HS2

June 2022

Air Quality and Dust Monitoring Monthly Report – June 2022

London Borough of Hillingdon

gov.uk/hs2

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 May and June 2022 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 July 2017 and is expected to be completed by 2025. The current worksites, as presented in Appendix A, Figure 1 to Figure 4, include:

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

CVV Dews Lane

- Jetty piling: piling plant, support plant, platform and compound;
- HOAC Compound: operation and de-sanding;
- Cofferdam Sheet Piling: piling plant and support plant;
- Permanent Main Piling Works: boring pile, de-sanding pile bore at pile position, installing reinforcement cage and concreting pile, bored pile break-down to prepare the pile surface, grout curtain around viaduct pile groups maintenance plant;
- INNS-GUC to Harvil Road: removal works;
- Ground Investigation Works: GI works;
- Pier Construction: yard supporting activities, post tensioning of AFD legs and tower crane mob / demob;
- ATFS Duct Installation: site preparation, installation of ducts and earthworks;

- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Maintenance of the Haul Road: maintenance of the haul road ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;
- South Abutment: earthworks/stabilisation, driven/CFA piling, pile trimming & pile hat installation, FRC early works on SE and drainage works;
- Core Drilling of Concrete;
- Pile Trimming;
- Grand Union Canal Work: haul road, pontoon installation and condition survey;
- Harefield Lake No.2: compensation pond;
- SCS Material Storage;
- Fencing Finishing Works;
- Utility Diversions;
- Environmental Maintenance;
- NYGB River Crossing;
- Cofferdam Excavation;
- Dewatering at P11;
- Stockpiling Activity HOAC: stockpile of material coming from other sites;
- HOAC car park construction: civilisation works in the NGET area;
- Launching Girder and Deck Works: span segmental erection with launching gantry, shoring steel structure erection and dismantling and internal PT stressing & grouting; and
- Utilities-H3.

CVV Moorhall Road

- Jetty piling: piling plant, support plant, platform and compound;
- HOAC Compound: operation and de-sanding;
- Cofferdam Sheet Piling: piling plant and support plant;
- Permanent Main Piling Works: boring pile, de-sanding pile bore at pile position, installing reinforcement cage and concreting pile, bored pile break-down to prepare the pile surface, grout curtain around viaduct pile groups maintenance plant;
- Ground Investigation Works: GI works;
- Pier Construction: yard supporting activities, post tensioning of AFD legs and tower crane mob / demob;
- ATFS Duct Installation: site preparation, installation of ducts and earthworks;
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Maintenance of the Haul Road: maintenance of the haul road ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;
- Core Drilling of Concrete;
- Pile Trimming;
- Grand Union Canal Work: haul road, pontoon installation and condition survey;
- Harefield Lake No.2: compensation pond;
- SCS Material Storage;
- Fencing Finishing Works;

- Utility Diversions;
- Environmental Maintenance;
- NYGB River Crossing;
- Cofferdam Excavation;
- RC Crossing: emergency dismantling of obstruction;
- Launching Girder and Deck Works: span segmental erection with launching gantry, shoring steel structure erection and dismantling and internal PT stressing & grouting; and
- Utilities.

1.1.5 Twelve (12) dust monitors are installed around worksites, where works are underway. The sites returned a low to high risk dust risk rating.

1.1.6 Dust monitoring locations and results are presented in Appendix B, Table 1, 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 (June 2022) and are reported in Appendix B, Table 2.

1.1.9 Data capture was below 90% for multiple monitors in June 2022 due to power supply issues, subsequently resolved.

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 June occur as a result of the scheme.

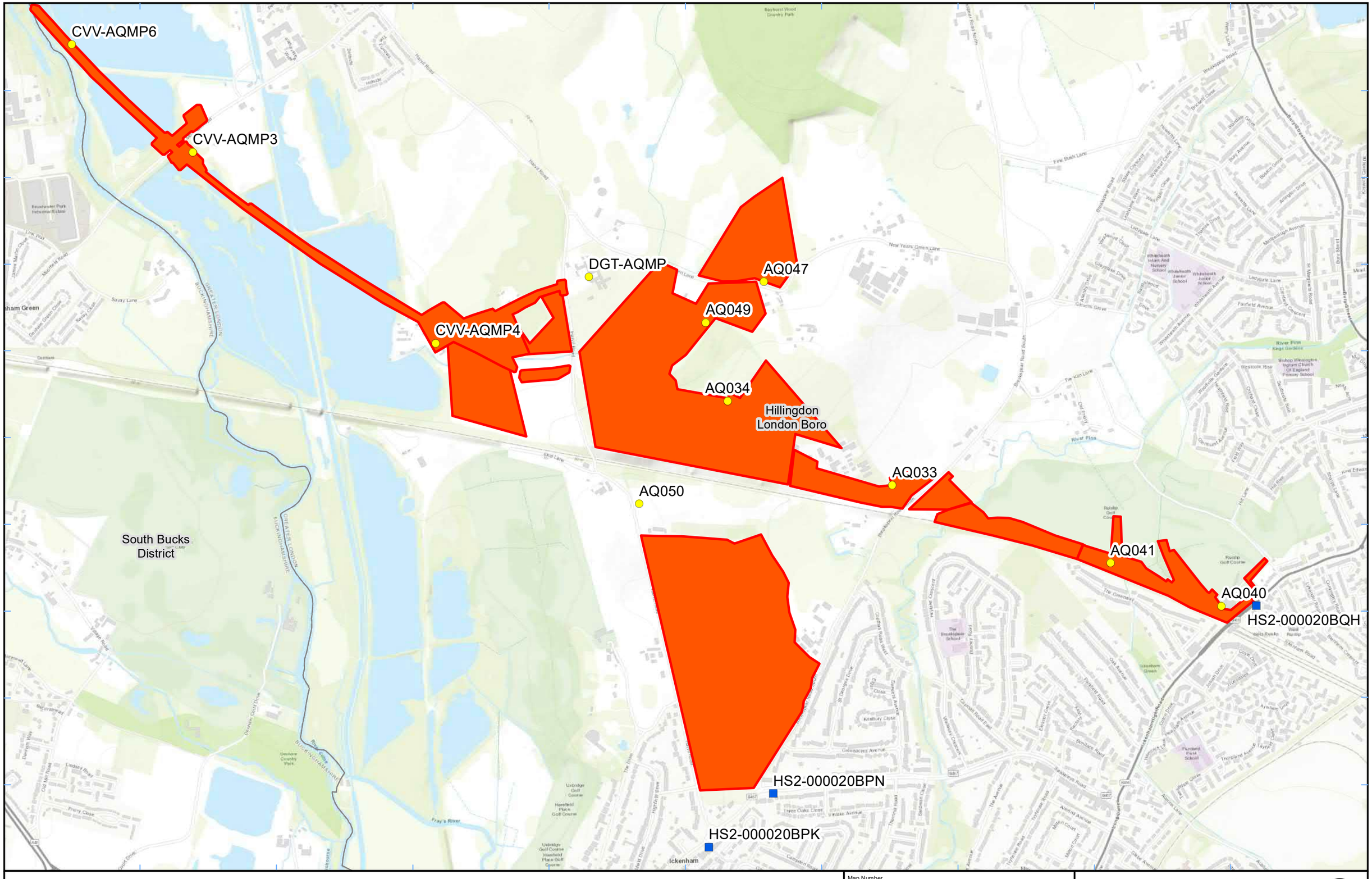
1.1.11 Diffusion tube monitoring results are as provided from the laboratory analysis, and therefore still require various analysis and adjustments to be undertaken. Final corrected results will be presented and described in the annual report. However, based on the results to date, no unexpected values were recorded during the monitoring period.

1.1.12 NO_2 monitoring locations and results are presented in Appendix C, Table 3, together with the 2022 running mean.

1.1.13 There were no (0) complaints received during this reporting period.

Appendix A – Worksites and Monitoring Locations

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



Legend

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

Map Number

Map Name

Worksite and Monitoring Locations In LBH (Sheet 1)

London Borough of Hillingdon

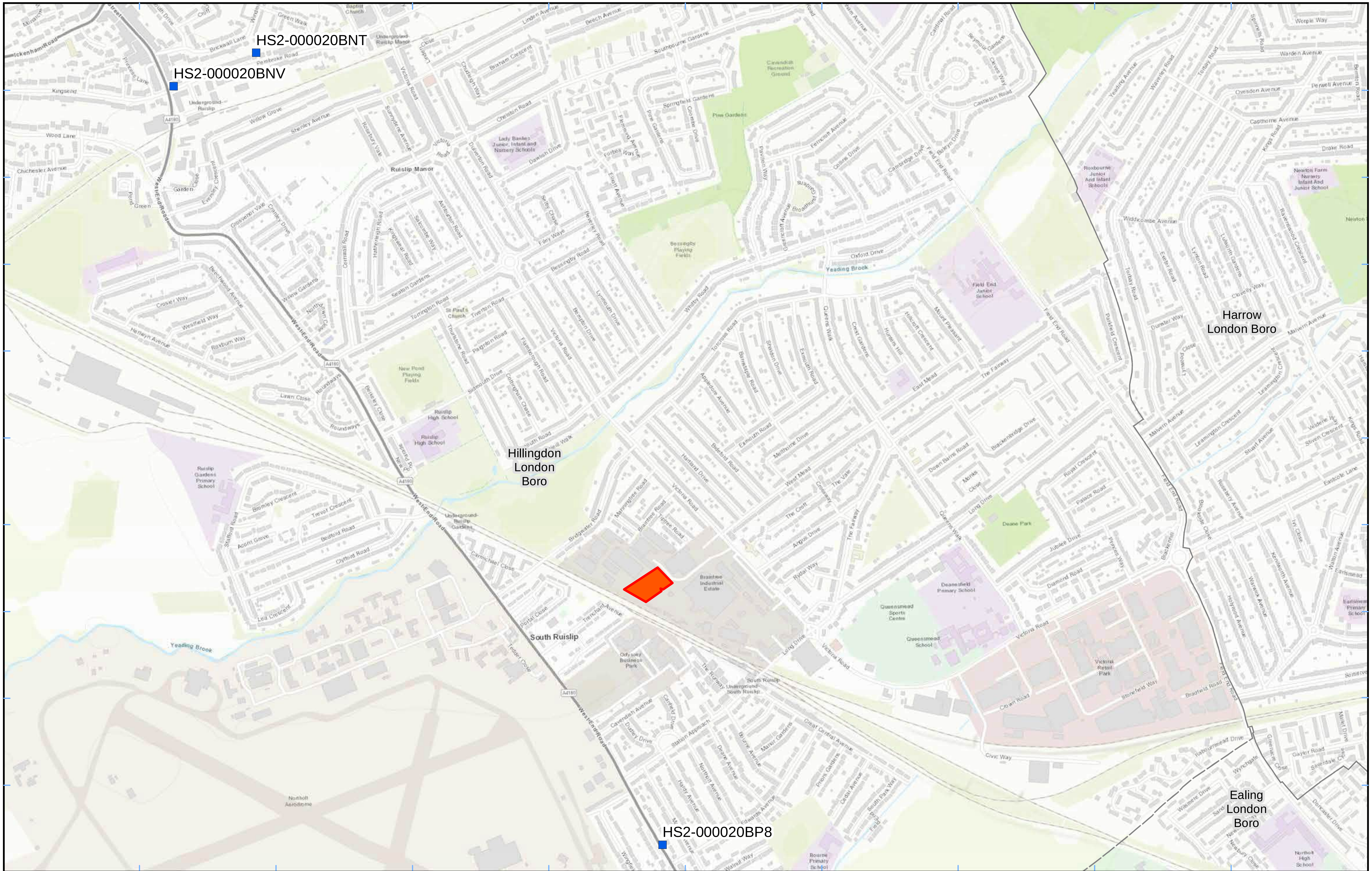
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:12,000

0 120 240 360 480
Metres

Doc Number:

Date: 03/11/21



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

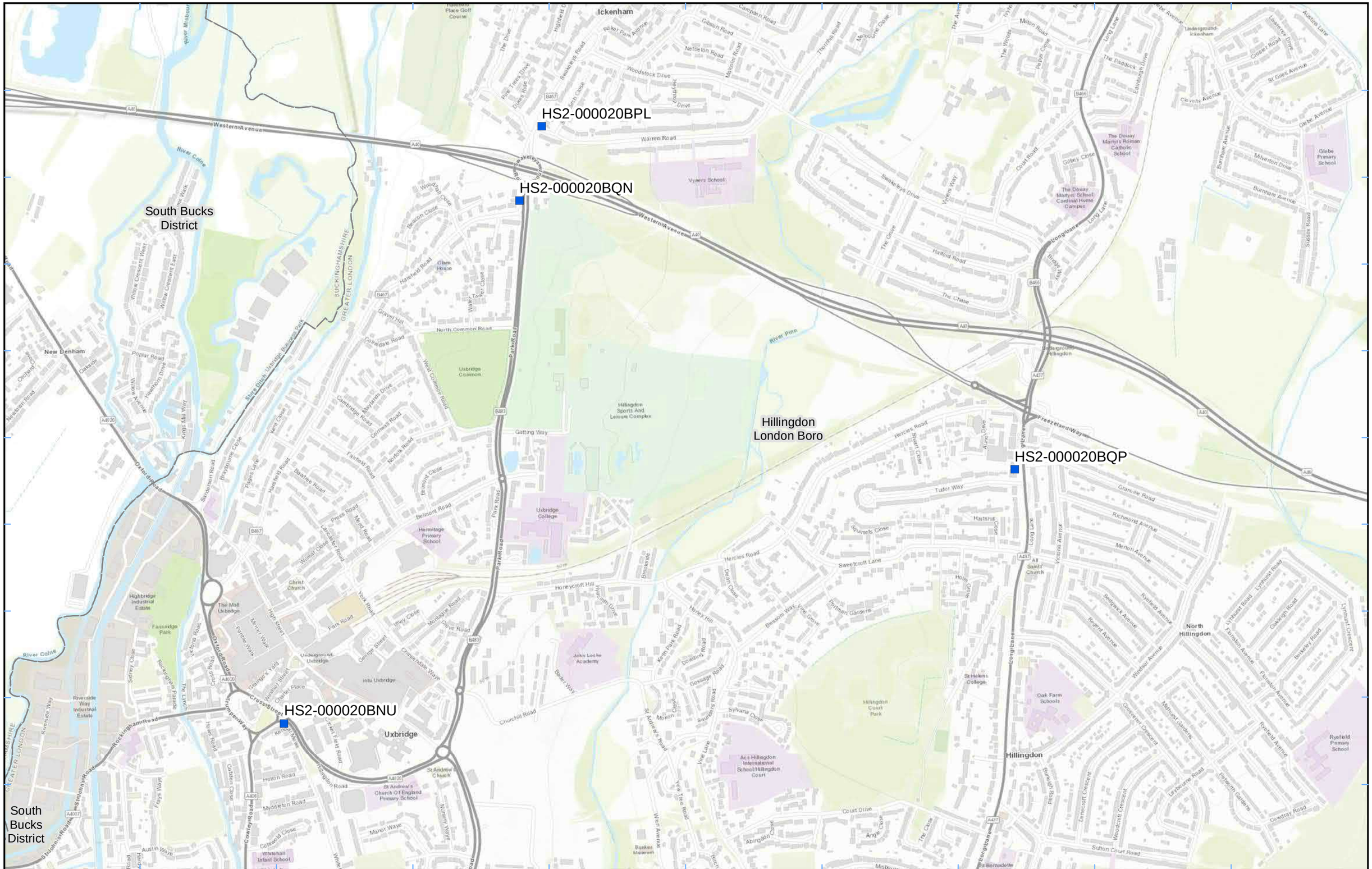
Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

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

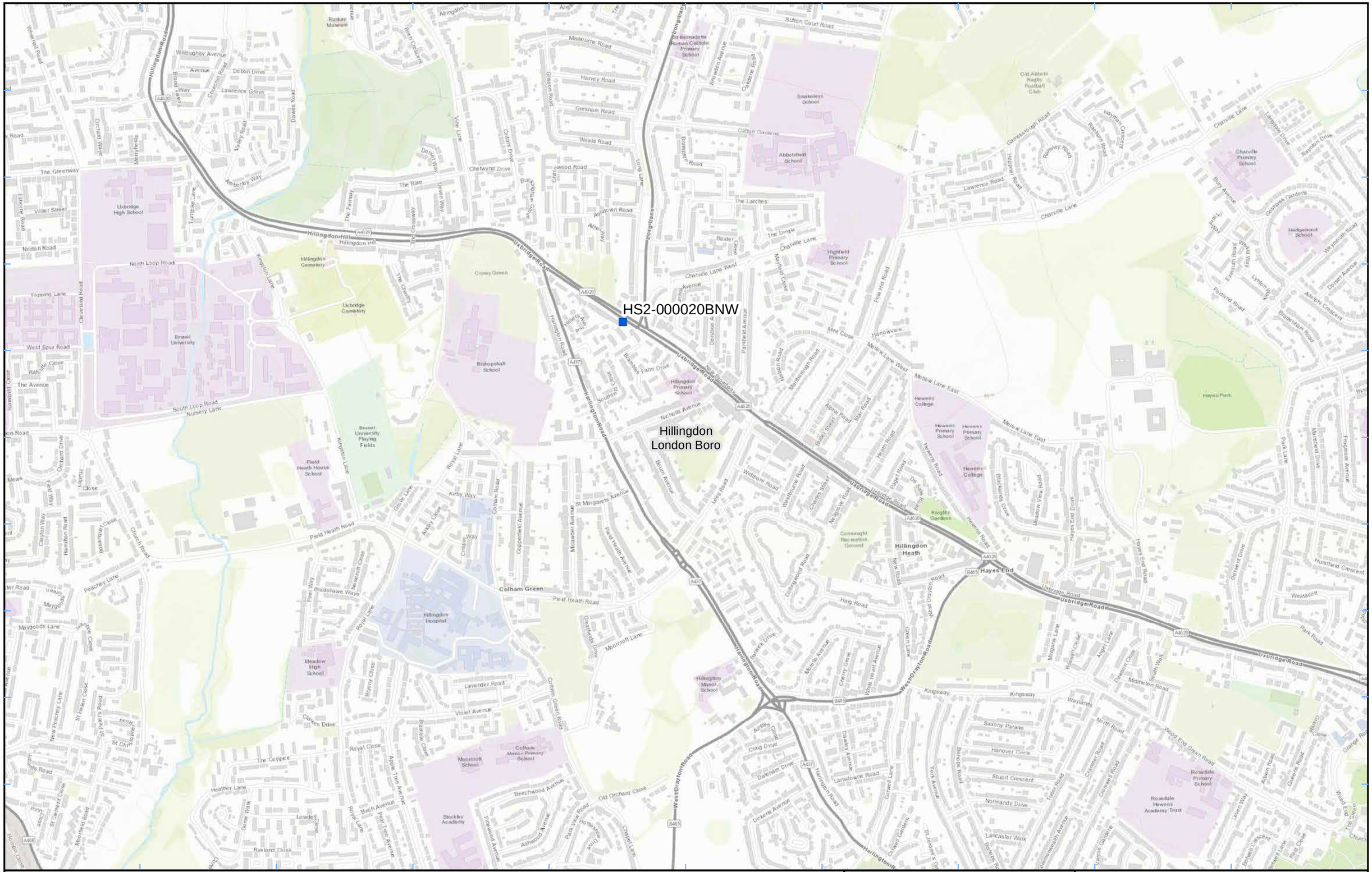
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:10,000

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 4)

London Borough of Hillingdon

Scale at A3: 1:10,000

0 100 200 300 400

Metres

Doc Number:

Date: 08/12/20

Appendix B – Dust Monitoring Results

Table 1: Dust monitoring locations and June 2022 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	10.5	1.3	71.9	0	99.2
AQ034	506608, 187592	Copthall Cutting	L	Yes	N	21.2	1.9	315.7	2	100.0
AQ040	508328, 186880	West Ruislip Golf Course	M	Yes	N	12.0	2.1	38.2	0	100.0
AQ041	507942, 187028	West Ruislip Portal	M	Yes	N	20.3	2.4	155.7	0	99.7
AQ047	507942, 187029	West Ruislip Portal	M	Yes	N	11.3	1.02	89.07	0	100.0
AQ048	507243, 188349	Northern Sustainable Placement Area	M	Yes	N	22.1	2.54	207.61	2	87.5
AQ049	506531, 187865	Copthall North, Ancient Woodland	M	Yes	N	16.6	1.2	246.1	3	88.7
AQ050	506531, 187865	Copthall South Compound	H	Yes	N	13.1	4.7	29.9	0	35.3
AQ052	506645, 186928	Southern Sustainable Placement Area	H	Yes	N	13	1.78	87.19	0	98.5

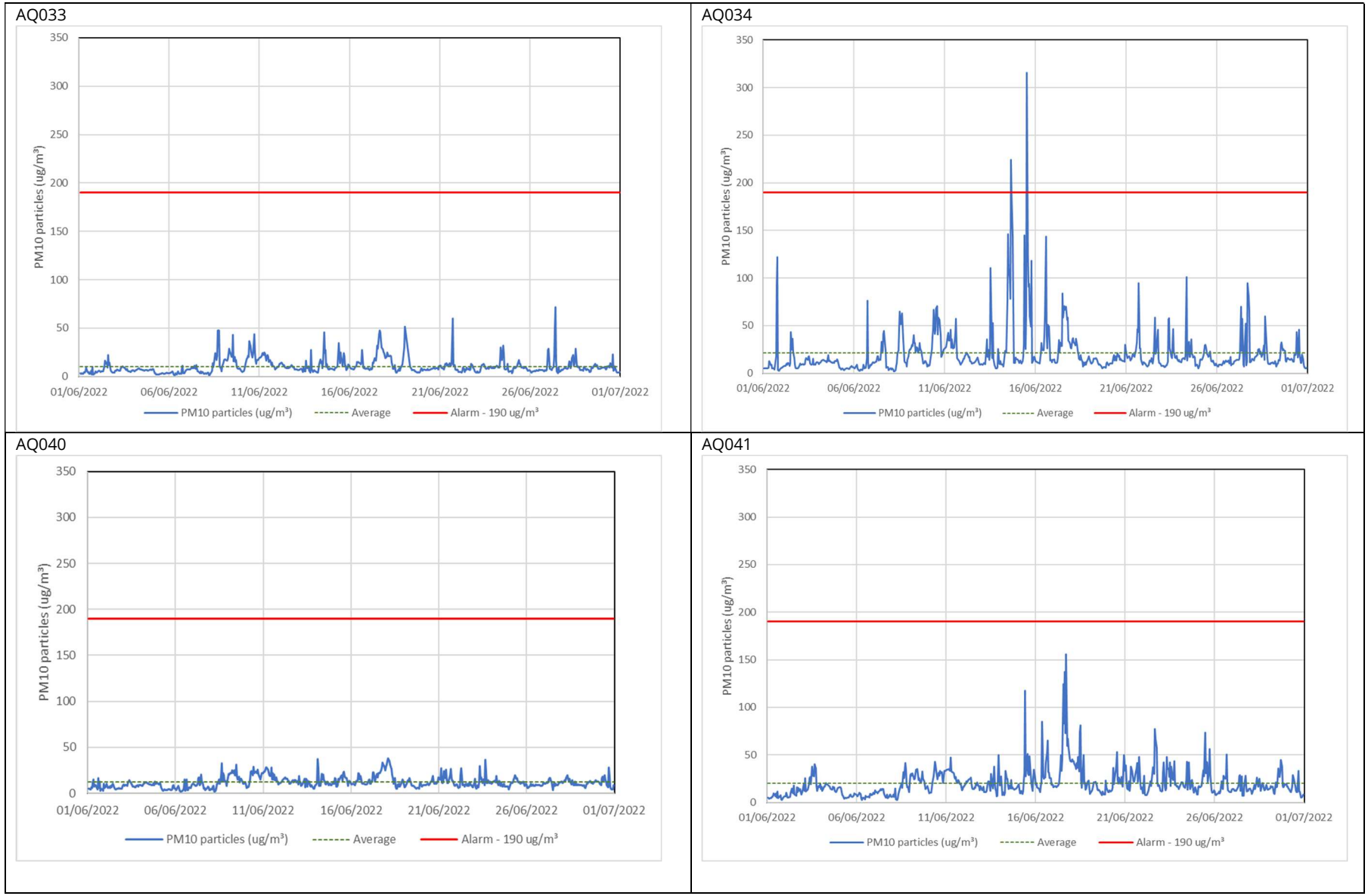
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1- hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
CVV-AQMP3	504773, 188419	On the eastern boundary along south side of Moorhall Road	M	Yes	Y	6.6	1.0	31.0	0	100.0
CVV-AQMP4	505589, 187793	On the western boundary of HOAC at Dews Lane	M	Yes	Y	6.4	1.0	21.0	0	100.0
DGT-AQMP	506124, 188025	At the Dog Trust on Harvil Road.	M	Yes	Y	6.1	1.0	25.0	0	100.0
CVV-AQMP6	504321, 188835	Korda Lake Compound, along haul route north of Moorhall road.	M	Yes	Y	6.3	1.0	158.0	0	100.0

Table 2: Summary of exceedances of trigger level in June 2022

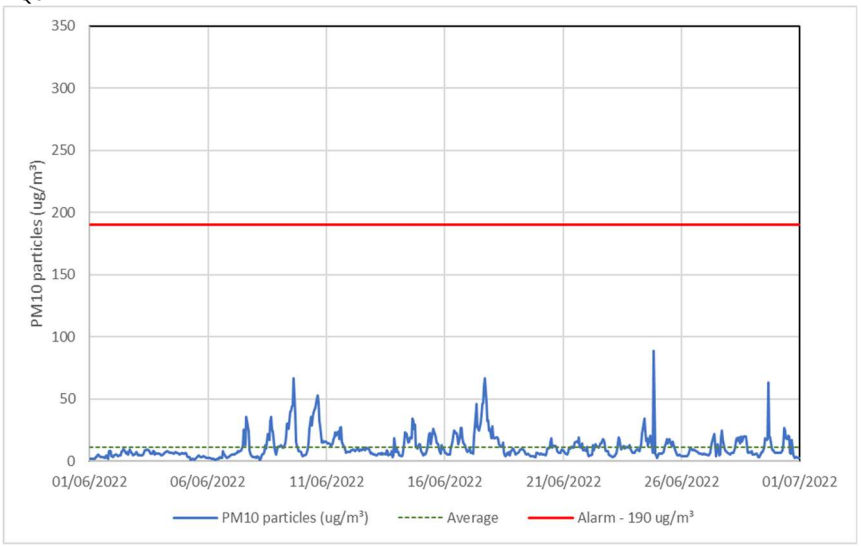
Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ049	01/06/2022 17:00- 17:59; 246.1 µg/m3	At the time of the trigger alert the site was shut. The exact cause of the trigger is not known but was assumed to be associated with dust on the adjacent haul road from the last vehicle movements in the preceding hour. The monitor is located behind debris netting adjacent to the concrete haul road where the road inclines towards the conveyor reception area. The area is also well-swept and damped down with a road sweeper and bowser(s) as part of daily regular circuits of all the site haul roads.	Dust suppression remains an integral part of the site management.
AQ048	10/06/2022 10:00 -10:59; 201.2 µg/m3 14:00- 14:59; 207.6 µg/m3	At the time of the trigger fence line a topsoil scrap and removal was underway in an area of land directly adjacent to the monitor. It is considered that the regular movement of dumpers along the short haul route within a few metres of the monitor throughout the day were the cause of the two triggers. Damping down of this route was being undertaken using a tractors bowser regularly throughout the day and no visible dust emissions were observed. Works in the wider area included machinery and vehicle movements along the main haul road and material movements / placement of spoil. Dust suppression is readily available and was being deployed in these areas.	It is considered the elevated level was limited to the immediate vicinity of the short haul route and monitor and not a wider reflection of levels on or beyond the site. Dust suppression remains an integral part of the site management.
AQ049	14/06/2022 15:00-15:59; 216.7 µg/m3	At the time of the trigger there was a queue of Articulated Dumper Trucks on the haul. The temporary delay had meant a build-up of machines which subsequently then restarted. The onsite team also noted that there was excessive dust blown from the neighbouring 3rd party site which has recently been occurring on a regular basis. It is considered that the combination of the two sources is the reason for the isolated trigger. The dust monitor is located behind debris netting and is typically well-swept and damped down (as was on this occasion) as part of a daily regular circuit of all the site haul roads. It is considered that the elevated levels were limited to this location and not representative of the wider site conditions.	Once the machines started again a bowser was immediately redeployed to damp down the area. Subsequent monitored levels dropped and remained low thereafter. The site team will remain vigilant of the need for sweeping and dust suppression and road sweepers will continue to maintain circuits throughout each day. An on-site dust cannon is positioned at the conveyor reception area to damp down material but is occasionally retargeted to limit windblown dust from the neighbouring 3rd party operated land.
AQ049	16/06/2022 13:00- 13:59; 197.6 µg/m3	At the time of the trigger there was the same regular haulage of dump trucks along the haul road to the nearby conveyor reception area. The dust monitor is located behind debris netting.	Subsequent monitored levels dropped and remained low thereafter. The site team will continue to be vigilant

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
		At the time of the trigger and throughout the area was damped down as part of the daily regular circuit of the road sweeper and bowser(s) which occurs along all the site haul roads. Excessive dust blown from the neighbouring 3rd party site was observed before and after the trigger alert. It is considered that this 3rd party source was the reason for the isolated trigger.	and maintain sweeping and dust suppression. The on-site bowsers and road sweepers will continue to maintain circuits of all the internal haul routes. An on-site dust cannon is positioned at the conveyor reception area to damp down material in that location but occasionally retargeted to limit windblown dust from the neighbouring 3rd party operated land.
AQ034	14/06/2022 15:00-15:59; 223.9 µg/m3	Similar to the trigger alert received at the same time from AQ049 further north on the same haul road there was a queue of Articulated Dumper Trucks. A temporary delay had meant a build-up of machines which subsequently then restarted. The haul road is typically well-swept and damped down with a road sweeper and bowser(s) as part of a daily regular circuit of all the site haul roads. Delayed damping down of the haul road which in part caused the AQ049 trigger at the same time.	Once the machines started again a bowser was immediately redeployed to damp down the haul road. Subsequent monitored levels dropped and remained low thereafter. The site team will continue to be vigilant and maintain sweeping and dust suppression in all areas of the site. The on-site bowsers and road sweepers will continue to maintain circuits of all the internal haul routes.
AQ034	15/06/2022 13:00-13:59; 315.7 µg/m3	At the time of the trigger alert there was the same regular haulage of dump trucks along the haul road. It is considered that the haul road experienced a brief drying out in that location. No elevated levels were experienced at AQ049 further along the haul road during the same period and monitored levels before and after were both much lower with the regular circuits of the bowsers and road sweeper.	A review was carried out of the bowser deployment circuits to ensure the haul roads were constantly kept damped down along with ensuring wider dust management practice across the sites were being suitably employed, especially during the continued dry, hot weather.

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



AQ047



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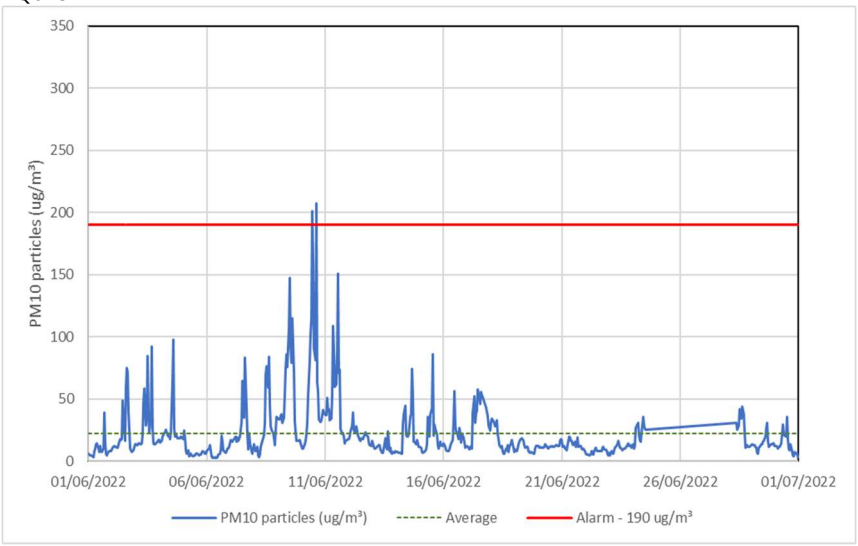

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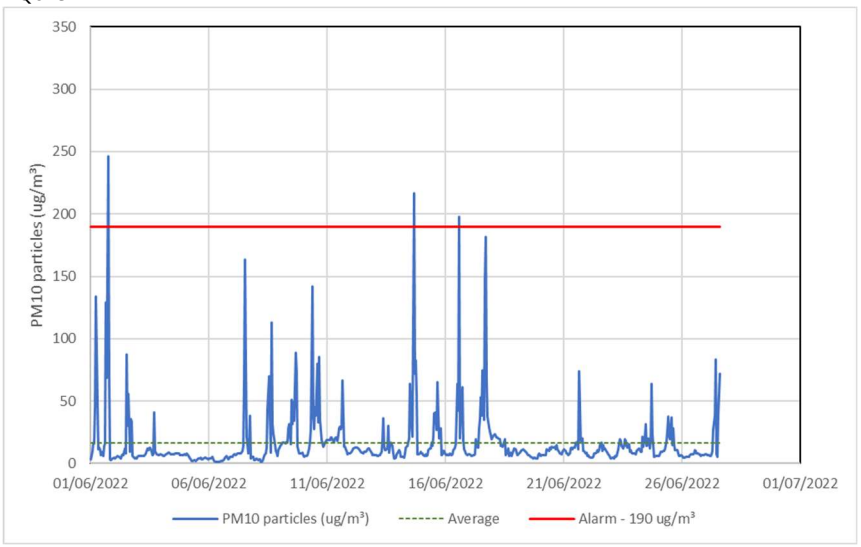
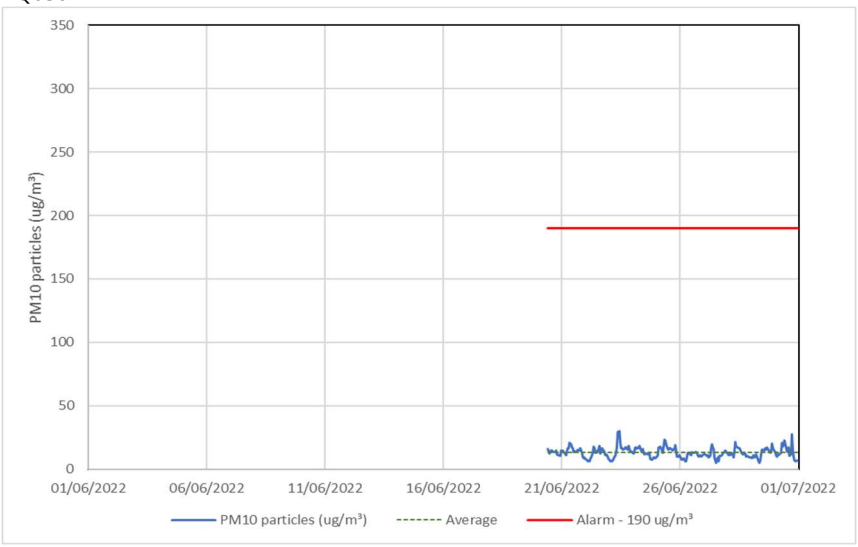
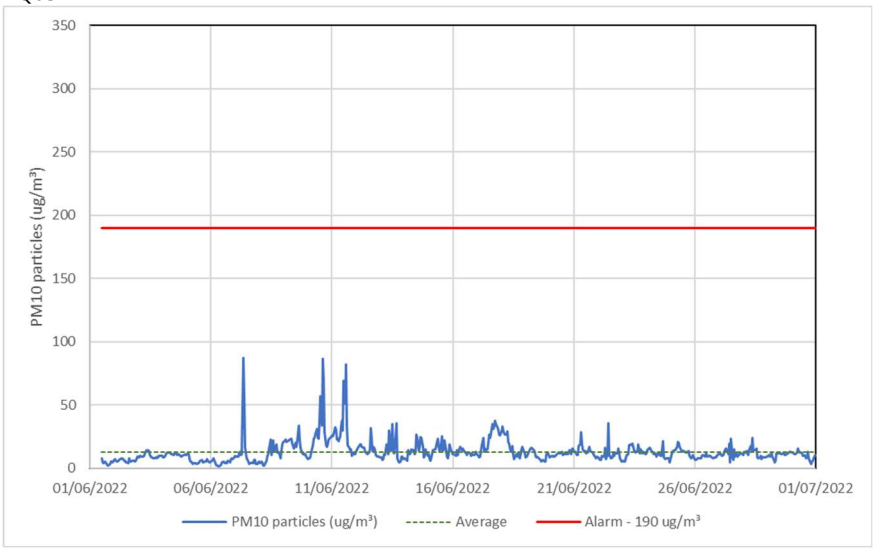


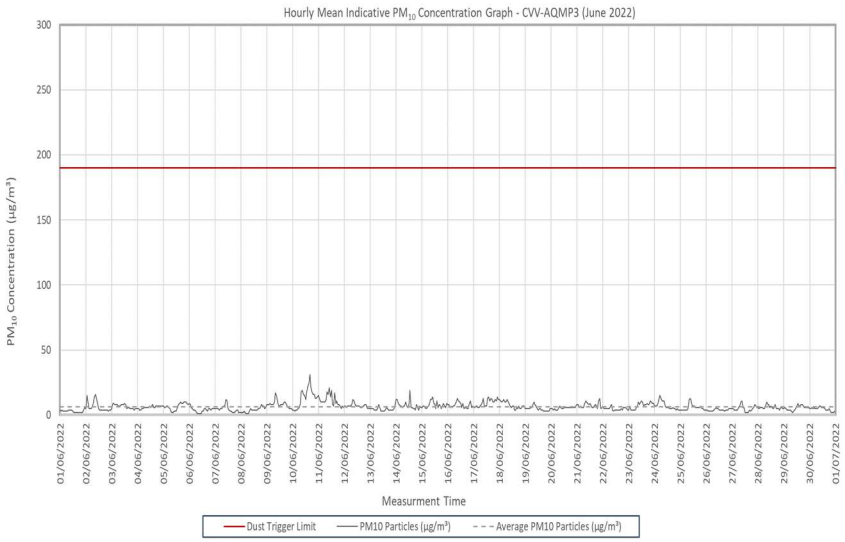
AQ050



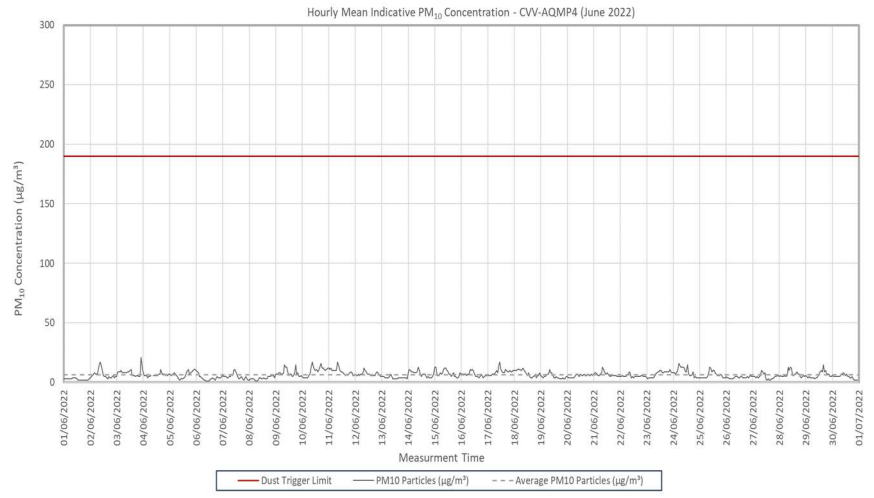
AQ052



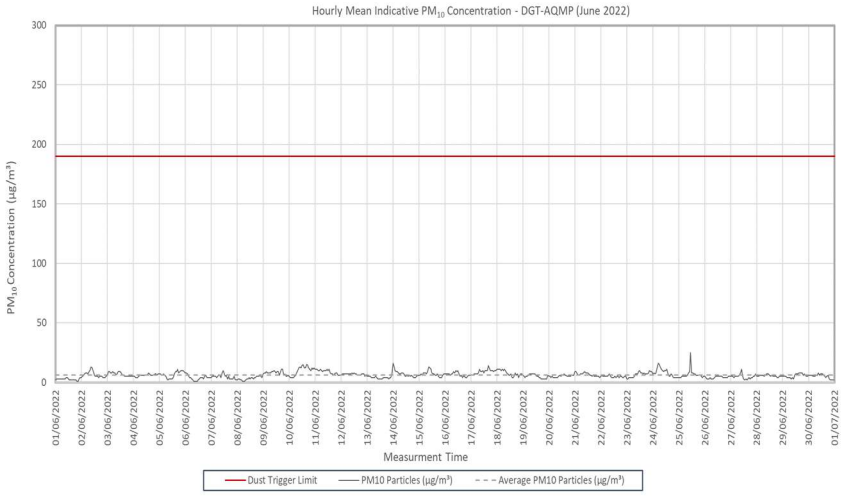
CVV-AQMP3



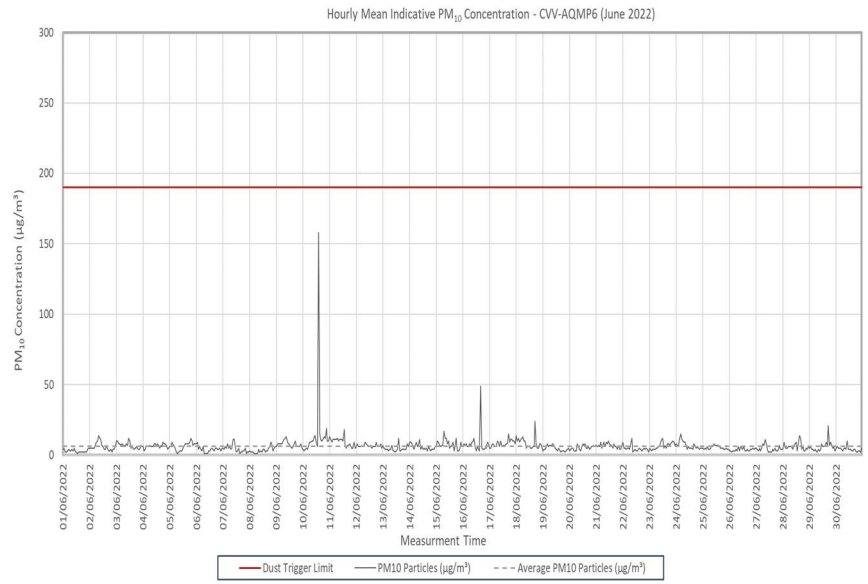
CVV-AQMP4



DGT-AQMP



CVV-AQMP6


Hourly Mean Indicative PM10 Concentration - CVV-AQMP6 (June 2022)
PM10 Concentration (µg/m³)
300
250
200
150
100
50
0
01/06/2022
02/06/2022
03/06/2022
04/06/2022
05/06/2022
06/06/2022
07/06/2022
08/06/2022
09/06/2022
10/06/2022
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24/06/2022
25/06/2022
26/06/2022
27/06/2022
28/06/2022
29/06/2022
30/06/2022
Measurment Time
Dust Trigger Limit
PM10 Particles (µg/m³)
Average PM10 Particles (µg/m³)

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 2022 (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	39	25	33	19	16								26
HS2-000020BNU	Cowley Road sign post at junction with Hillingdon Road	505492, 183926	60	47	49	41	36								47
HS2-000020BNV	High Street sign post at junction with Pembroke Road	509439, 187117	51	Tube Missing	48	35	27								40
HS2-000020BNW	Signpost on A4020 Uxbridge Road at junction with Long Lane	507365, 182687	53	29	60	41	28								42
HS2-000020BPK	Lamp post in crescent off Swakeleys Road	506542, 186037	46	30	40	33	27								35
HS2-000020BPL	Warren Road sign post on corner of Swakeleys Road and Warren Road	506240, 185660	51	40	37	28	31								37
HS2-000020BPN	Lamp post on B467	506767, 186224	47	34	43	30	Tube Missing								39

[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	61	41	40	Tube Missing	No data								47
HS2-000020BQN	Lamp post on Park Road	506176, 185444	53	36	56	40	No data								46
HS2-000020BQP	Sign post on Long Lane	507614, 184663	50	36	56	37	32								42
HS2-000020BP8	Triplicate site at South Ruislip roadside automatic monitoring station	510858, 184916	42	32	45	33	27								36