	Worksite Reference	Description of complaint	Results of investigation
HS2-23-44951-C		Excessive odours coming from nearby site.	Odour due to removal of sewage pipes and installation of new liners. Works now completed reducing the smell. Information provided to resident.

Appendix A – Worksites and Monitoring Locations

Figure 1 to Figure 4: Current monitoring locations within the LBH



Legend

- Diffusion Tube
- Worksite
- Dust Monitor
- 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Worksite & Monitoring Locations In LBH (Sheet 1)

Solihull Metropolitan Borough

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

Scale at A3: 1:12,000

0 120 240 360 480
Metres

Doc Number:

Date: 13/11/23

HS2-000020BNT

HS2-000020BNV

HS2-000020BP8

Hillingdon London Boro

Harrow London Boro

Ealing London Boro

Legend

Diffusion Tube

District Borough Unitary Boundaries

Worksite

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

Map Name

Worksite and Monitoring Locations In LBH (Sheet 2)

London Borough of Hillingdon

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

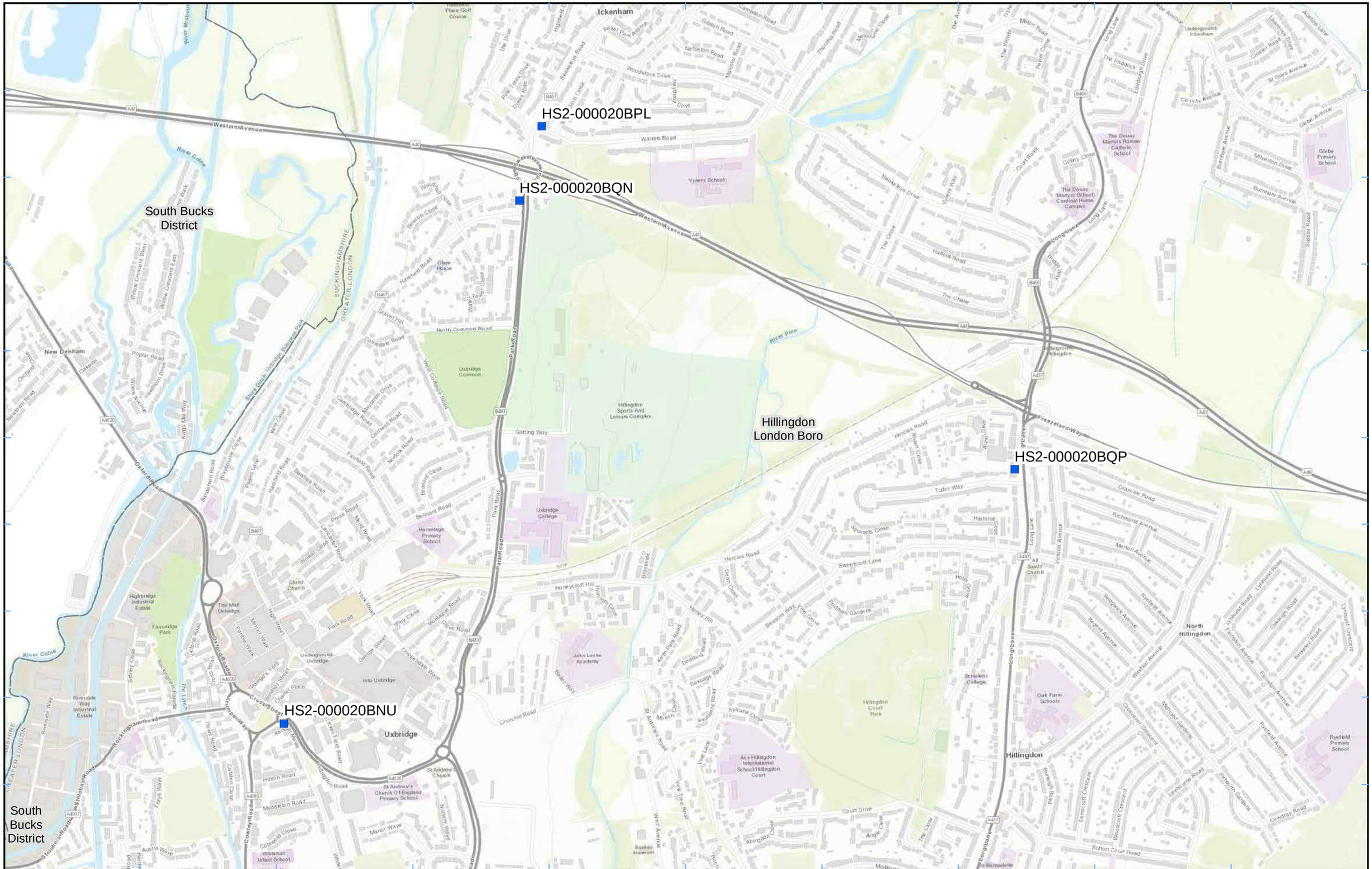
Scale at A3: 1:10,000

0 100 200 300 400

Metres

Doc Number:

Date: 08/12/20



Legend

- Diffusion Tube
- 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

Map Name

Monitoring Locations In LBH (Sheet 3)

London Borough of Hillingdon

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

Scale at A3: 1:10,000

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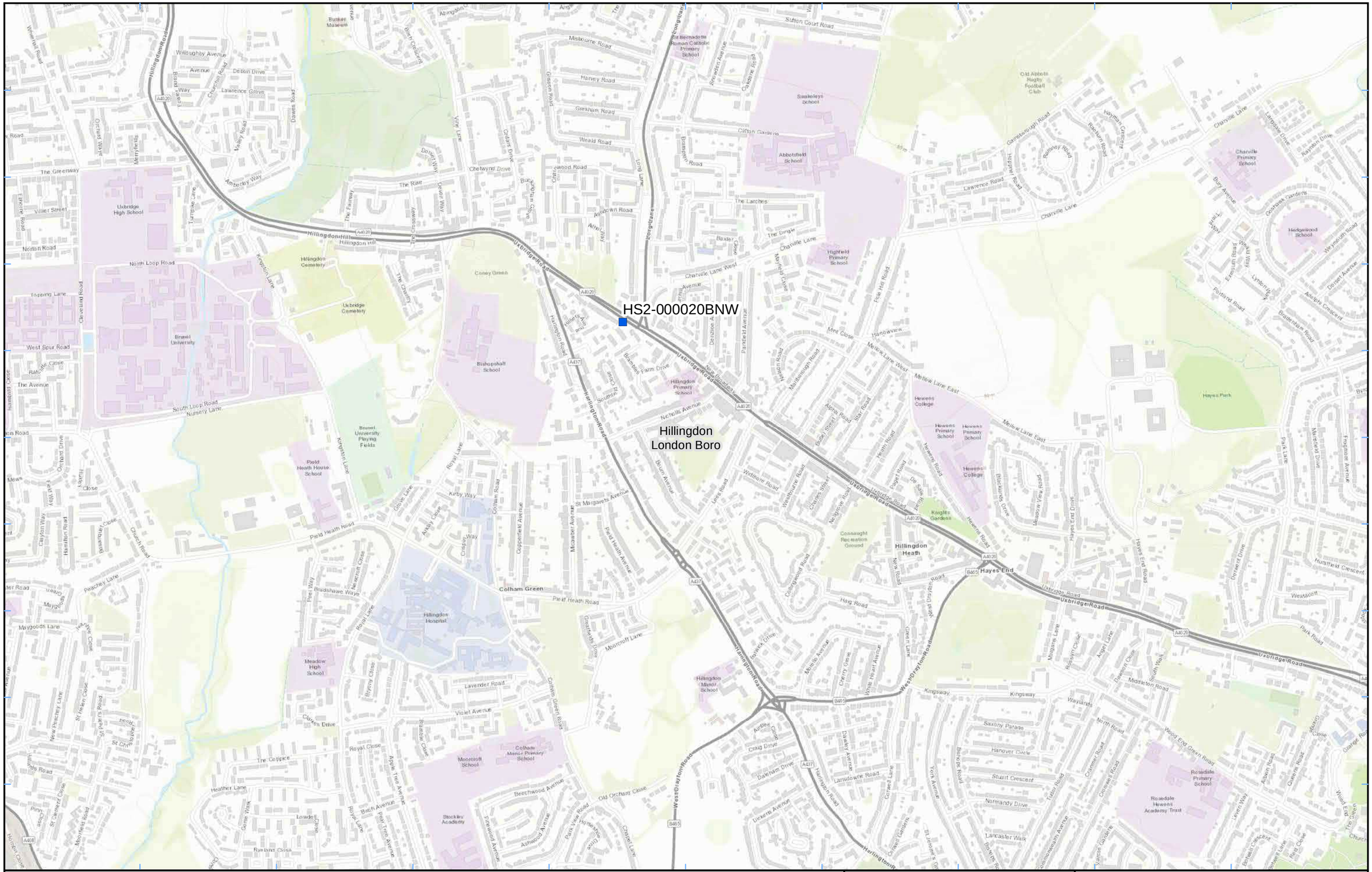
Doc Number:

Date: 08/12/20



Legend

- Diffusion Tube
- 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

Map Name

Monitoring Locations In LBH (Sheet 4)

London Borough of Hillingdon

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

Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number:

Date: 08/12/20

Appendix B – Dust Monitoring Results

Table 2: Dust monitoring locations and September 2023 Results

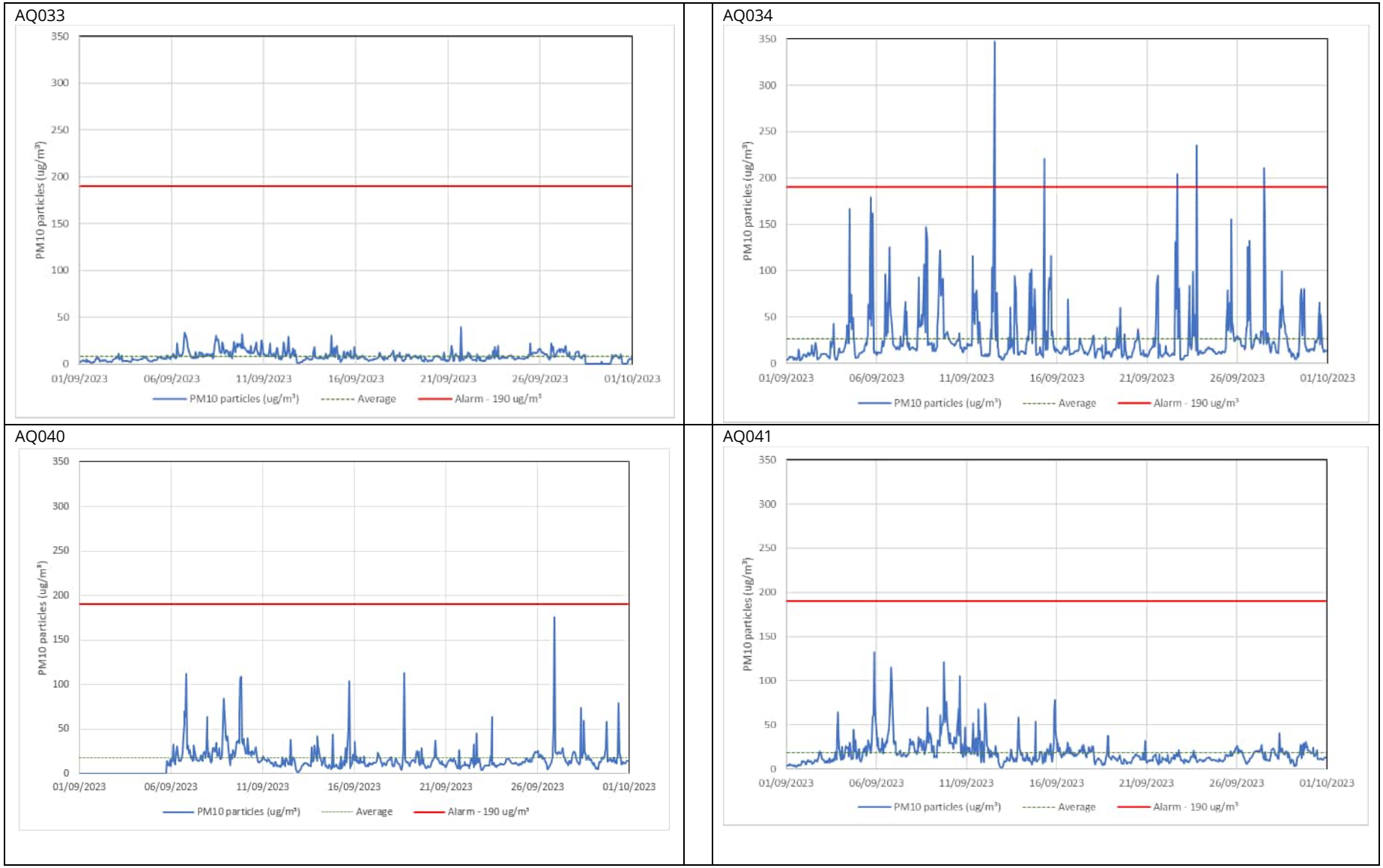
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1- hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
AQ033	507045, 187352	Breakspear Road South	M	Yes	N	8.5	0.1	39.7	0	97.4
AQ034	506608, 187592	Copthall Cutting	L	Yes	N	26.3	3.2	347.3	6	100.0
AQ040	508328, 186880	West Ruislip Golf Course	M	Yes	N	17.4	1.5	175.9	0	84.1
AQ041	507942, 187028	West Ruislip Portal	M	Yes	N	18.6	1.7	132.4	0	100.0
AQ047	507942, 188007	West Ruislip Portal	M	Yes	N	12.1	2.0	32.3	0	8.3
AQ048	507243, 188349	Northern Sustainable Placement Area	M	Yes	N	12.0	2.3	126.9	0	100.0
AQ049	506531, 187865	Copthall North, Ancient Woodland	M	Yes	N	15.8	1.6	306.3	1	78.6
AQ050	506399, 187166	Copthall South Compound	H	Yes	N	16.3	2.3	206.8	1	100.0
AQ052	506433, 186725	Southern Sustainable Placement Area	H	Yes	N	17.1	3.6	78.4	0	100.0
AQ053	506811, 186643	Southern Sustainable	H	Yes	N	13.7	1.9	113.9	0	100.0

Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1- hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
		Placement Area								
AQ056	506494, 186432	Southern Sustainable Placement Area	M	Yes	N	19.2	3.5	67.8	0	100.0
AQ057	506739, 186359	Southern Sustainable Placement Area	M	Yes	N	21.2	3.5	74.2	0	100.0
CVV-AQMP3	504773, 188419	On the eastern boundary along south side of Moorhall Road	M	Yes	Y	11.7	1.0	83.0	0	100.0
CVV-AQMP4	505589, 187793	On the western boundary of HOAC at Dews Lane	M	Yes	Y	9.6	1.0	64.0	0	100.0
CVV-AQMP6	504321, 188835	Korda Lake Compound, along haul route north of Moorhall road.	M	Yes	Y	9.4	1.0	60.0	0	97.0

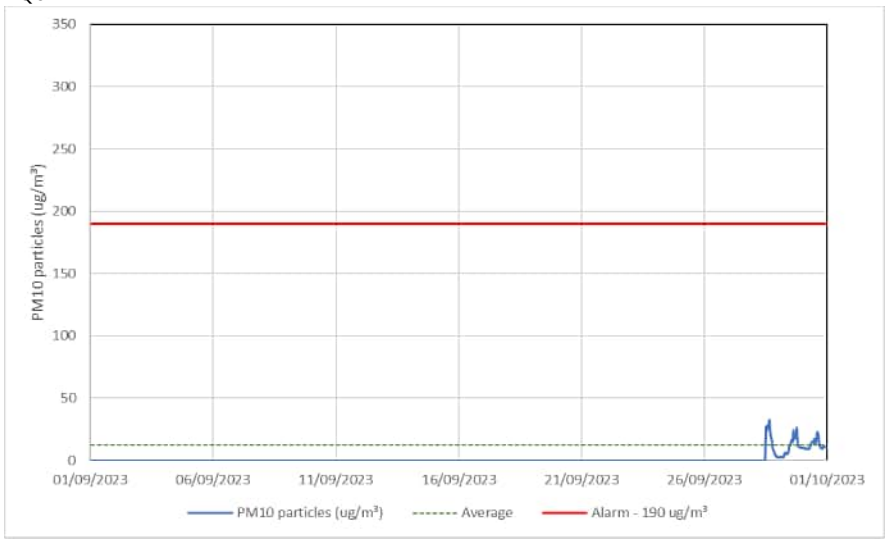
Table 2: Summary of exceedances of trigger level in September 2023

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ034	12/09/2023 11:01 – 12:00; 195.5 µg/m^3 12:01 – 13:00; 347.3 µg/m^3 15/09/2023 06:01 – 07:00; 220.3 µg/m^3 22/09/2023 15:01 – 16:00; 204.0 µg/m^3 23/09/2023 17:01 – 18:00; 235.3 µg/m^3 27/09/2023 11:01 – 12:00; 210.4 µg/m^3	At the time of the trigger haulage operations were underway as normal each day. It is considered the intermittent triggers were associated with elevated dust levels from vehicle movements on the adjacent haul route despite the regular damping down throughout each day by the water bowsers and no excessive dust being observed.	Regular circuits of the driven water bowsers damping down continue throughout each day.
AQ049	01/09/2023 04:01 – 05:00; 306.3 µg/m^3	The trigger was associated with power loss to the monitor due to the hydrogen running out in the generator.	Hydrogen cylinders subsequently replenished, and power restored.
AQ050	28/09/2023 10:01 – 11:00; 206.78 µg/m^3	The trigger was associated with a temporary loss of power to the monitor causing a false elevated reading with pump and heater not operating/running down.	Power subsequently restored.

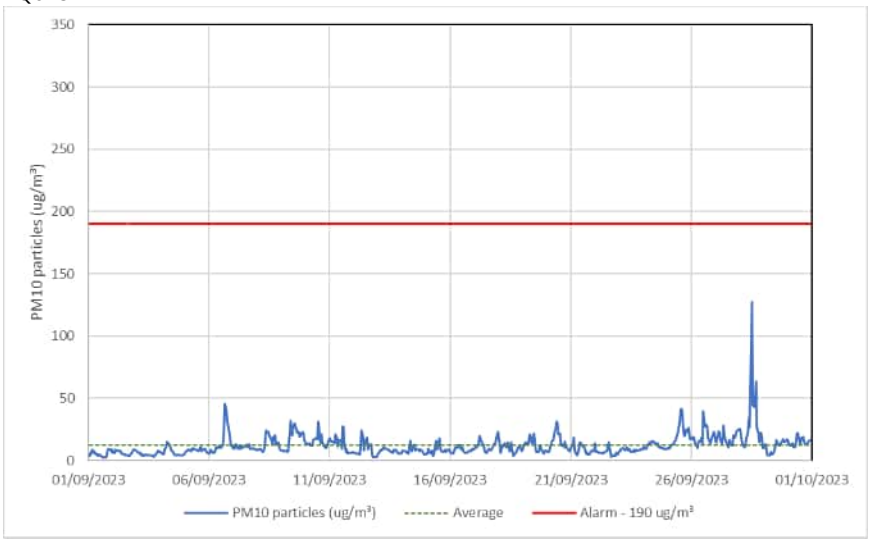
Figure 5: Construction dust 1-hour mean indicative PM_{10} concentration for dust monitors



AQ047



AQ048



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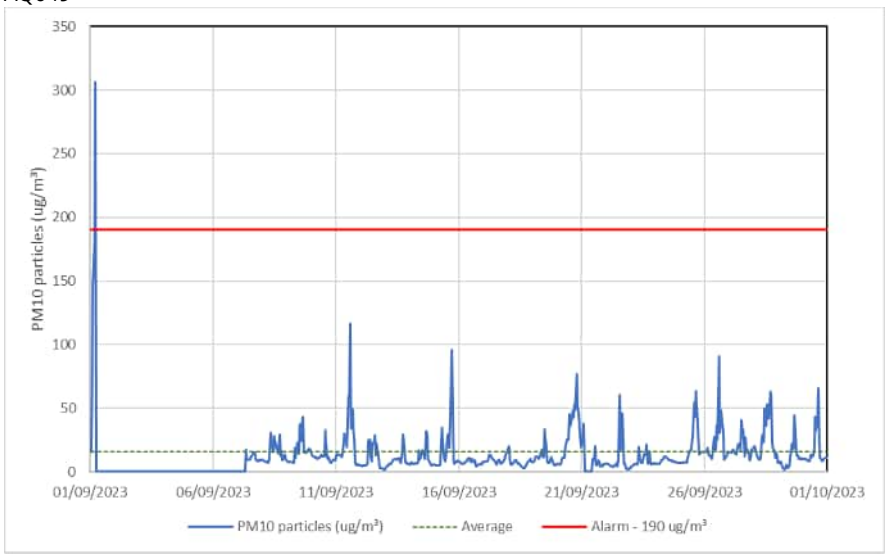
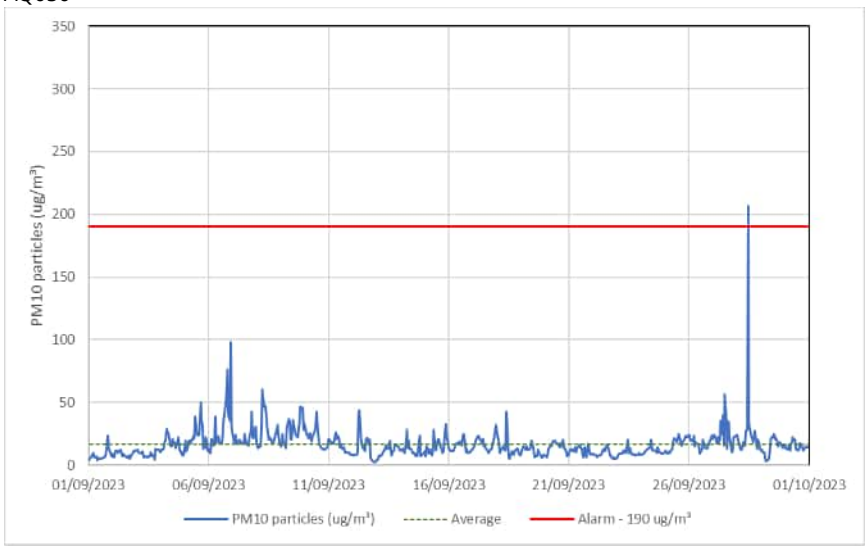


AQ050



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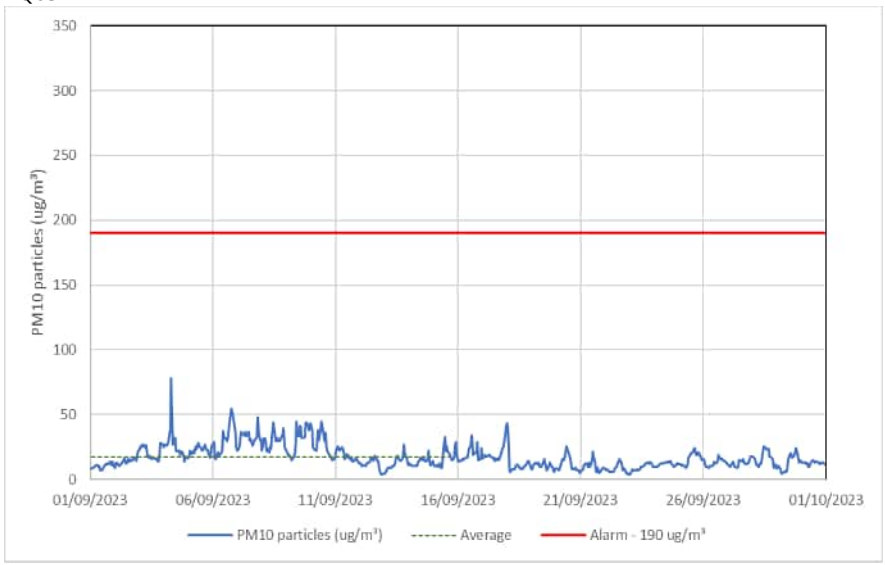

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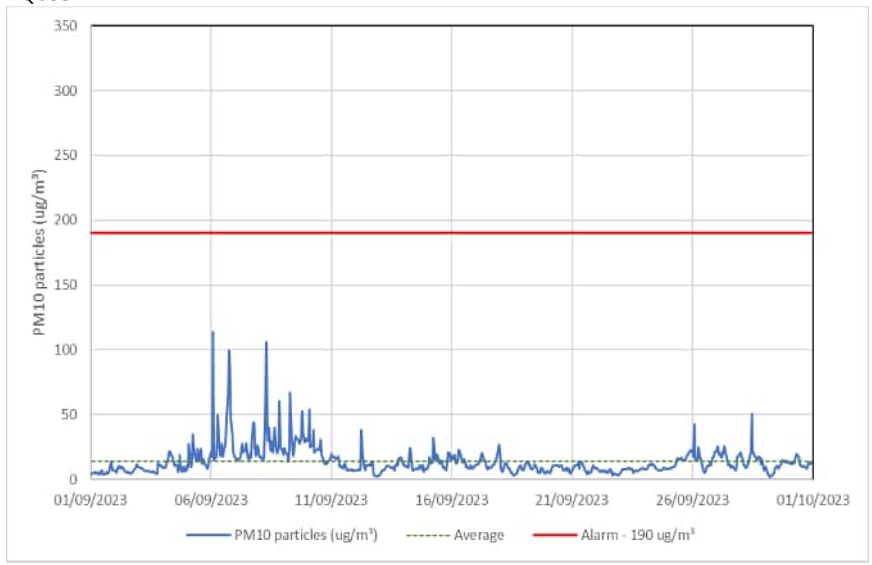

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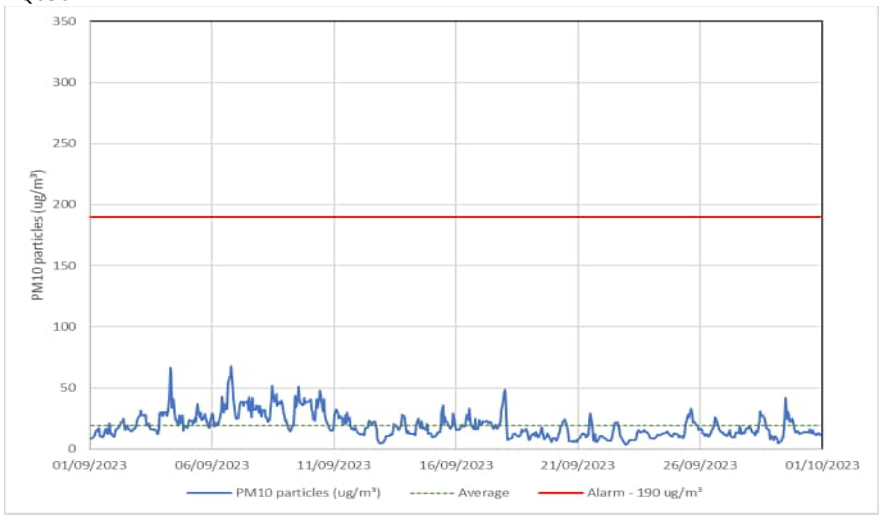

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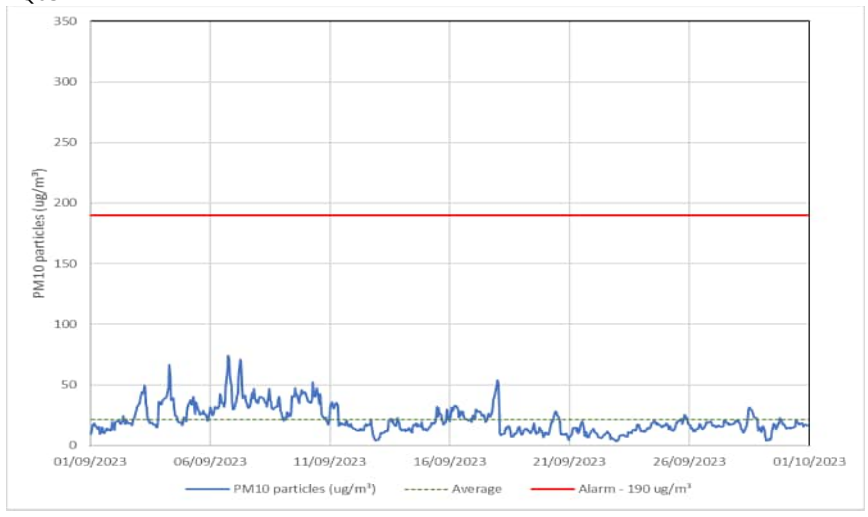
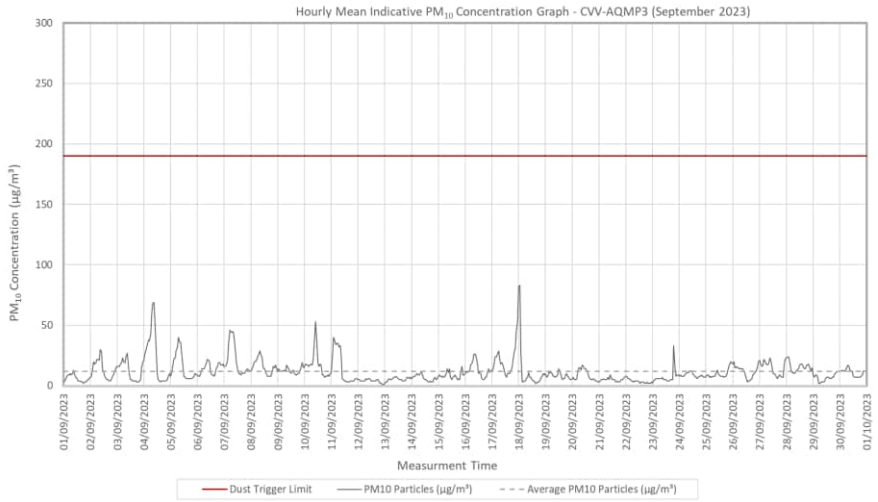


CVV-AQMP3



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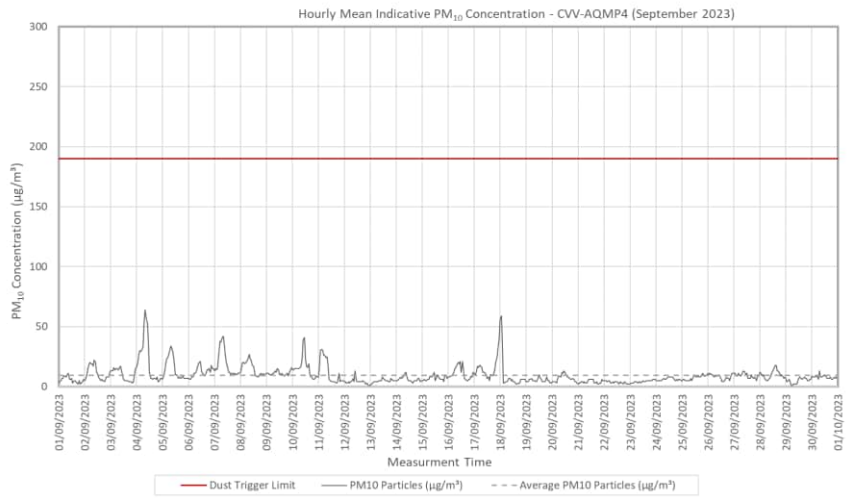
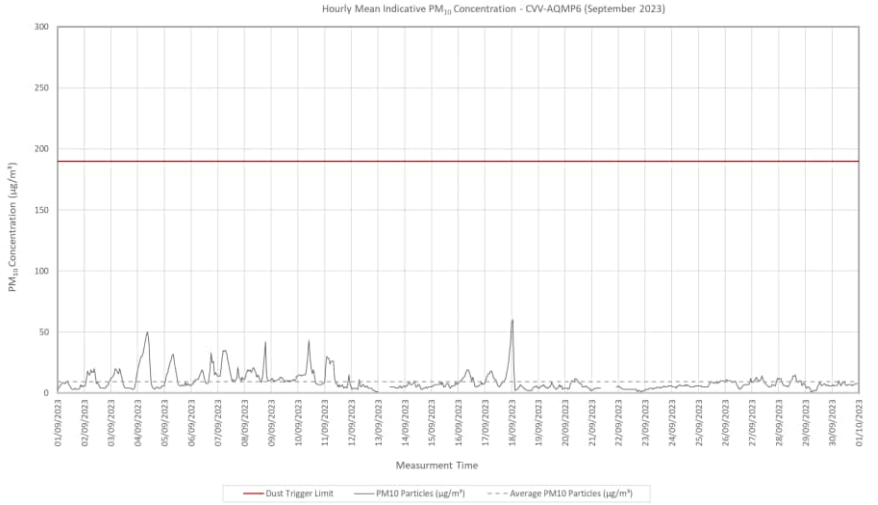


CVV-AQMP6



Appendix C – Air Quality Monitoring Results

Table 3: NO_2 monitoring locations around highways, NO_2 concentrations and monthly monitoring results with running mean for 2023 (µg/m^3)

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BNT	Lamp post on Pembroke Road	509678, 187214	17	30	15	20	15	16	14	16					18
HS2-000020BNU	Cowley Road sign post at junction with Hillingdon Road	505492, 183926	52	45	36	27	35	35	36	36					38
HS2-000020BNV	High Street sign post at junction with Pembroke Road	509439, 187117	42	41	35	Tube Missing	32	32	24	32					34
HS2-000020BNW	Signpost on A4020 Uxbridge Road at junction with Long Lane	507365, 182687	44	47	39	40	35	35	22	31					37
HS2-000020BPK	Lamp post in crescent off Swakeleys Road	506542, 186037	39	40	30	27	32	24	21	24					30
HS2-000020BPL	Warren Road sign post on corner of Swakeleys Road and Warren Road	506240, 185660	45	42	24	2	24	25	37	29					29
HS2-000020BPN	Lamp post on B467	506767, 186224	37	42	24	30	28	27	25	24					30

[1] *Note: to aid interpretation and conform with best practice, the monthly measurements in this table are reported rounded to the nearest whole number. The annual mean presented here is calculated based on laboratory data to 4 significant figures, rounded to a whole number, and therefore may differ slightly to a mean derived from averaging the rounded monthly measurements in the table.*

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BQH	Lamp post on High Road Ickenham	508451, 186879	38	47	Tube Missing	Tube Missing	34	39	31	33					37
HS2-000020BQN	Lamp post on Park Road	506176, 185444	42	40	18	41	36	Tube Missing	23	Tube Missing					33
HS2-000020BQP	Sign post on Long Lane	507614, 184663	16	42	25	36	35	33	25	27					30
HS2-000020BP8	Triplicate site at South Ruislip roadside automatic monitoring station	510858, 184916	37	39	29	29	27	29	21	24					29