

Air Quality and Dust Monitoring Monthly Report – August 2023 London Borough of Hillingdon



Department for Transport

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A report prepared by EWCs and MWCCs on behalf of HS2 Ltd.

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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 July 2023 and August 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, installation of ducts and earthworks, bulk earthworks fill and permanent drainage;
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;

- Core Drilling of Concrete;
- South Abutment: earthworks/stabilisation, FRC early works on SE, drainage works, South Abutment construction stage 1 - continuity of activity 41.04, South Abutment construction stage 2, South Abutment construction stage 2 – earthworks and yard supporting activities;
- Pile Trimming;
- Grand Union Canal Work: operation and maintenance;
- Fencing;
- Environmental Maintenance;
- Cofferdam Excavation: cofferdam excavation, dewatering, waling beams and concrete plugs;
- 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 and an internal PT stressing & grouting;
- 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 foundation works in the north embankment, 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 and early soil placement.

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, standard piers FRC works for pile cap and pier, post tensioning of AFD legs and tower crane mob / demob;
- ATFS: site preparation, installation of ducts and earthworks, bulk earthworks fill and permanent drainage;
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;
- Core Drilling of Concrete;
- Pile Trimming;
- Fencing;
- Environmental Maintenance;

- Cofferdam Excavation: cofferdam excavation, dewatering, waling beams and concrete plugs;
- 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 and external PT;
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- Landscaping: advanced works including removal of cofferdam, early earthworks including ground profiling and cut, initial ground drainage including manhole chamber and early soil placement.

1.1.5 Fifteen (15) dust monitors are installed around worksites, where works are underway. These sites returned a low to high risk 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 PM₁₀ concentrations of 190µg/m³, 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 (August 2023) and are reported in Appendix B, Table 3.

1.1.9 Data capture for monitors AQ033, AQ034, AQ047 and AQ049 was below 90% due to all three monitors being powered by hydrogen generators and needing replenishing/exchange of hydrogen cylinders. Data capture for monitors AQ056 and AQ057 was below 90% due to these two monitors being new installation part way through the month. Data Capture for AQ040 was below 90% due to loss of power, subsequently restored. Low data capture at CVV-AQMP6 was due to a solar power issue.

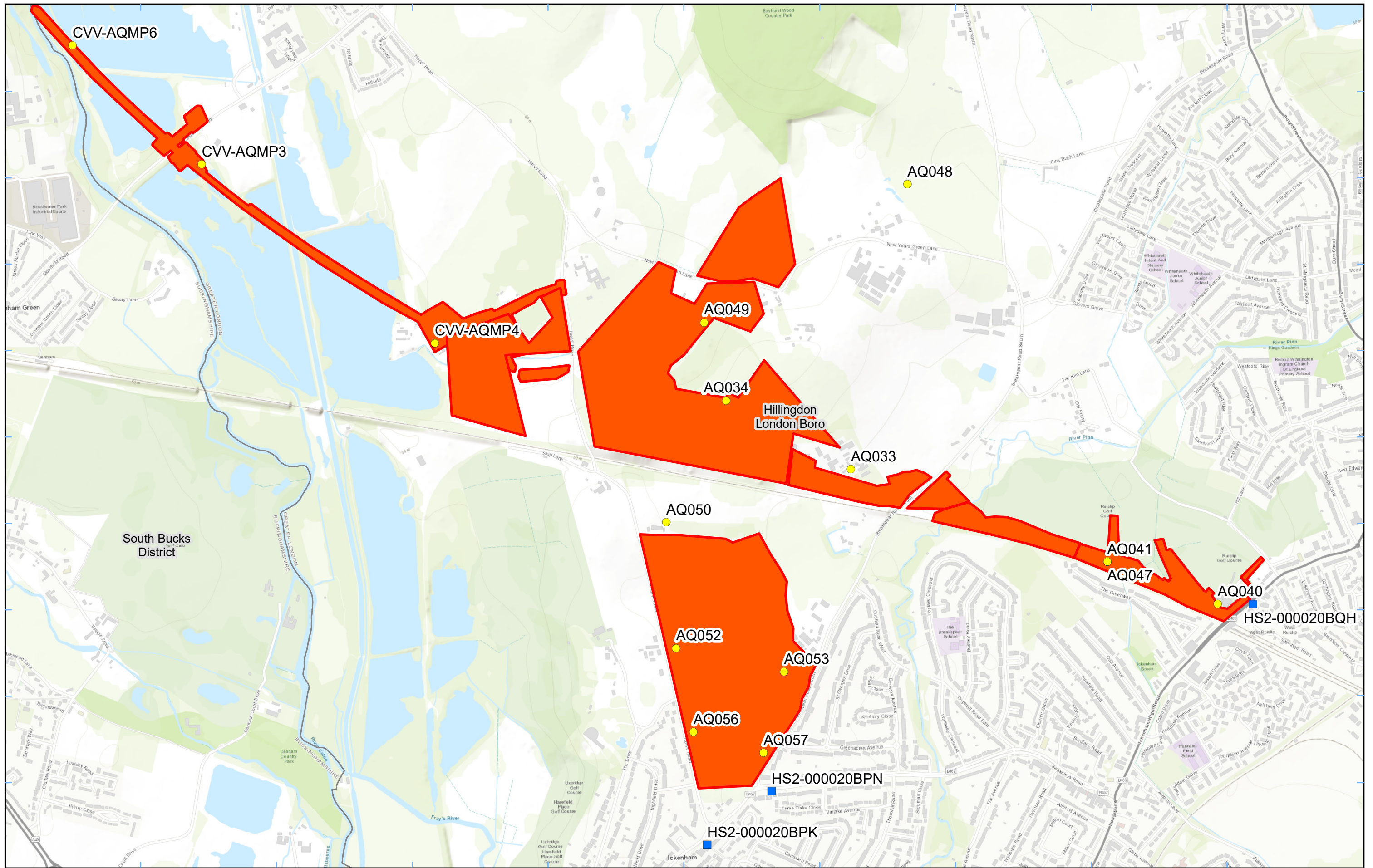
- 1.1.10 Diffusion tube monitoring of Nitrogen Dioxide (NO₂) is undertaken at eleven (11) locations around highways within the LBH as part of the management of air quality where significant effects November occur as a result of the scheme.
- 1.1.11 Diffusion tube monitoring results are as provided from 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 the results to date, no unexpected values were recorded during the monitoring period.
- 1.1.12 NO₂ 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 or air quality received during the reporting period, together with the findings of any related investigations.

Table 1: Summary of complaints received during August 2023

Complaint Reference No.	Worksite Reference	Description of complaint	Results of investigation
HS2-23-44910-C	n/a	Dust in air and particularly on car.	Response to resident advised of mitigations in place; water mist cannons, water bowsers spraying water on all the internal roads and road sweepers on all internal haul roads and onto the public roads outside our current sites. Undercarriage washes for all vehicles also in place.

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

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Map Number

Map Name
**Worksite and Monitoring Locations
In LBH (Sheet 1)**

London Borough of Hillingdon

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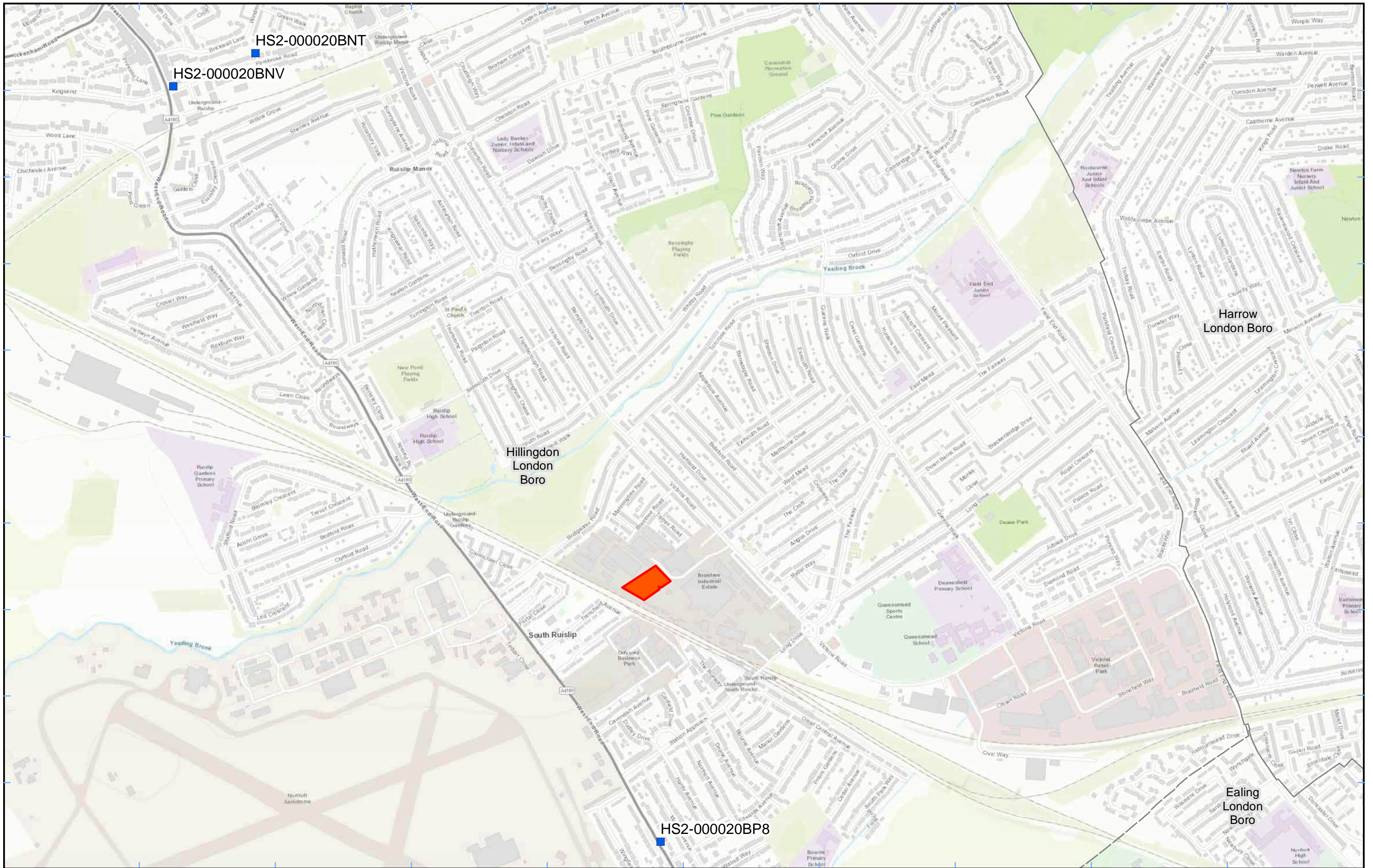
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0 120 240 360 480
Metres

Doc Number: **Date: 09/10/23**



Legend
■ Diffusion Tube District Borough Unitary Boundaries
 Worksite

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Map Number
 Map Name
**Worksite and Monitoring Locations
 In LBH (Sheet 2)**
 London Borough of Hillingdon

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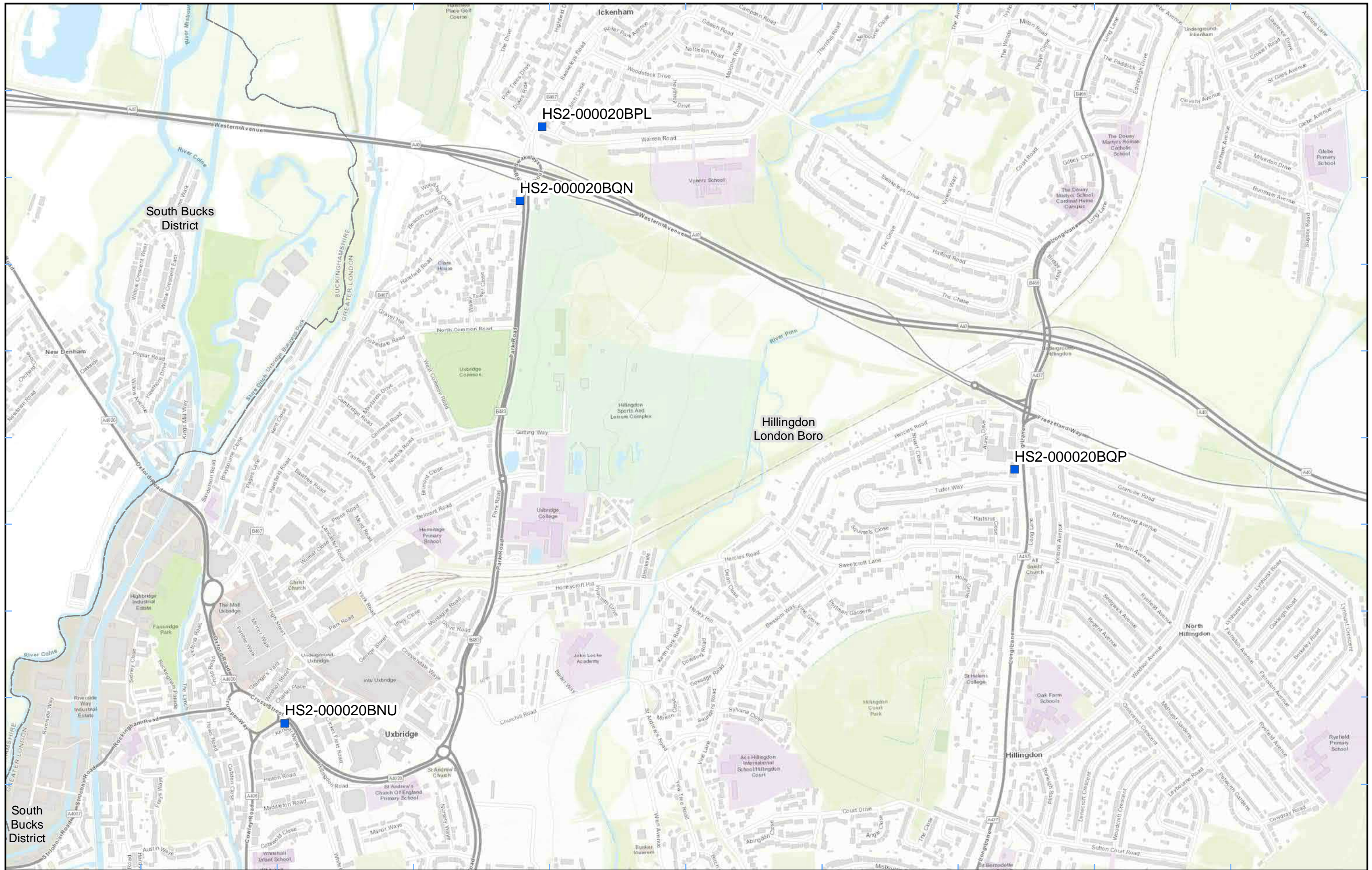
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Date: 08/12/20



Legend
 ■ Diffusion Tube
 □ District Borough Unitary Boundaries

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Map Number
 Map Name
Monitoring Locations In LBH (Sheet 3)
London Borough of Hillingdon

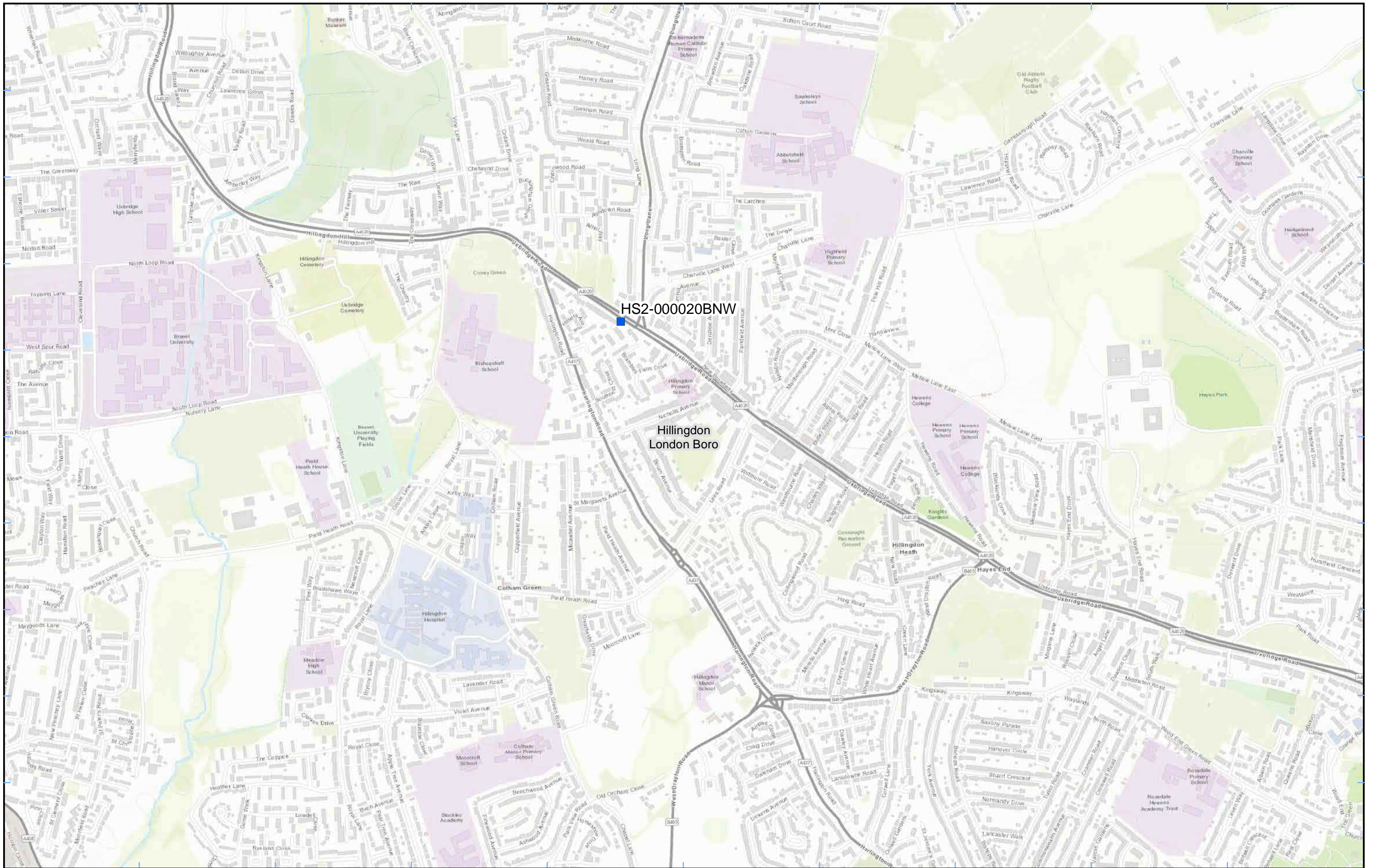
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- Legend**
- Diffusion Tube
 - District Borough Unitary Boundaries

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Map Number
Map Name
Monitoring Locations In LBH (Sheet 4)
London Borough of Hillingdon

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Date: 08/12/20

Appendix B – Dust Monitoring Results

Table 2: Dust monitoring locations and August 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 (µg/m ³)	Minimum 1-hour PM ₁₀ concentration (µg/m ³)	Maximum 1-hour PM ₁₀ concentration (µg/m ³)	Number of 1- hour periods exceeding trigger level of 190 µg/m ³	Data capture (%)
AQ033	507045, 187352	Breakspears Road South	M	Yes	N	8.1	1.2	51.8	0	75.9
AQ034	506608, 187592	Copthall Cutting	L	Yes	N	32.2	2.1	512.3	6	75.8
AQ040	508328, 186880	West Ruislip Golf Course	M	Yes	N	12.1	1.7	43.2	0	72.4
AQ041	507942, 187028	West Ruislip Portal	M	Yes	N	9.4	1.5	60.7	0	100.0
AQ047	507942, 187029	West Ruislip Portal	M	Yes	N	7.9	0.6	38.9	0	82.8
AQ048	507243, 188349	Northern Sustainable Placement Area	M	Yes	N	8.1	1.4	36.4	0	100.0
AQ049	506531, 187865	Copthall North, Ancient Woodland	M	Yes	N	18.6	1.0	193.3	1	32.6
AQ050	506399, 187166	Copthall South Compound	H	Yes	N	12.3	2.2	187.7	0	99.9
AQ052	506433, 186725	Southern Sustainable Placement Area	H	Yes	N	22.7	2.0	721.0	3	100.0
AQ053	506811, 186643	Southern Sustainable	H	Yes	N	9.0	1.3	144.3	0	100.0

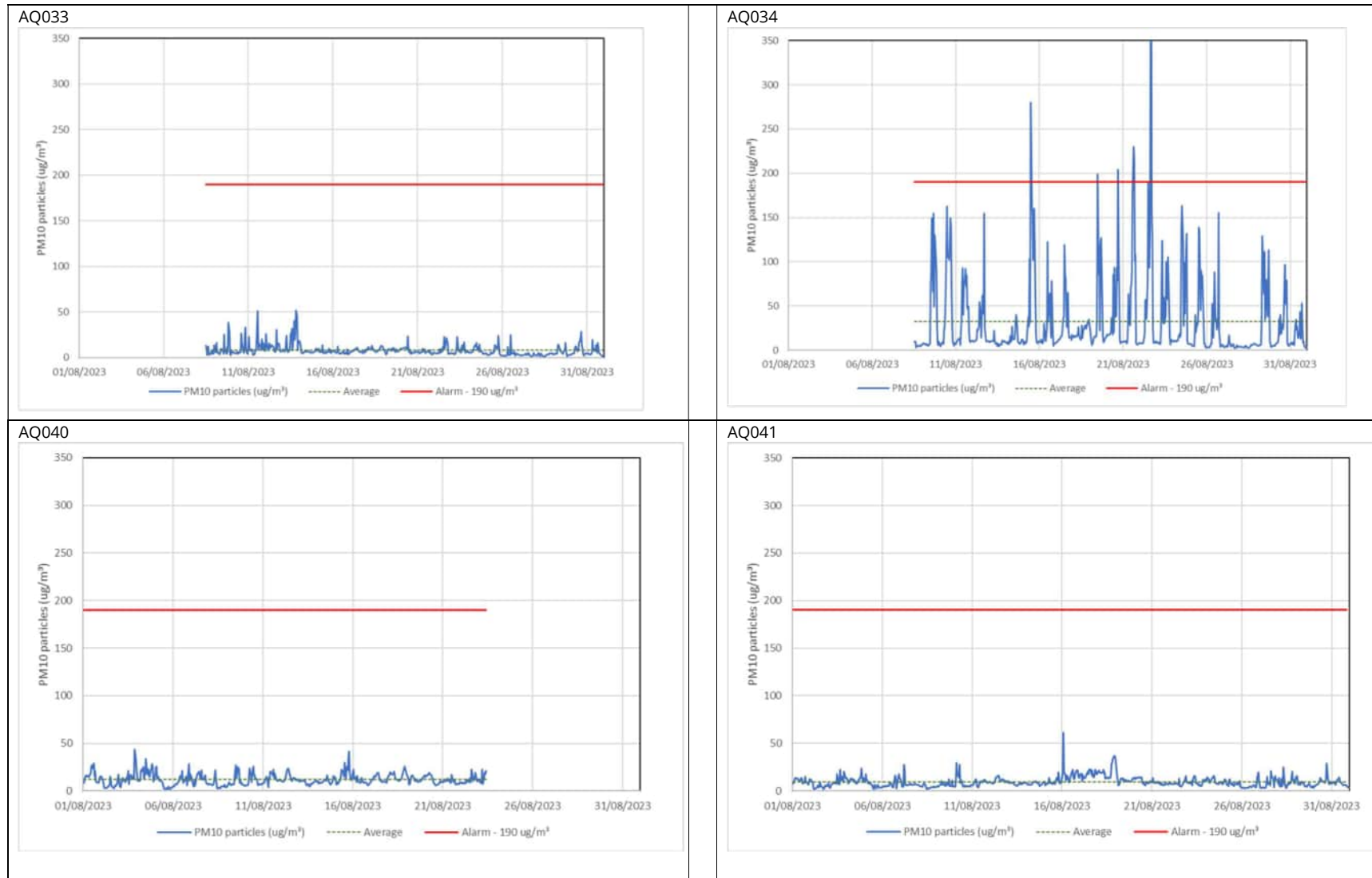
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM ₁₀ concentration (µg/m ³)	Minimum 1-hour PM ₁₀ concentration (µg/m ³)	Maximum 1-hour PM ₁₀ concentration (µg/m ³)	Number of 1-hour periods exceeding trigger level of 190 µg/m ³	Data capture (%)
		Placement Area								
AQ056	506494, 186432	Southern Sustainable Placement Area	M	Yes	N	20.9	2.0	506.0	2	69.6
AQ057	506739, 186359	Southern Sustainable Placement Area	M	Yes	N	23.9	2.0	555.0	3	69.6
CVV-AQMP3	504773, 188419	On the eastern boundary along south side of Moorhall Road	Medium	Yes	Yes	6.8	1.0	102.0	0	100.0
CVV-AQMP4	505589, 187793	On the western boundary of HOAC at Dews Lane	Medium	Yes	Yes	5.5	1.0	66.0	0	100.0
CVV-AQMP6	504321, 188835	Korda Lake Compound, along haul route north of Moorhall road.	Medium	Yes	Yes	5.5	1.0	62.0	0	77.0

Table 3: Summary of exceedances of trigger level in August 2023

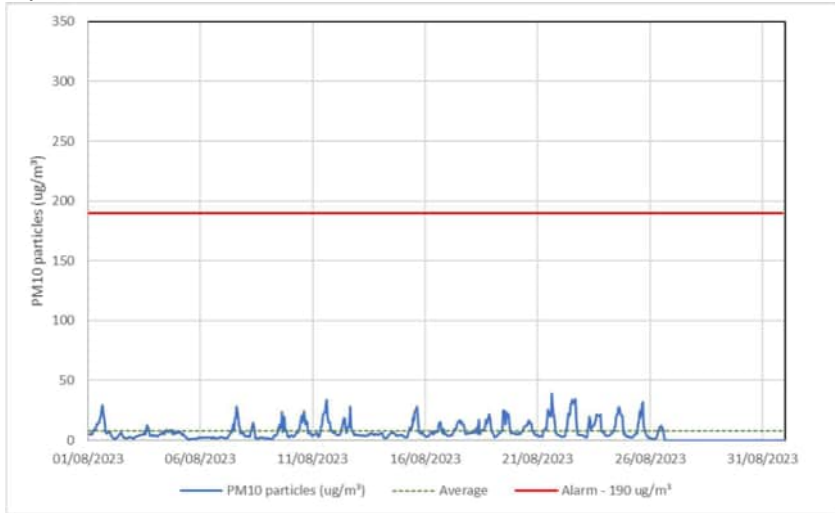
Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ034	15/08/2023 11:01 – 12:00; 280.1 µg/m ³ 19/08/2023 11:01 – 12:00; 198.8 µg/m ³ 20/08/2023 16:01 – 17:00; 204.4 µg/m ³ 21/08/2023 14:01 – 15:00; 229.9 µg/m ³ 15:01 – 16:00; 214.7 µg/m ³ 22/08/2023 15:01 – 16:00; 512.3 µg/m ³	At the time dust trigger alert from monitor AQ034 which is located by the haul road near the Copthall woodland to the north of the site. 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.	More regular circuits of the driven water bowsers damping down will continue.
AQ049	25/08/2023 13:01 – 14:00; 193.3 µg/m ³	As above, the monitor is located adjacent to the same haul road Copthall North by the woodland	As above
AQ052	09/08/2023 03:01 – 04:00; 641.0 µg/m ³ 19/08/2023 23:01 – 00:00; 219.0 µg/m ³ 26/08/2023 07:01 -08:00; 721.0 µg/m ³	At the time of the triggers from all three monitors there were no works underway as the triggers were received at night or during the early hours of the morning.	n/a
AQ056	18/08/2023 22:01 – 23:00; 201.0 µg/m ³ 26/08/2023 06:01 -07:00; 506.0 µg/m ³	All three monitors on the SSPA are new sensors and don't have a heater as part of their monitoring mechanism. This means they can be affected by high humidity, wet weather, snow, frost or mist which can give false readings. This is the reason all three monitors triggered at the same times.	
AQ057	18/08/2023 22:01 – 23:00; 253.0 µg/m ³ 19/08/2023 23:01 – 00:00; 237.0 µg/m ³		

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
	26/08/2023 06:01 – 07:00; 555.0 µg/m ³		

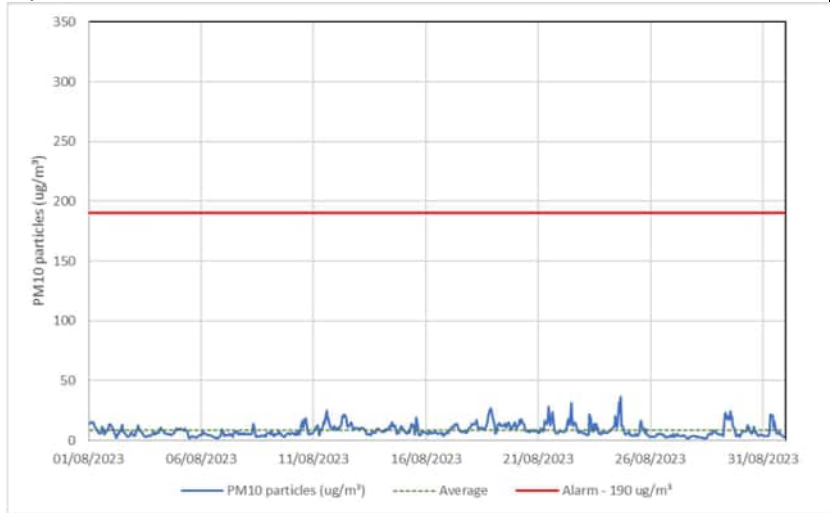
Figure 5: Construction dust 1-hour mean indicative PM₁₀ concentration for dust monitors



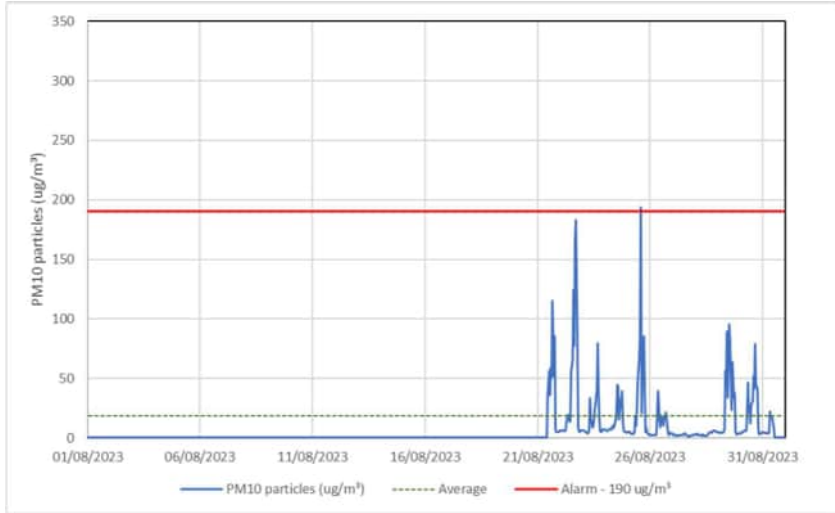
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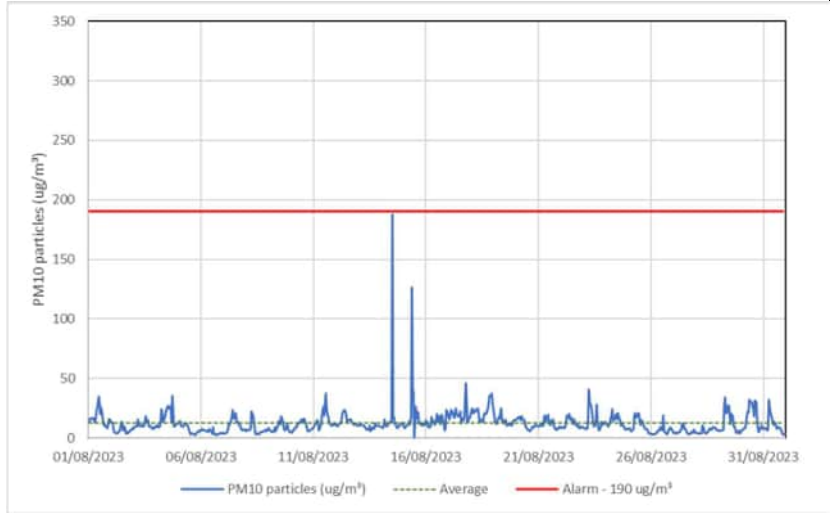
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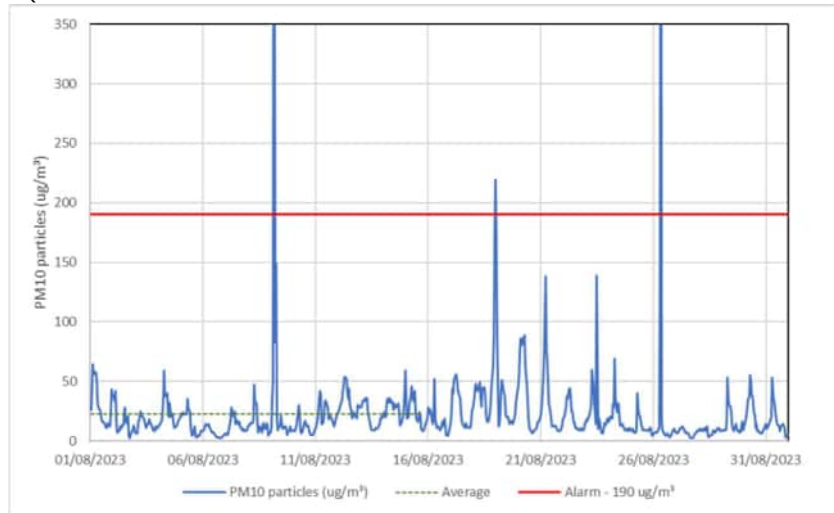
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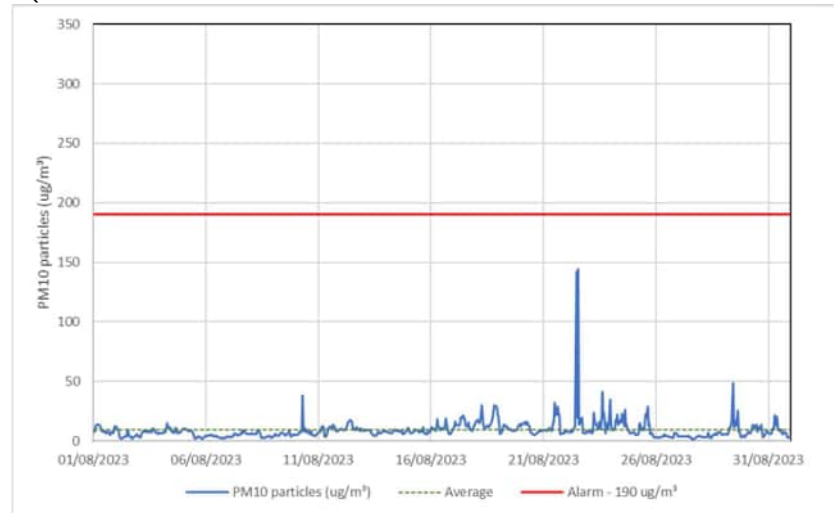
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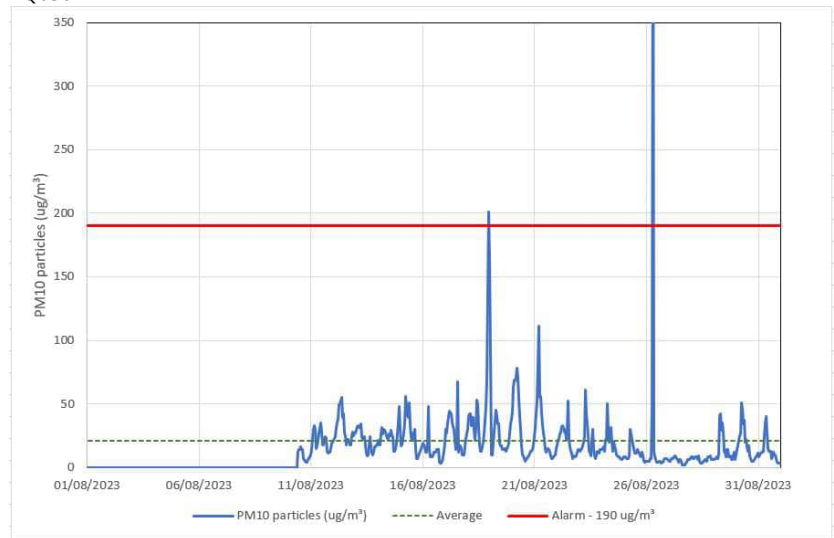
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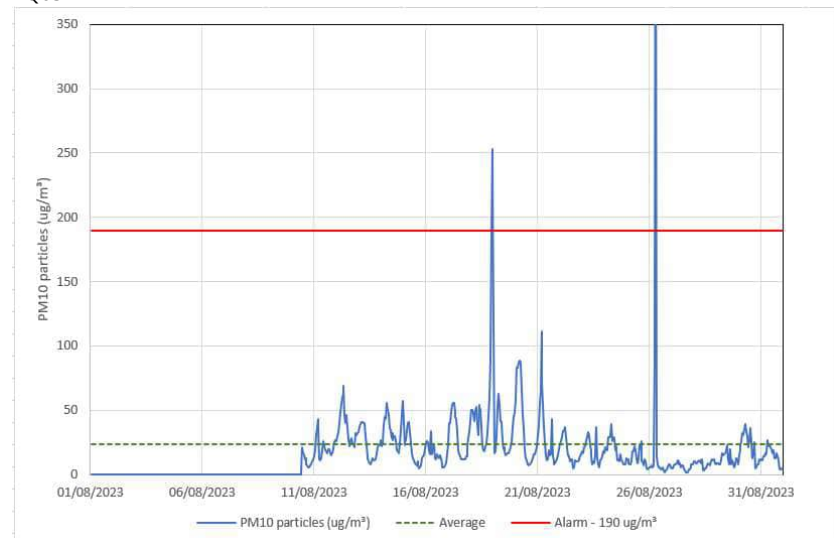
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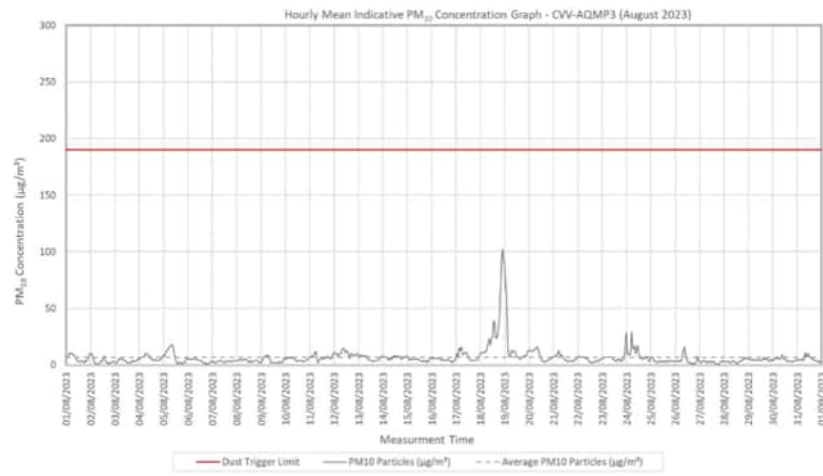
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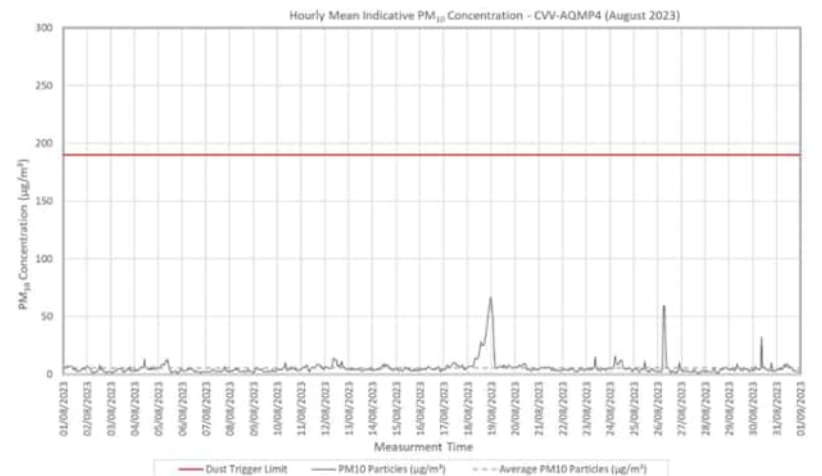
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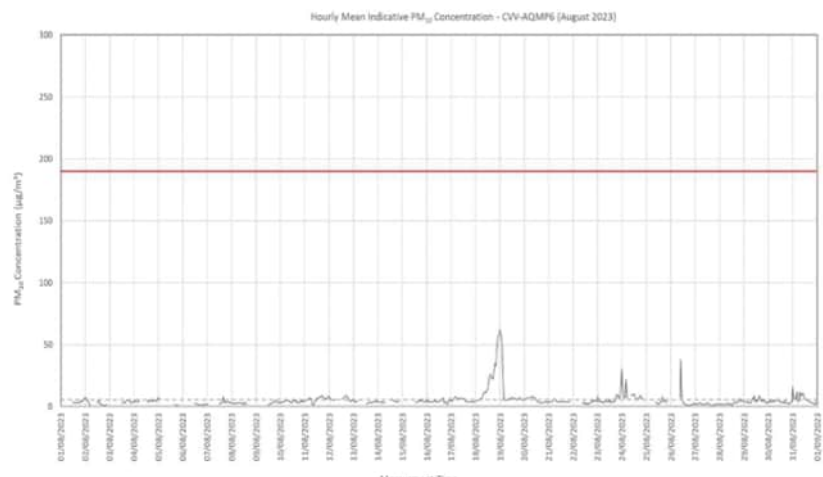
CVV-AQMP3



CVV-AQMP4



CVV-AQMP6



Appendix C – Air Quality Monitoring Results

Table 4: NO₂ monitoring locations around highways, NO₂ concentrations and monthly monitoring results with running mean for 2023 (µg/m³)

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						18
HS2-000020BNU	Cowley Road sign post at junction with Hillingdon Road	505492, 183926	52	45	36	27	35	35	36						38
HS2-000020BNV	High Street sign post at junction with Pembroke Road	509439, 187117	42	41	35	Tube Missing	32	32	24						34
HS2-000020BNW	Signpost on A4020 Uxbridge Road at junction with Long Lane	507365, 182687	44	47	39	40	35	35	22						37
HS2-000020BPK	Lamp post in crescent off Swakeleys Road	506542, 186037	39	40	30	27	32	24	21						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
HS2-000020BPN	Lamp post on B467	506767, 186224	37	42	24	30	28	27	25						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						38
HS2-000020BQN	Lamp post on Park Road	506176, 185444	42	40	18	41	36	Tube Missing	23						33
HS2-000020BQP	Sign post on Long Lane	507614, 184663	16	42	25	36	35	33	25						30
HS2-000020BP8	Triplicate site at South Ruislip roadside automatic monitoring station	510858, 184916	37	39	29	29	27	29	21						30