HS2

June 2021

Construction noise and vibration Monthly Report – April 2021

London Borough of Ealing

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Non-Technical Summary

This Noise and Vibration Monitoring Report fulfils HS2 Limited's commitment detailed in the Environmental Minimum Requirements (EMRs), Annex 1, Code of Construction Practice, to present the results of noise and vibration monitoring carried out within the London Borough of Ealing (LBE) (including one monitoring location on the boundary with the London Borough of Hammersmith and Fulham) during the month of April 2021.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of the Atlas Road worksite (ref. AR) where:
    - construction of concrete slabs and piling platforms, stockpiling, drainage works, excavation works, construction of storage bays, installation of welfare cabins, sheet piling, hoarding works and breaking out of foundations were underway at the main site; and
    - at the Grand Union Canal Bridge steel works and form works, concrete pouring, installation of hoardings and construction of piling platform were underway.
- Noise and vibration monitoring were undertaken in the vicinity of the Willesden EuroTerminal worksite (ref. WET), where construction of concrete walls and slabs, construction of the site haul road, office fit-out, track works, installation of duct and excavation works were underway.
- Noise monitoring was undertaken in the vicinity of the Victoria Road worksite (ref. VRFIC), where:
    - excavation and backfilling works, drainage works, concrete pouring, trial holes, installation of working platforms, construction of foundations, installation of fencing and removal of hoardings, ground preparation works and installation of steel reinforcement and shuttering were underway at the main worksite; and
    - At the Victoria Road Ancillary Shaft, backfilling and excavation works, crane mobilisation, drainage works, construction of muck bin, shaft, walkways and concrete silo where underway.
- Noise monitoring was undertaken in the vicinity of the Flat Iron compound (within worksite ref. VRFIC), where steel laying works and concrete pouring, excavation works and installation of sliding gates were underway.
- Noise and vibration monitoring were undertaken in proximity of the Old Oak Common depot worksite (ref. OOC), where polymer plant installation, preparation works for the batching plant silos and site accommodation, drainage works, sheet piling, concrete finishing works, and installation of geogrid were underway.
- Noise monitoring was undertaken in proximity of the Mandeville Road Badminton Close compound (ref. BC Compound), where site preparation works, including construction of sheet piling platform, installation of hoarding, fence and site walkways were underway.

- Noise and vibration monitoring were undertaken in proximity of the Green Park Way Ventilation Shaft worksite (ref. GPWVS), where general housekeeping, installation of ducts, construction of concrete slab, working platforms and site haul roads, excavation works, trial holes, breakout concrete, drainage works, construction of sliding gate, installation of hoardings, utility connection and pressure test on water piping system were underway.
- Noise monitoring was undertaken in proximity of the Westgate Ventilation Shaft (ref. WVS), where concrete works, asphalting works, excavation works, installation of generators, construction of piling platforms, installation of hoardings and construction of security gate were underway.

Further works, where monitoring was not undertaken, were also underway at:

- School Road, Bethune Road, Chase Road, Victoria Road, Atlas Road as part of power utility works.
- Horsenden Lane, Perivale as part of water utility works.

There were no exceedances of the HS2 threshold levels for significant noise impacts, which are defined in Information Paper E23 (https://www.gov.uk/government/publications/hs2-information-papers-environment), during the reporting period.

There were no exceedances of trigger levels as defined in Section 61 consents during the reporting period at any monitoring position.

Nine complaints were received during the monitoring period. A description of complaints, the results of investigation and any actions taken are detailed in Table 7 of this report.

Abbreviations and Descriptions

The abbreviations, descriptions and project terminology used within this report can be found in Table 1.

Table 1: Table of Abbreviations

Acronym/Term	Definition
$L_{Aeq,T}$	See equivalent continuous sound pressure level
Ambient sound	A description of the all-encompassing sound at a given location and time which will include sound from many sources near and far. Ambient sound can be quantified in terms of the equivalent continuous sound pressure level, $L_{pAeq,T}$
Decibel(s), or dB	Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal (Pa)). Because of this wide range, a level scale called the decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement. Audibility of sound covers a range of approximately 0-140dB.
Decibel(s) A-weighted, or dB(A)	The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and is written as 'dB(A)'.
Equivalent continuous sound pressure level, or $L_{Aeq,T}$	An index used internationally for the assessment of environmental sound impacts. It is defined as the notional unchanging level that would, over a given period of time (T), deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating sound levels can be described in terms of an equivalent single figure value, typically expressed as a decibel level.
Exclusion of data	Measurement of noise levels can be affected by weather conditions such as prolonged periods of rain, winds speeds higher than 5m/s and snow/ice ground cover. Noise levels measured during these periods are considered not representative of normal noise conditions at the site and, for the purposes of this report, are excluded from the assessment of exceedances and calculation of typical noise levels and are also greyed out in charts. Identifiable incongruous noise and vibration events not attributable to HS2 construction noise are also excluded.
Façade	A facade noise level is the noise level 1m in front of a large reflecting surface. The effect of reflection, is to produce a slightly higher (typically +2.5 to +3 dB) sound level than it would be if the reflecting surface was not there.
Free-field	A free-field noise level is the noise level measured at a location where no reflective surfaces, other than the ground, lies within 3.5 metres of the microphone position.
LOAEL	Lowest Observed Adverse Effect Level - the level above which adverse effects on health and quality of life can be detected.
Peak particle velocity, or PPV	Instantaneous maximum velocity reached by a vibrating element as it oscillates about its rest position. The PPV is a simple indicator of perceptibility and risk of damage to structures due to vibration. It is usually measured in mm/s.
SOAEL	Significant Observed Adverse Effect Level - the level above which significant adverse effects on health and quality of life occur.
Sound pressure level	The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dB at a distance of 1 metre and a change of 3dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10dB is subjectively twice, or half, as loud.
Vibration dose value, or VDV	An index used to evaluate human exposure to vibration in buildings. While the PPV provides information regarding the magnitude of single vibration events, the VDV provides a measure of the total vibration experienced over a specified period of time (typically 16h daytime and 8h night-time). It takes into account the magnitude, the number and the duration of vibration events and can be used to quantify exposure to continuous, impulsive, occasional and intermittent vibration. The vibration dose value is measured in $m/s^{1.75}$.

1 Introduction

1.1.1 HS2 is required to undertake noise (and vibration) monitoring as necessary to comply with the requirements of the High Speed Rail (London-West Midlands) Environmental Minimum Requirements, including specifically Annex 1: Code of Construction Practice, in addition to any monitoring requirements arising from conditions imposed through consents under Section 61 of the Control of Pollution Act, 1974 or through Undertakings & Assurances given to third parties. Such monitoring may be undertaken for the following purposes:

- monitoring the impact of construction works;
- to investigate complaints, incidents and exceedance of trigger levels; or
- monitoring the effectiveness of noise and vibration control measures.

1.1.2 Monitoring data and interpretive reports are to be provided to each relevant local authority on a monthly basis and shall include a summary of the construction activities occurring, the data recorded over the monitoring period, any complaints received, any periods in exceedance of agreed trigger levels, the results of any investigations and any actions taken or mitigation measures implemented. This report provides noise data, and interpretation thereof, for monitoring carried out by HS2 within the London Borough of Ealing (LBE) (including one monitoring location on the boundary with the London Borough of Hammersmith and Fulham) during the month for the period 1st to 30th April 2021.

1.1.3 Active construction sites in the local authority area, where noise and vibration monitoring were conducted during this period, include:

- Atlas Road worksite, ref. AR (see plan 5 in Appendix A), where work activities included:
  - Construction of concrete slabs and piling platforms;
  - Stockpiling;
  - Drainage works, including removal of obstructions along the drainage routes, excavation and installation of trench, installation of carrier pipe, backfilling and removal of trench boxes;
  - Removal of road surface and excavation works;
  - Construction of storage bays;
  - Installation of welfare cabins and fit-out, exterior staircase, safety boundary railings and utility connections;
  - Steel sheet piling;

- Hoarding realignment and gate replacement works;
- Breaking out of gate foundations; and
- At the Grand Union Canal Bridge (GUC), steel work and form works for ballast wall and ramp, concrete pouring, installation of hoardings and construction of piling platform were underway.

- Willesden EuroTerminal worksite, ref. WET (see plan 5 in Appendix A), where work activities included:
  - Construction of concrete walls and slabs;
  - Construction of the site haul roads, including excavation, placement and compaction of the sub-base and surfacing;
  - Office fit-out works;
  - Track works, including installation of tracks and track maintenance; and
  - Installation of duct and excavation of foundations.
- Victoria Road worksite, ref. VRFIC (see plan 6 in Appendix A), where work activities included:
  - Excavation and backfilling works;
  - Installation of kerbs and excavation of ducts along haul road;
  - Drainage works, including installation of drainage runs, excavation for pipe runs and concrete pours for manholes bases;
  - Construction of muck bin, including compaction of aggregate in the muck bin bay, installation of precast units and placement of shutters;
  - Construction of piling platform, including cutting of steel and installation of form work;
  - Trial holes;
  - Construction of bentonite plant, including scraping and levelling of bentonite plant area and excavation for strip foundations, construction of foundations;
  - Installation of working platforms;
  - Installation of fencing and removal of hoardings;
  - Preparation of welfare area, including ground preparation construction of concrete slab, drainage works and installation of steel reinforcement and shuttering for strip foundation; and
  - At the Victoria Road Ancillary Shaft, backfilling works, construction of crane platform and crane mobilisation, drainage works (including excavations,

installation of manholes, construction of sump and installation of ducts), construction of muck bin, construction of shaft (including delivery, lining, trimming and grouting of ring segments, bulk excavations, installation of water ducts, compressor and water tank), construction of site walkways and construction of concrete silo were underway.

- Flat Iron compound, within worksite ref. VRFIC (see plan 6 in Appendix A), where work activities included:
  - Steel laying works and concrete pouring;
  - Excavation of pad foundations and slip trenches;
  - Excavation for street lighting installation; and
  - Installation of sliding gates.
- Old Oak Common depot worksite, located in the London Borough of Hammersmith and Fulham (LBHF), ref. OOC (see plan 7 in Appendix A), where work activities included:
  - Cranes mobilisation activities;
  - Polymer plant installation works;
  - Drainage works;
  - Sheet piling;
  - Concrete finishing works in the batching plant area;
  - Preparation of the slab for the batching plant silos;
  - Preparation works for permanent site accommodation; and
  - Installation of geogrid for piling mat.
- Mandeville Road Ventilation Shaft worksite, reference MRVS (see plan 1 in Appendix A), where work activities included:
  - Site preparation works, including construction of sheet piling platform, installation of hoarding, installation of site walkways and of debris fence.
- Green Park Way Ventilation Shaft worksite, reference GPWVS (see plan 2 in Appendix A), where work activities included:
  - General site housekeeping works;
  - Installation of water and electrical ducts;
  - Construction of concrete slab for substation;
  - Excavation works;

- Trial holes;
- Construction of working platforms and site haul roads;
- Breakout of concrete;
- Drainage works, including installation of catchpit and manhole rings, installation of concrete base and filter;
- Construction of sliding gate including excavation, levelling, and construction of concrete foundations;
- Installation of hoarding;
- Utility connections; and
- Pressure test on water piping system.

- Westgate Ventilation Shaft worksite, reference WVS (see plan 3 in Appendix A), where work activities included:
  - Concrete works for the welfare foundations;
  - Asphalting works;
  - Excavation works;
  - Installation of generators;
  - Construction of piling platforms;
  - Installation of hoardings; and
  - Construction of security gate.

1.1.4 Further works, where monitoring did not take place, were undertaken at:

- School Road, Bethune Road, Chase Road, Victoria Road, Atlas Road as part of power utility works.
- Horsenden Lane, Perivale, as part of water utility works.

1.1.5 The applicable standards, guidance, and monitoring methodology is outlined in the construction noise and vibration monitoring methodology report which can be found at the following location https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2. Noise and vibration monitoring reports for previous months can also be found at this location.

1.2 Measurement Locations

1.2.1 Nineteen noise and nine vibration monitoring installations were active in April 2021 in the LBE area. Table 2 summarises the position of noise and vibration monitoring installations within the LBE area in April 2021.

1.2.2 An additional noise monitor (N062) was installed at the Westgate Ventilation Shaft, worksite ref. WVS, on the 16th of April.

1.2.3 An additional vibration monitor (V057) was installed at 37, Stephenson Street, worksite ref. WET, on the 16th of April.

1.2.4 Two additional noise monitors (N058 and N063) and two additional vibration monitors (V055 and V056) were installed at Mandeville Road, worksite ref. MRVS. The noise monitor N058 was installed on the 13th of April, the noise monitor N063 on the 29th of April and the vibration monitors V055 and V056 on the 15th of April.

1.2.5 An additional noise monitor (N064) and an additional vibration monitor (V054) were installed at Green Park Way Ventilation Shaft, worksite ref. GPWVS, on the 16th and on the 15th of April respectively.

1.2.6 An additional vibration monitor (OOC-V03) was installed at Wells House Road, worksite ref. OOC, on the 27th of April.

1.2.7 The vibration monitor at measurement location V053, worksite ref. GPWVS, has been relocated on the 13th of April to a more representative location along Green Park Way, as agreed with LBE.

1.2.8 Maps showing the position of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
AR	N032	Shaftesbury Gardens
	N033	Outside The Collective, Atlas Road / Victoria Road
	N060	Atlas Road next to Bashey Road
WET	N034	Stephenson Street (north)
	N035	Stephenson Street (south)
	N041	Junction of Stephenson Street / Goodhall Street
	V052	Stephenson Street (north)

Worksite Reference	Measurement Reference	Address
	V057	37, Stephenson Street
VRFIC	N029	Braitrim House, Victoria Road
	N042	Boden House Car Park
	N031	School Road, outside Acton Business Centre
	N049	Flat Iron compound railway fence, Victoria Rd North Acton
	N050	Acton Square, outside North Acton Station
OOC	OOC-N01	Old Oak Common Lane
	OOC-N02	Old Oak Common Lane, Hilltop Works
	OOC-V01	25 Wells House Road
	OOC-V02	Kildun Court, Old Oak Common Lane
	OOC-V03	Wells House Road Alleyway
MRVS	N040	Badminton Close
	N058	Mandeville Road
	N063	Mandeville Road
	V055	Mandeville Road
	V056	Mandeville Road
GPWVS	N059	Green Park Way Ventilation Shaft
	N064	Green Park Way Ventilation Shaft
	V053-old	Green Park Way Ventilation Shaft
	V053	Green Park Way, Greenford
	V054	Green Park Way Ventilation Shaft
WVS	N062	Westgate Ventilation Shaft

2 Summary of Results

2.1 Summary of Measured Noise and Vibration Levels

2.1.1 Table 3 presents a summary of the measured noise levels at each monitoring location over the reporting period. The $L_{Aeq,T}$ is presented for each of the relevant time periods averaged over the calendar month, along with the highest single period $L_{Aeq,T}$ that was found to occur within the month.

Table 3: Summary of Measured dB L_{Aeq} Data over the Monitoring Period

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade measurement	Weekday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
AR	N032	Shaftesbury Gardens	Free-field	63.1 (64.2)	65.9 (67.3)	63.5 (64.7)	62.1 (66.1)	59.1 (68.0)	61.5 (63.9)	64.3 (65.8)	62.5 (62.8)	62.6 (66.9)	58.0 (60.8)	61.8 (69.4)	58.5 (63.7)
	N033	Outside The Collective, Atlas Road/Victoria Road	Free-field	65.5 (66.9)	67.1 (74.6)	64.6 (77.0)	63.9 (76.5)	60.1 (66.4)	62.9 (63.7)	64.0 (64.8)	64.2 (66.2)	63.1 (65.9)	59.5 (67.9)	62.7 (69.0)	59.6 (66.2)
	N060	Atlas Road next to Bashey Road	Façade	55.7 (62.4)	71.4 (86.4)	56.8 (68.8)	55.3 (64.9)	54.4 (69.6)	57.9 (67.1)	62.8 (68.9)	52.3 (58.3)	51.7 (56.1)	47.8 (52.5)	52.5 (64.7)	52.8 (60.1)
WET	N034	Stephenson Street (north)	Free-field	53.0 (55.4)	55.9 (58.4)	53.2 (60.5)	51.9 (56.6)	47.2 (55.5)	50.4 (53.2)	55.1 (60.8)	52.5 (55.5)	53.5 (59.3)	44.0 (51.1)	52.0 (58.1)	46.9 (54.5)
	N035	Stephenson Street (south)	Free-field	55.5 (61.6)	58.9 (65.6)	51.6 (55.7)	50.1 (55.3)	47.1 (55.0)	51.0 (55.9)	55.4 (59.0)	50.9 (53.9)	51.5 (55.5)	45.4 (54.7)	50.1 (55.1)	47.7 (55.2)
	N041	Junction of Stephenson Street/Goodhall Street	Free-field	55.3 (59.2)	57.2 (61.8)	54.8 (59.7)	54.6 (59.7)	49.0 (61.9)	53.2 (54.3)	56.0 (59.5)	60.9 (72.9)	55.9 (60.9)	47.3 (53.0)	53.4 (57.6)	50.4 (60.4)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade measurement	Weekday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
VRFIC	N029	Braitrim House, Victoria Road	Free-field	52.4 (61.4)	57.4 (60.0)	53.9 (62.8)	52.7 (65.0)	52.3 (63.0)	49.8 (53.1)	52.7 (56.6)	51.5 (54.2)	50.4 (53.9)	46.0 (55.8)	51.6 (63.8)	51.2 (60.2)
	N042	Bodens car park	Free-field	56.5 (63.0)	61.2 (64.9)	53.5 (55.9)	52.3 (56.8)	50.1 (55.8)	54.7 (59.0)	60.0 (63.7)	52.9 (55.6)	52.8 (57.4)	47.9 (51.4)	51.9 (58.6)	50.0 (60.4)
	N031	School Road, outside Acton Business Centre	Free-field	55.8 (59.5)	62.8 (65.8)	57.0 (65.4)	54.8 (60.4)	50.7 (59.6)	53.8 (59.4)	59.5 (62.3)	54.5 (56.9)	54.6 (58.4)	49.1 (57.9)	52.6 (58.1)	50.2 (56.0)
	N049	Flat Iron compound	Free-field	55.3 (61.5)	63.6 (70.5)	56.1 (61.9)	55.4 (67.9)	56.2 (65.8)	55.5 (57.2)	56.1 (57.6)	53.3 (60.0)	52.5 (56.6)	49.9 (58.8)	52.5 (59.6)	54.8 (62.7)
	N050	Acton Square, outside North Acton Station	Free-field	64.1 (68.1)	63.6 (65.3)	62.7 (64.3)	62.3 (65.3)	58.8 (70.4)	65.1 (66.9)	62.2 (62.8)	62.3 (62.9)	61.9 (63.9)	57.3 (62.6)	61.7 (66.5)	56.9 (60.8)
OOC	OOC-N01	Old Oak Common Lane	Free-field	64.3 (66.4)	68.9 (71.3)	61.4 (65.6)	59.4 (69.9)	56.5 (64.4)	60.3 (65.6)	62.2 (70.2)	58.5 (59.8)	59.0 (62.9)	57.2 (63.5)	59.1 (64.4)	57.4 (64.3)
	OOC-N02	Old Oak Common Lane, Hilltop Works	Free-field	66.7 (69.2)	69.3 (71.3)	67.3 (69.2)	66.0 (71.6)	61.3 (67.2)	64.5 (66.5)	64.9 (65.9)	67.2 (71.9)	66.3 (74.2)	60.1 (64.4)	64.9 (71.2)	60.2 (65.2)
MRVS	N040	Badminton Close	Free-field	53.9 (58.4)	54.4 (56.5)	52.4 (55.5)	52.4 (55.4)	50.5 (57.6)	51.7 (52.4)	52.4 (53.2)	50.4 (51.2)	53.6 (62.0)	49.6 (54.1)	53.1 (63.3)	50.3 (54.6)
	N058*	Mandeville Road	Free-field	55.1 (55.1)	63.5 (70.3)	54.1 (55.7)	54.7 (56.4)	52.2 (55.8)	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A
	N063**	Mandeville Road	Free-field	60.8 (60.8)	63.9 (64.1)	59.5 (59.5)	61.4 (62.3)	59.0 (61.2)	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade measurement	Weekday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (highest day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
GPWVS	N059	Green Park Way Ventilation Shaft	Façade	56.4	63.0	53.9	54.9	50.9	56.1	59.8	56.2	53.9	48.0	54.6	52.8
				(61.6)	(67.4)	(57.7)	(66.3)	(56.5)	(66.7)	(62.8)	(61.0)	(61.7)	(55.8)	(64.4)	(59.6)
	N064	Green Park Way Ventilation Shaft	Façade	53.9	57.3	53.1	52.8	50.3	54.2	54.3	54.6	52.7	48.6	52.1	48.7
				(55.4)	(61.3)	(56.0)	(54.9)	(55.5)	(55.0)	(54.7)	(54.8)	(55.2)	(52.0)	(54.6)	(55.7)
WVS	N062	Westgate Ventilation Shaft	Free-field	57.2	59.6	58.1	58.0	59.2	60.7	55.8	60.1	56.5	58.2	54.3	58.3
				(58.2)	(62.7)	(64.1)	(60.1)	(66.2)	(60.7)	(55.8)	(60.1)	(58.6)	(59.5)	(58.8)	(59.5)

*Noise monitor N058 was installed at 12:00 on Tuesday 13th April. Due to installation late in the month and power loss at the monitor location, data were recorded only for certain time periods at this position.

**Noise monitor N063 was installed at 15:00 on Thursday 29th April. Due to installation late in the month data were recorded only for certain time periods at this position.

2.1.2 Table 4 presents a summary of the measured vibration levels at each monitoring location over the reporting period. The highest PPV measured during the monitoring along any axis is presented in the table.

Table 4: Summary of Measured PPV Data over the Monitoring Period

Worksite Reference	Measurement Reference	Monitor Address	Highest PPV measured in any axis, mm/s
WET	V052	Stephenson Street (north)	2.41 (Z-axis)
	V057	37, Stephenson Street	0.68 (Z-axis)
OOC	OOC-V01	25 Wells House Road	1.27 (Y-axis)
	OOC-V02	Kildun Court, Old Oak Common Lane	1.15 (Z-axis)
	OOC-V03	Wells House Road Alleyway	0.42 (Y-axis)
GPWVS	V053-old	Green Park Way Ventilation Shaft	4.37 (Y-axis)
	V053	Green Park Way, Greenford	1.57 (Z-axis)
	V054	Green Park Way Ventilation Shaft	1.25 (Z-axis)
MRVS	V055	Mandeville Road	9.77* (Z-axis)
	V056	Mandeville Road	5.90 (Z-axis)

* High vibration levels are due to the proximity of the construction activities to the vibration monitor. The nearest residential receptors are further away from the works and vibration levels at the receptor will therefore be lower.

2.1.3 Appendix C presents graphs of the noise and vibration monitoring data over the month for each of the measurement locations. Noise data presented consists of the hourly L_{Aeq} values and, where relevant, the $L_{Aeq,T}$ values (where the time period T has been taken to be the averaging period as specified in Table 1 of HS2 Information Paper E23). Vibration data presented consist of hourly PPV values. The full data set for the monitoring equipment can be found at the following location: https://data.gov.uk/dataset/24542ae7-dd44-444f-b259-871c4cc43b5e/environmental-monitoring-data.

2.2 Exceedances of the SOAEL

2.2.1 The significant observed adverse effect level (SOAEL) is defined in the 'Planning Practice Guidance – Noise' as the level above which "noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area."

2.2.2 HS2 Phase One Information Paper E23: Control of Construction Noise and Vibration sets out the SOAELs for construction noise.

2.2.3 Where reported construction noise levels exceed the SOAEL, relevant periods will be identified. Summary statistics to evaluate ongoing qualification for noise insulation and temporary rehousing are also presented where relevant.

2.2.4 Table 5 presents a summary of recorded exceedances of the SOAEL at each measurement location over the reporting period, including the number of exceedances during each time period.

Table 5: Summary of Exceedances of SOAEL

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of SOAEL
AR	N032	Shaftesbury Gardens	All days	All periods	No exceedance
	N033	Outside The Collective, Atlas Road / Victoria Road	All days	All periods	No exceedance
	N060	Atlas Road next to Bashey Road	All days	All periods	No exceedance*
WET	N034	Stephenson Street (north)	All days	All periods	No exceedance
	N035	Stephenson Street (south)	All days	All periods	No exceedance
	N041	Junction of Stephenson Street / Goodhall Street	All days	All periods	No exceedance
VRFIC	N029	Braitrim House, Victoria Road	All days	All periods	No exceedance
	N042	Bodens Car Park	All days	All periods	No exceedance
	N031	School Road, outside Acton Business Centre	All days	All periods	Not applicable**
	N049	Flat Iron compound	All days	All periods	No exceedance
	N050	Acton Square, outside North Acton Station	All days	All periods	No exceedance
OOC	OOC-N01	Old Oak Common Lane	All days	All periods	No exceedance
	OOC-N02	Old Oak Common Lane, Hilltop Works	All days	All periods	No exceedance

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of SOAEL
MRVS	N040	Badminton Close	All days	All periods	No exceedance
	N058	Mandeville Road	All days	All periods	No exceedance
	N063	Mandeville Road	All days	All periods	No exceedance
GPWVS	N059	Green Park Way Ventilation Shaft	All days	All periods	Not applicable**
	N064	Green Park Way Ventilation Shaft	All days	All periods	Not applicable**
WVS	N062	Westgate Ventilation Shaft	All days	All periods	Not applicable**

* A distance correction has been applied when calculating exceedances of the SOAEL.

** The defined SOAEL criteria are not applicable to non-residential properties.

2.2.5 No exceedances of the SOAEL were recorded due to HS2 construction works during April 2021.

2.3 Exceedances of Trigger Level

2.3.1 Table 6 provides a summary of exceedances of the Section 61 trigger noise levels determined to be due to HS2 related construction noise measured during the reporting period, along with the findings of any investigation.

Table 6: Summary of Exceedances of Trigger Levels

Complaint Reference Number (if applicable)	Worksite Reference	Date and Time Period	Identified Source	Results of Investigation (including noise monitoring results)	Actions Taken
-	-	-	-	-	-

2.4 Complaints

2.4.1 Table 7 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

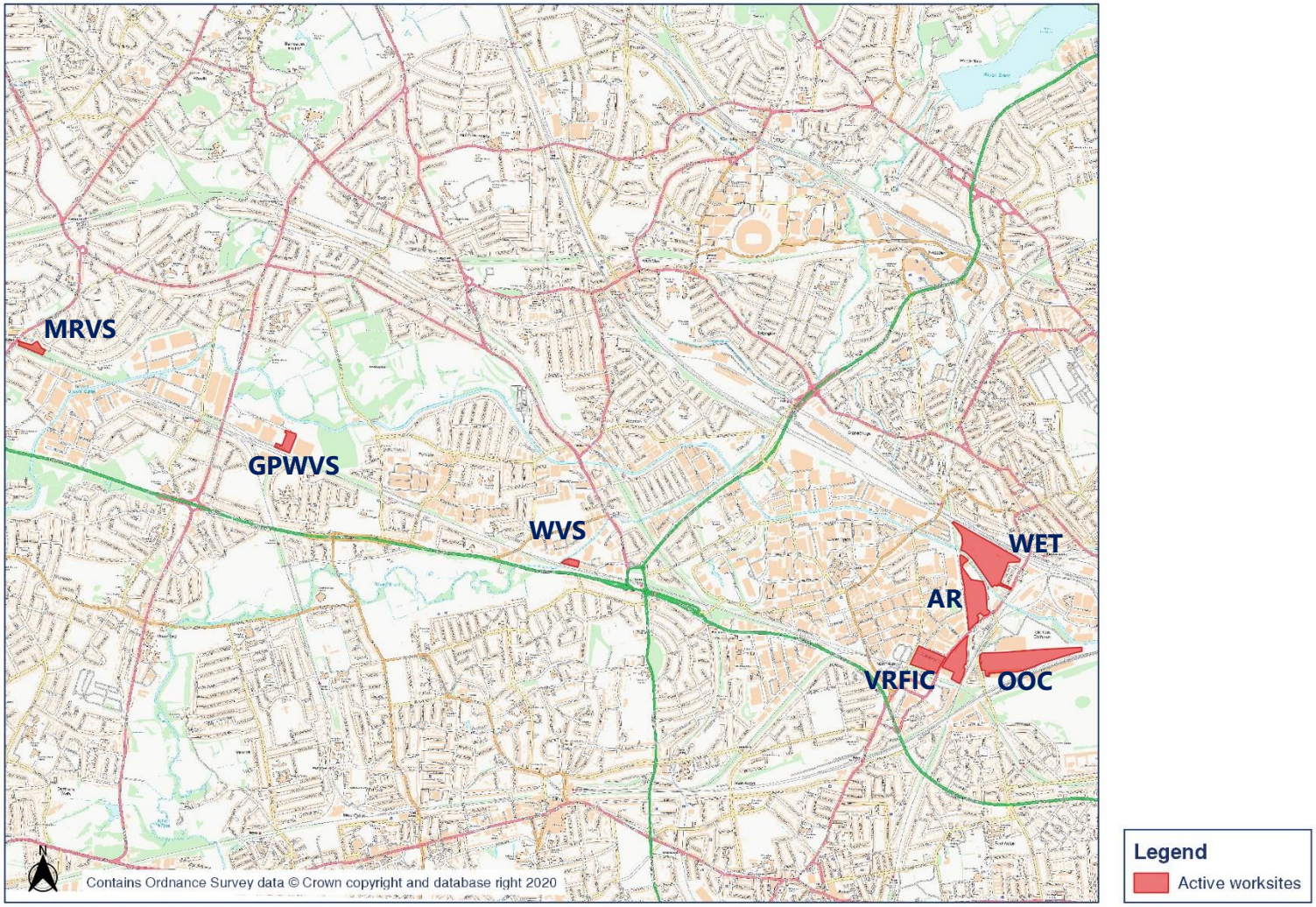
Table 7: Summary of Complaints

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-21-41796-C HS2-21-41758-C	OOC	Complaint due to noise from people shouting and lorries beeping at the site entrance.	Investigation confirmed that horns have been used at the site entrance.	Drivers and traffic marshals have been re-briefed to advise that horns should only be used in the event of necessity for safety reason. The workforce has been re-briefed on keeping an appropriate conduct in order to limit the noise on site.
HS2-21-41692-C HS2-21-41687-C	OOC	Complaint due to noise and vibration from the site.	A compactor was in use on the piling platform in the North-West part of the site and it is likely to be the cause of the noise and vibration levels. However, works were undertaken in line with the Section 61 consent and Best Practicable Means (BPM) were applied.	Residents have been contacted and updated on findings of investigation. Eligible properties have already been offered noise insulation in line with HS2 policy.

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-21-41765-C	OOC	Complaint due to vibration levels felt in the property by resident.	Investigation shown that vibrations levels were likely due to compactor being used for two weeks. However, works were undertaken in line with the Section 61 consent and Best Practicable Means (BPM) were applied.	The complainant has been contacted and updated on findings of investigation.
HS2-21-41689-C HS2-21-59074-E-C	N/A	Complaint due to noise from site from early morning onwards.	Investigations shown that no works related with HS2 were undertaken at the time of the complaint.	The complainant has been contacted and updated on findings of investigation.
HS2-21-41815-C	WET	Complaint due to vibration levels during the day.	Investigations shown that the cause was a roller accidentally started up in a vibratory mode by new driver.	Site engineers have immediately stopped the roller when they felt the vibrator in operation. The new driver has been briefed on correct procedure. Site engineers have contacted the complainant and information has been provided.
HS2-21-41862-C	N/A	Complaint due to vibration levels during the day.	Investigations shown that the cause of the vibration levels was a trial arranged with residents in Stephenson Street and not actual construction works.	The complainant has been contacted and updated on findings of investigation.
HS2-21-41833-C	AR	Complaint due to noise and vibrations from land bordering travellers site.	On-going.	On-going.
HS2-21-57838-E	AR	Complaint due to vibration levels.	Investigations shown that works were undertaken in line with the Section 61 consent.	The complainant has been contacted and reassured about the preparation works carried out to minimise the vibration impacts.

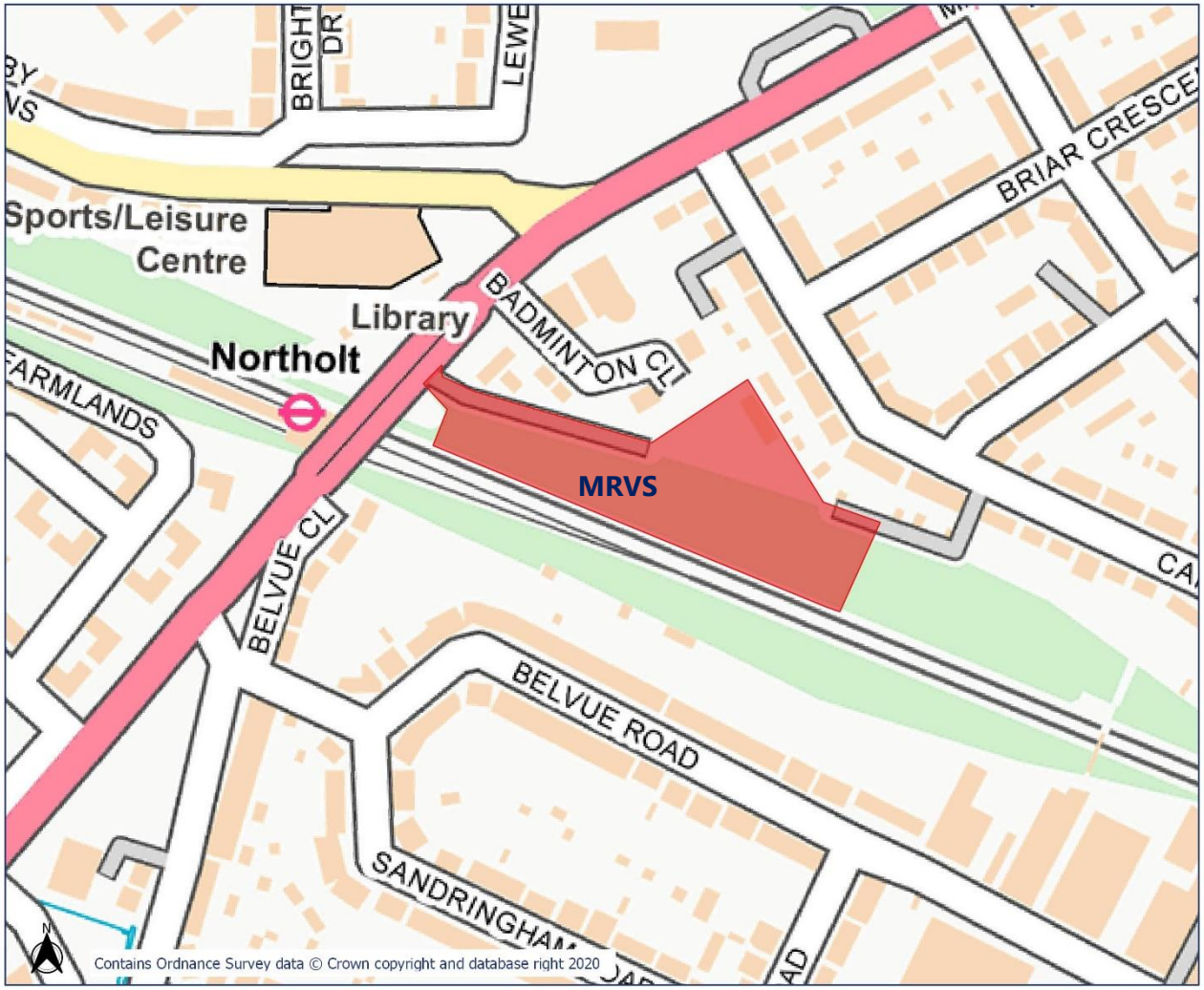
Appendix A Site Locations

Worksite identification plan - Overview

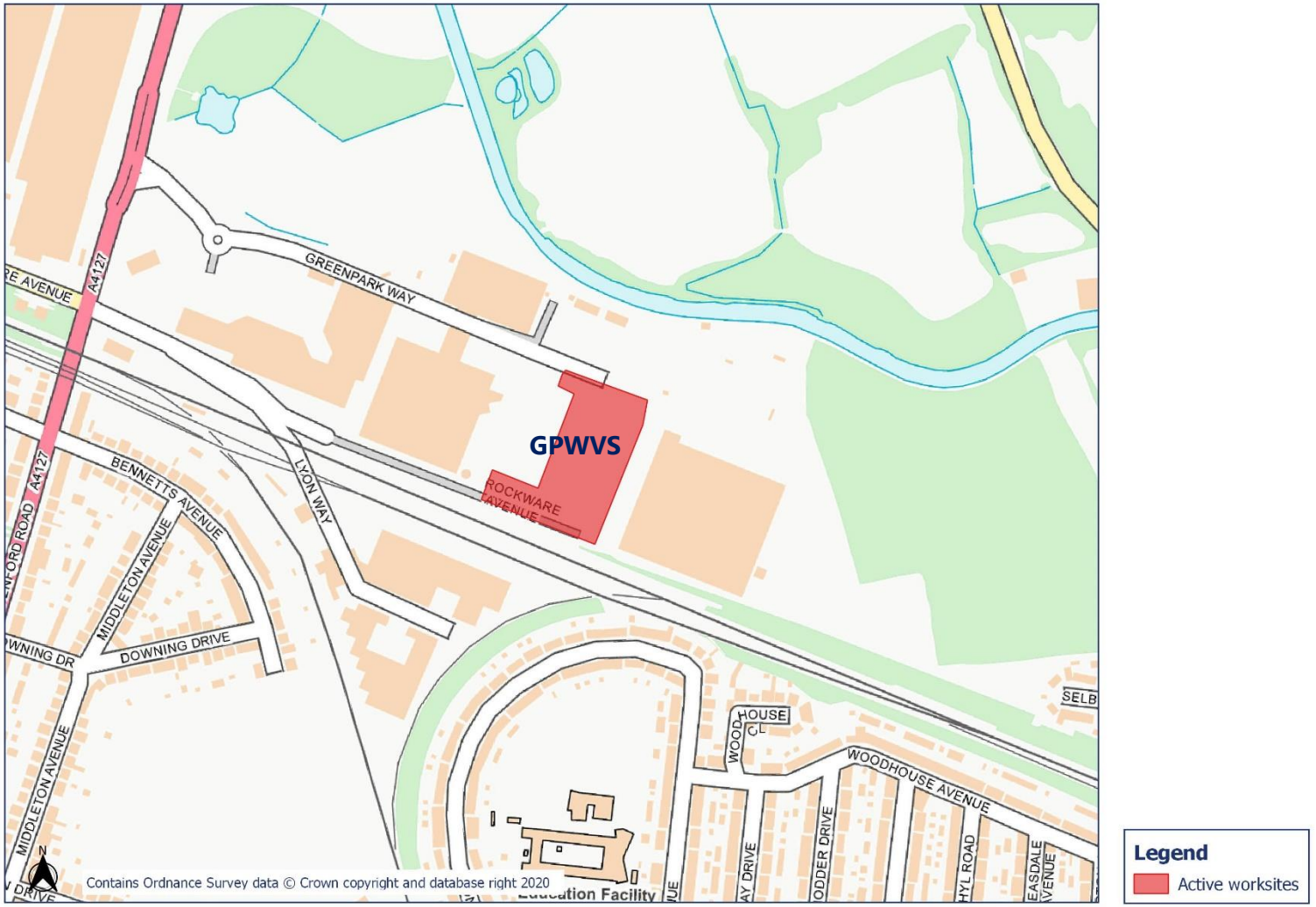


HS2

Worksite identification plan - 1

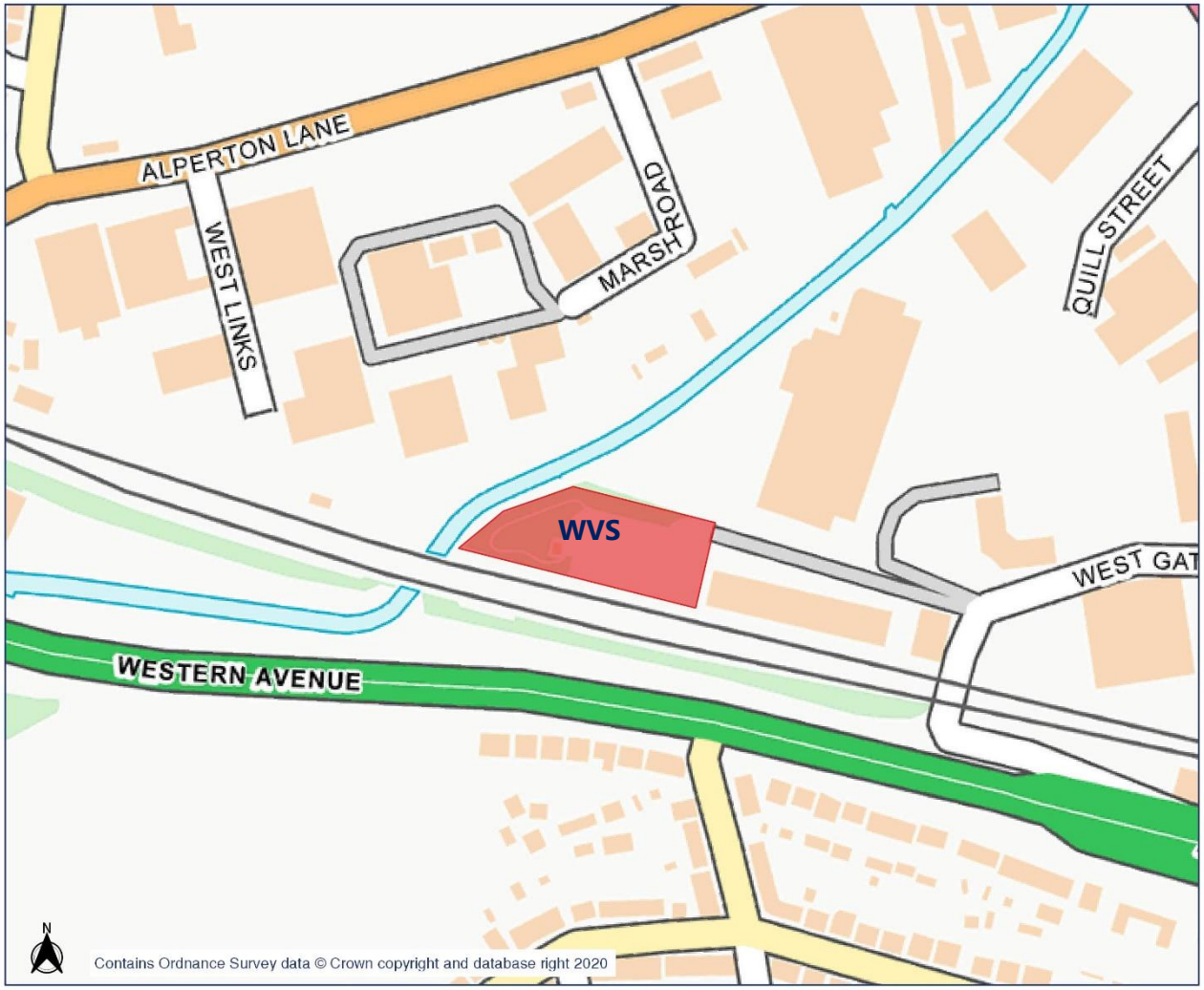


Worksite identification plan - 2

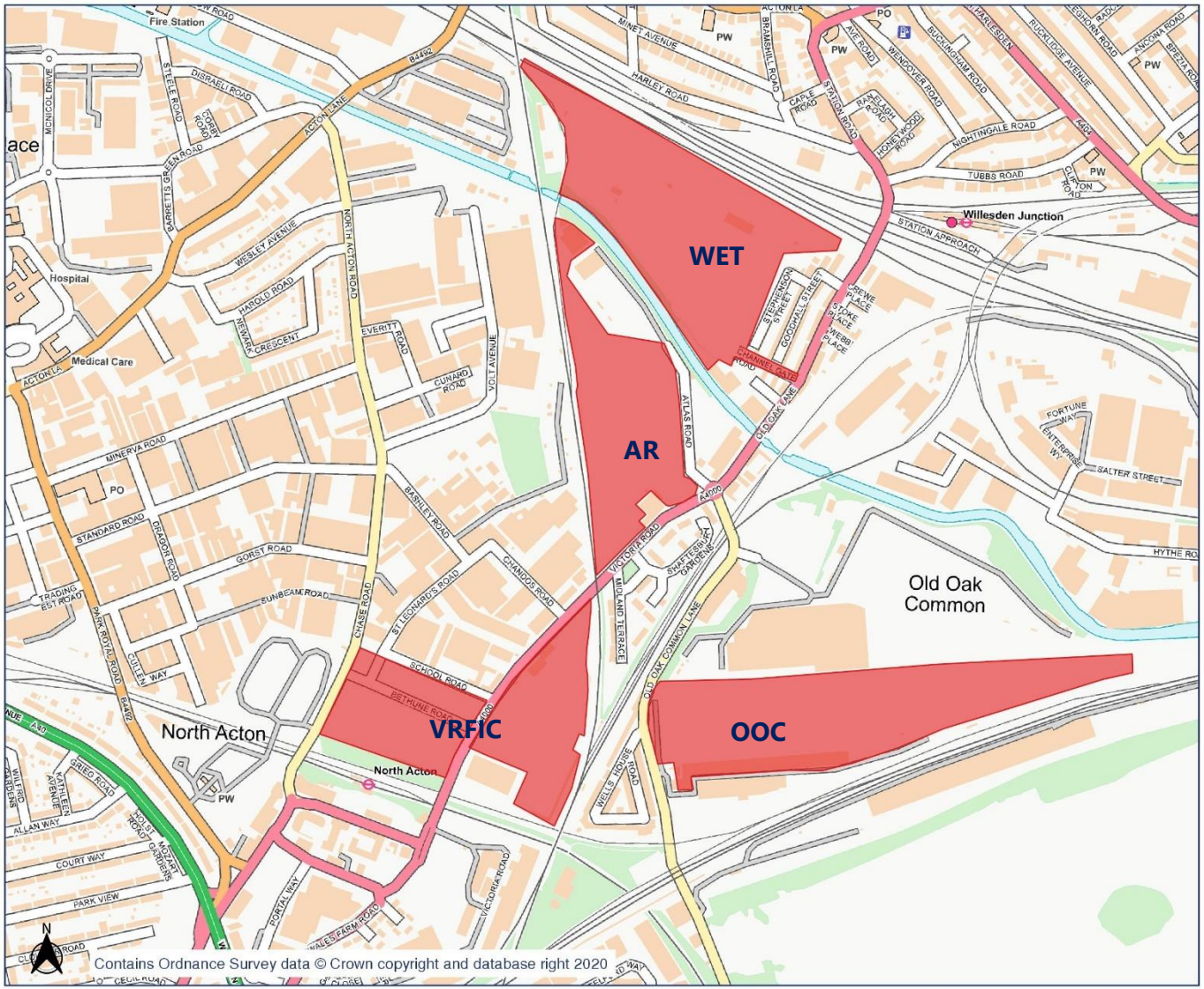


HS2

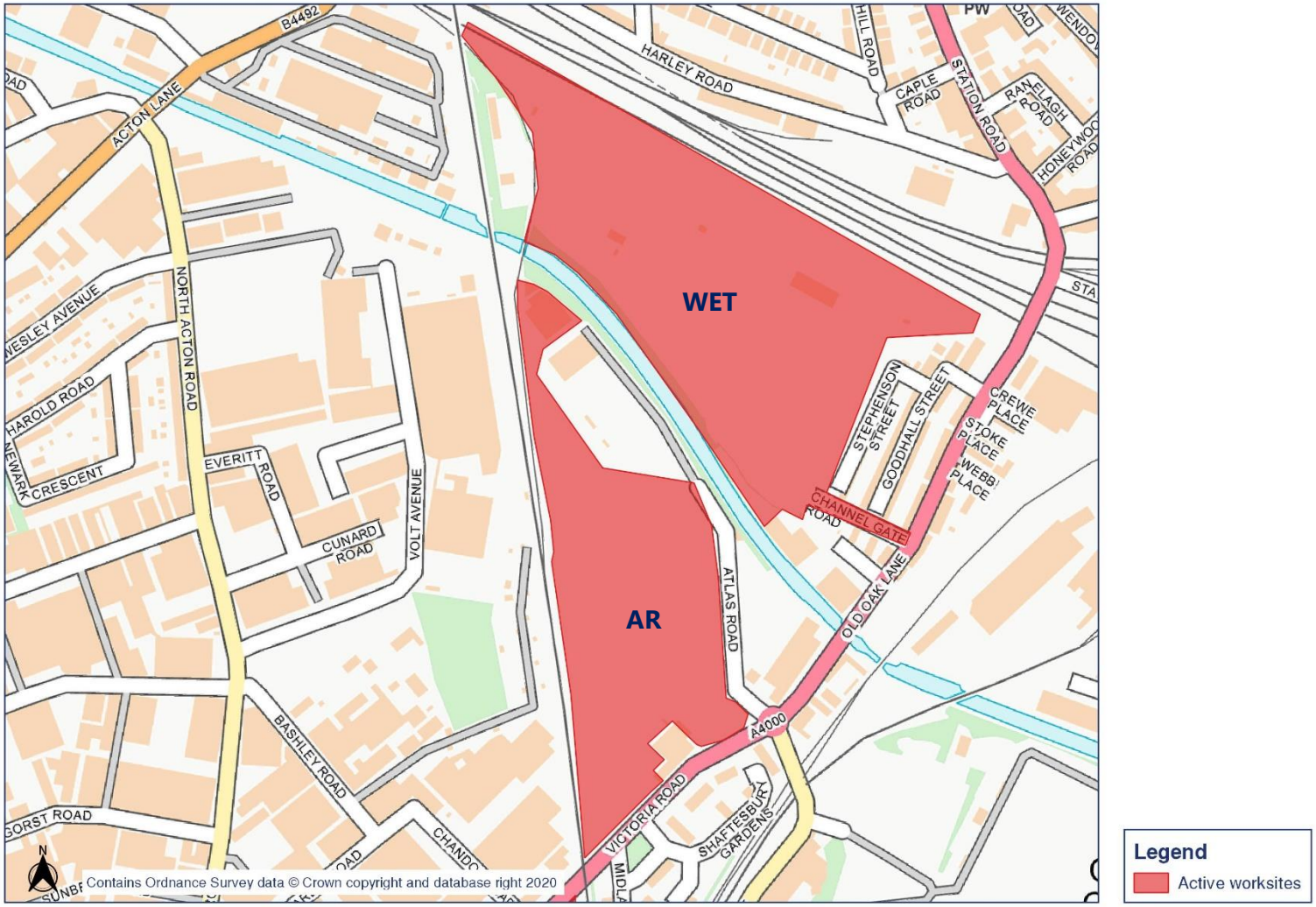
Worksite identification plan - 3



Worksite identification plan - 4

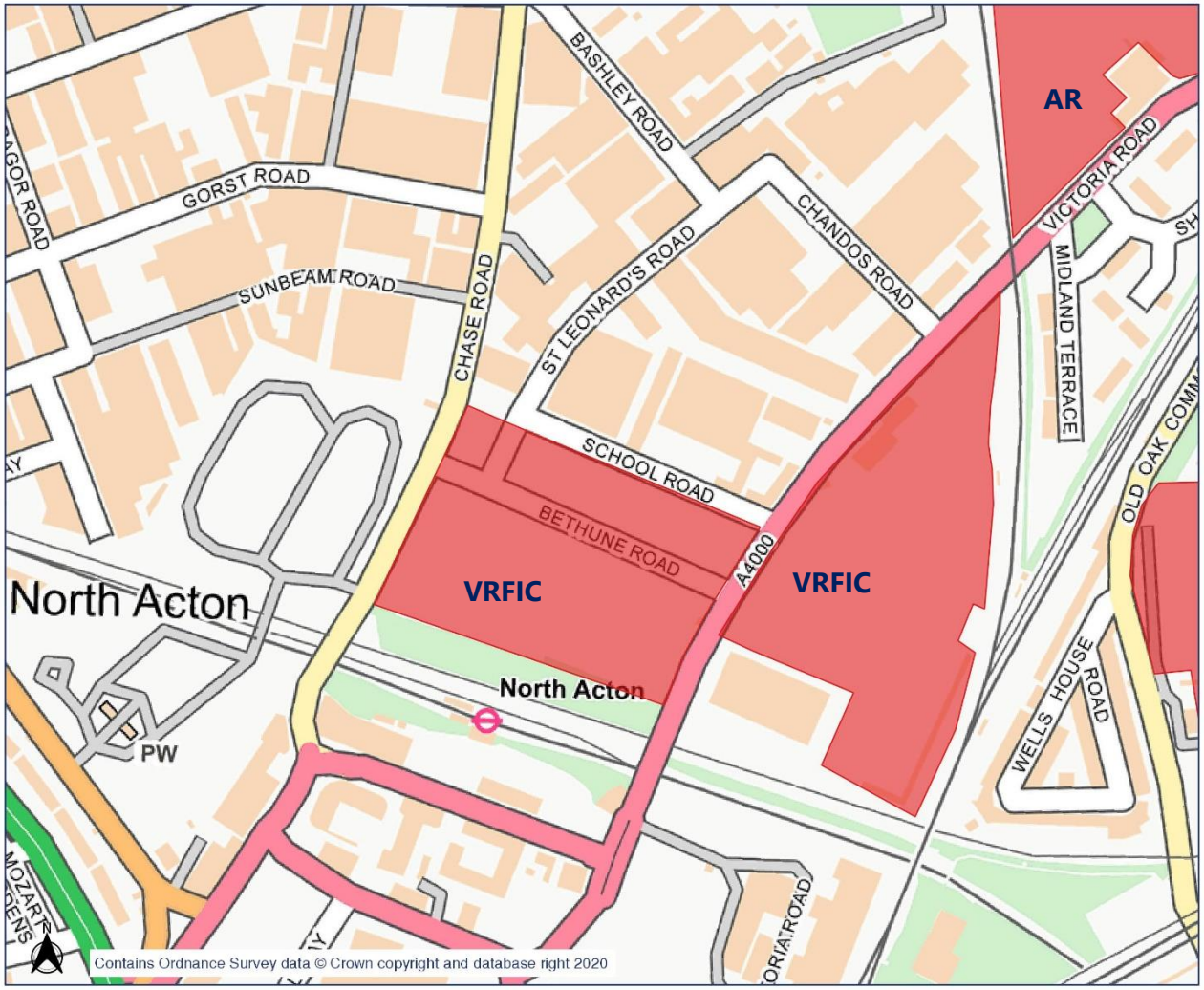


Worksite identification plan - 5



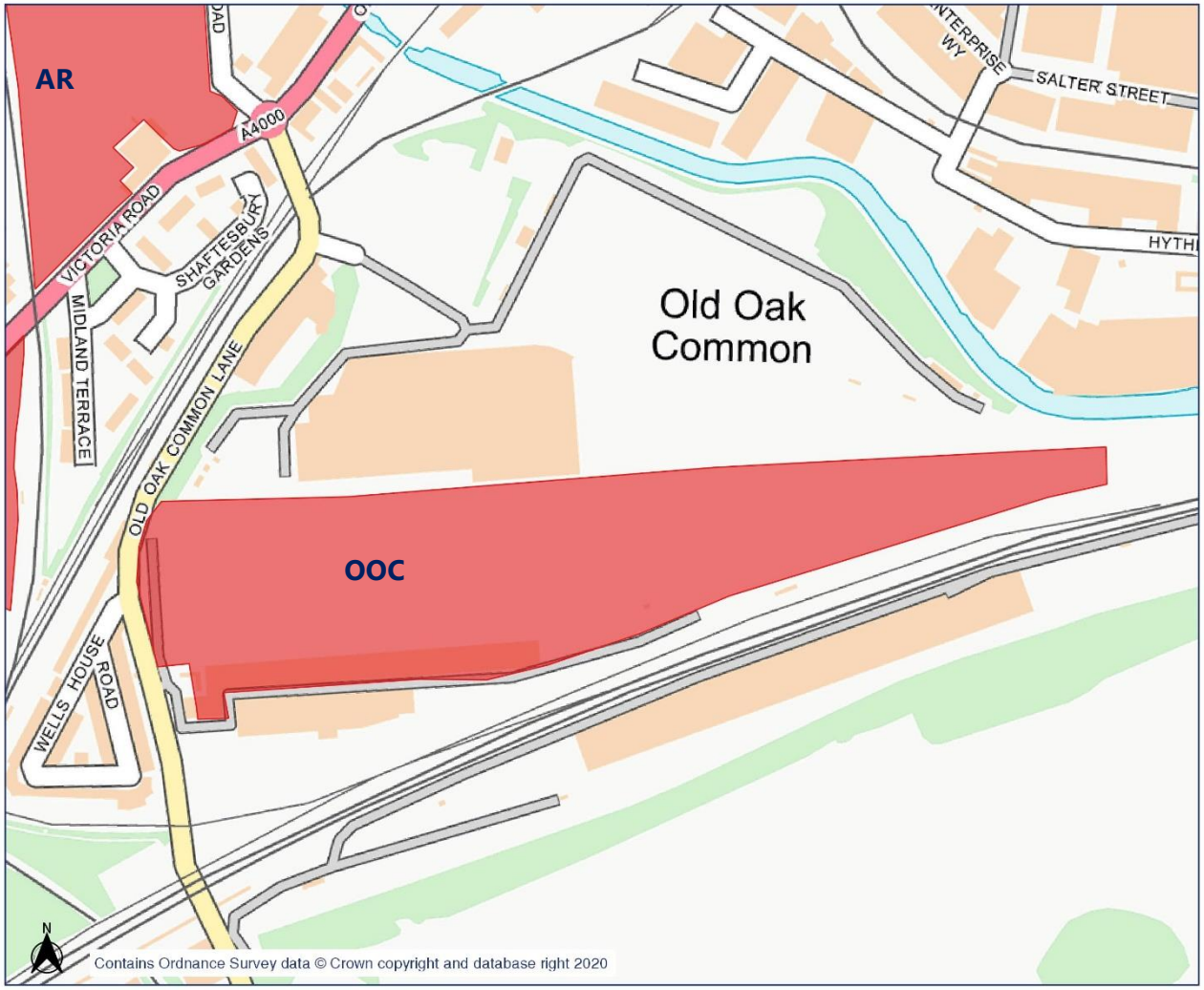
HS2

Worksite identification plan - 6



HS2

Worksite identification plan - 7

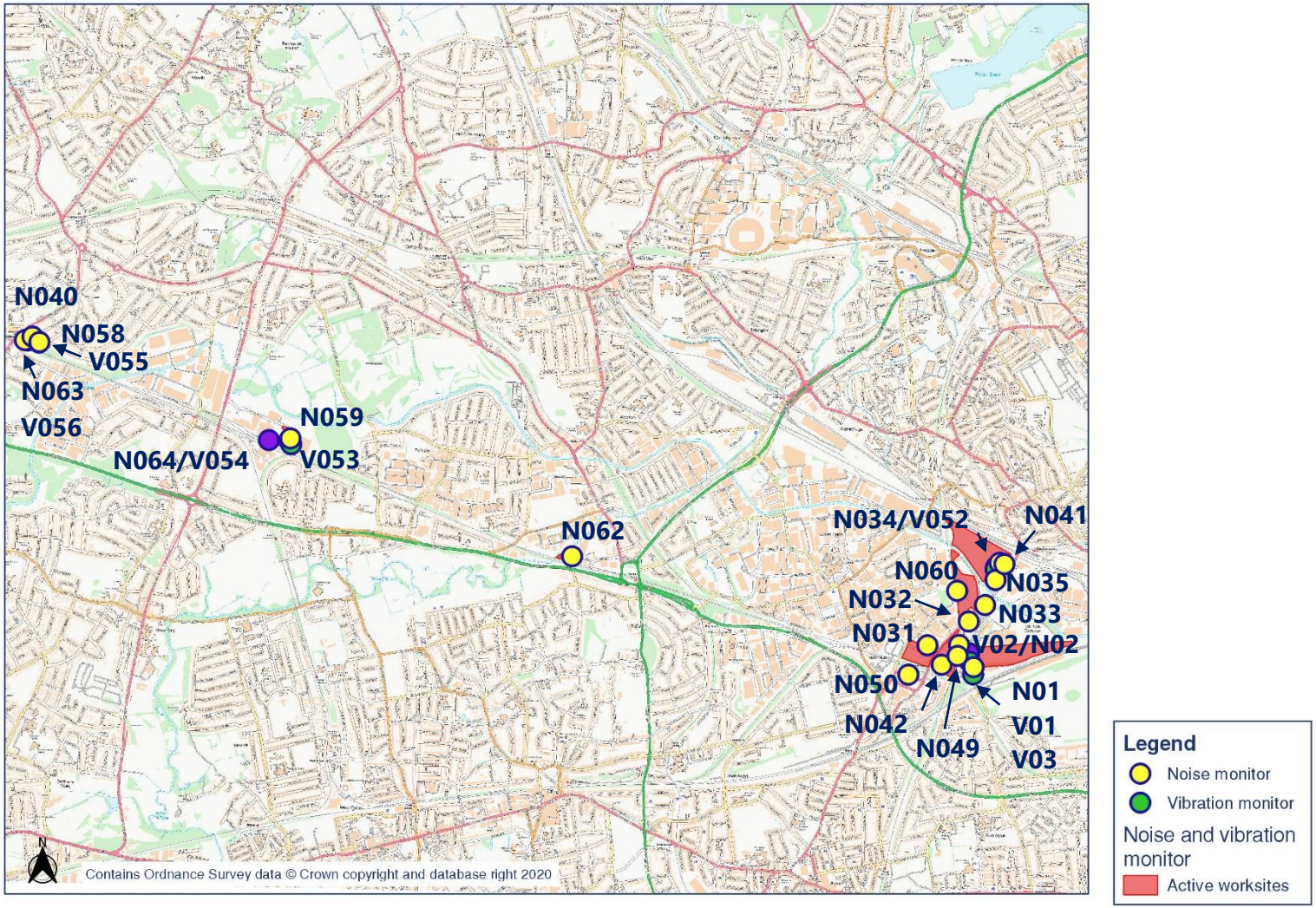


Legend

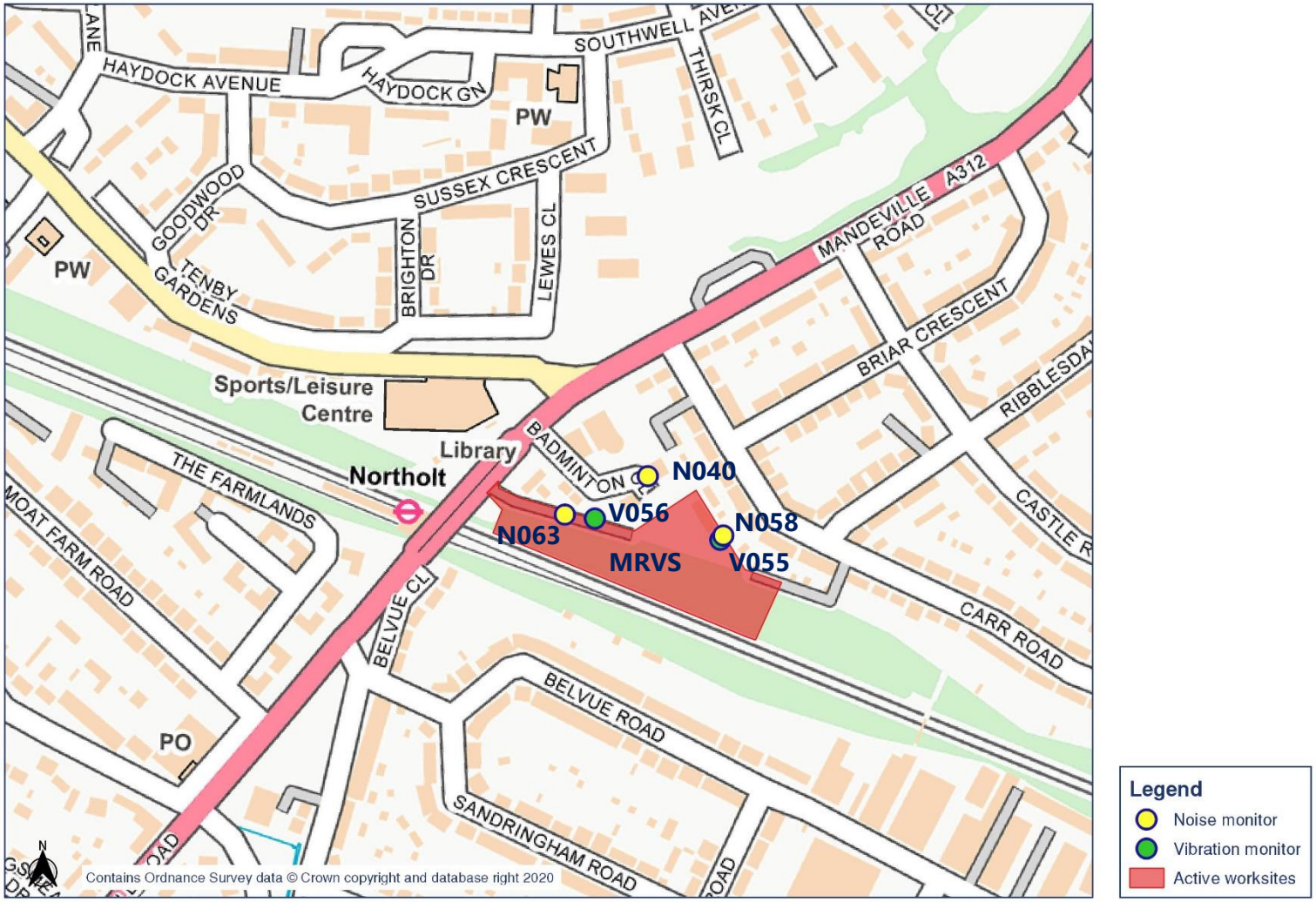
Active worksites

Appendix B Monitoring Locations

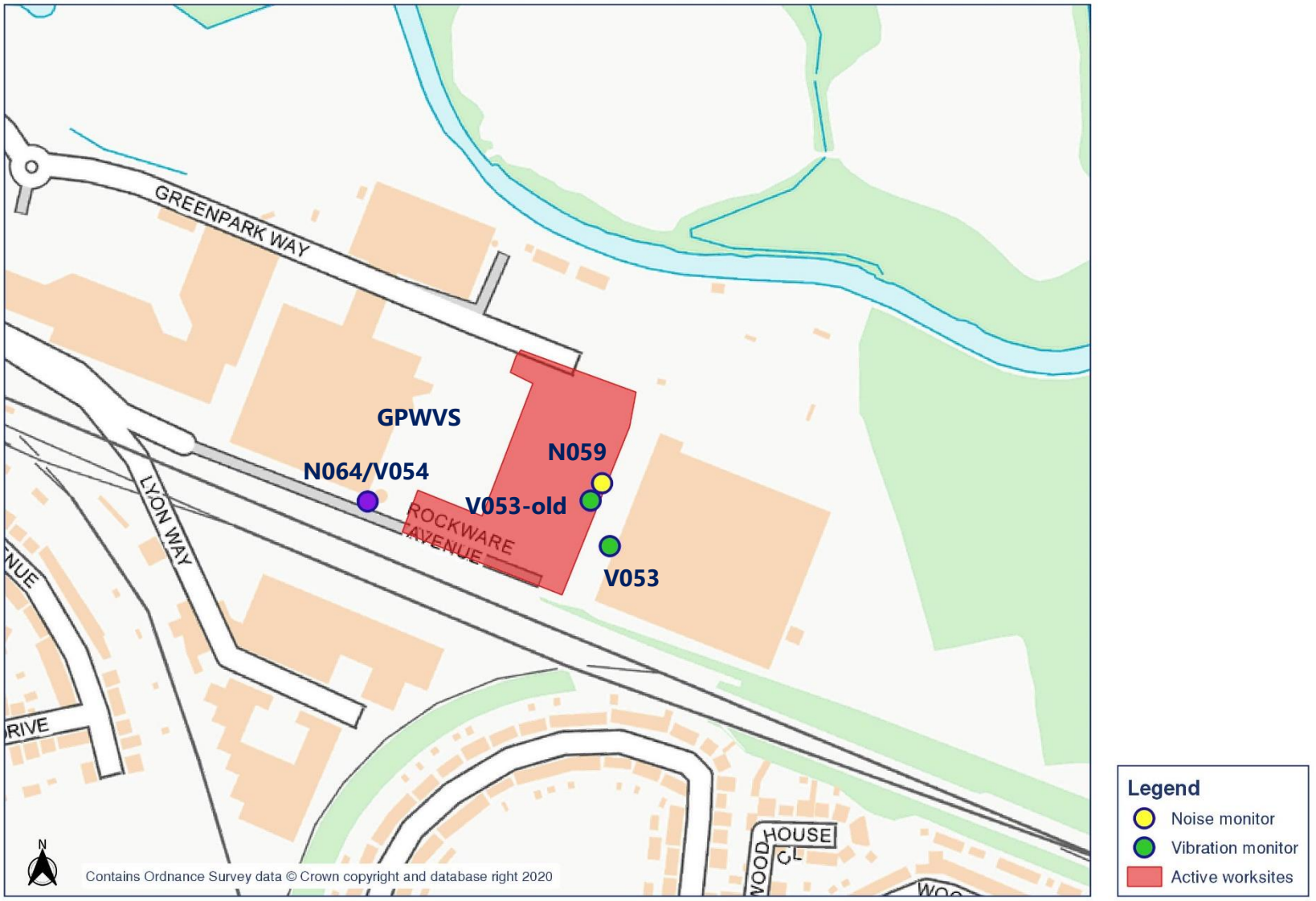
HS2 Noise and vibration monitoring plan - Overview



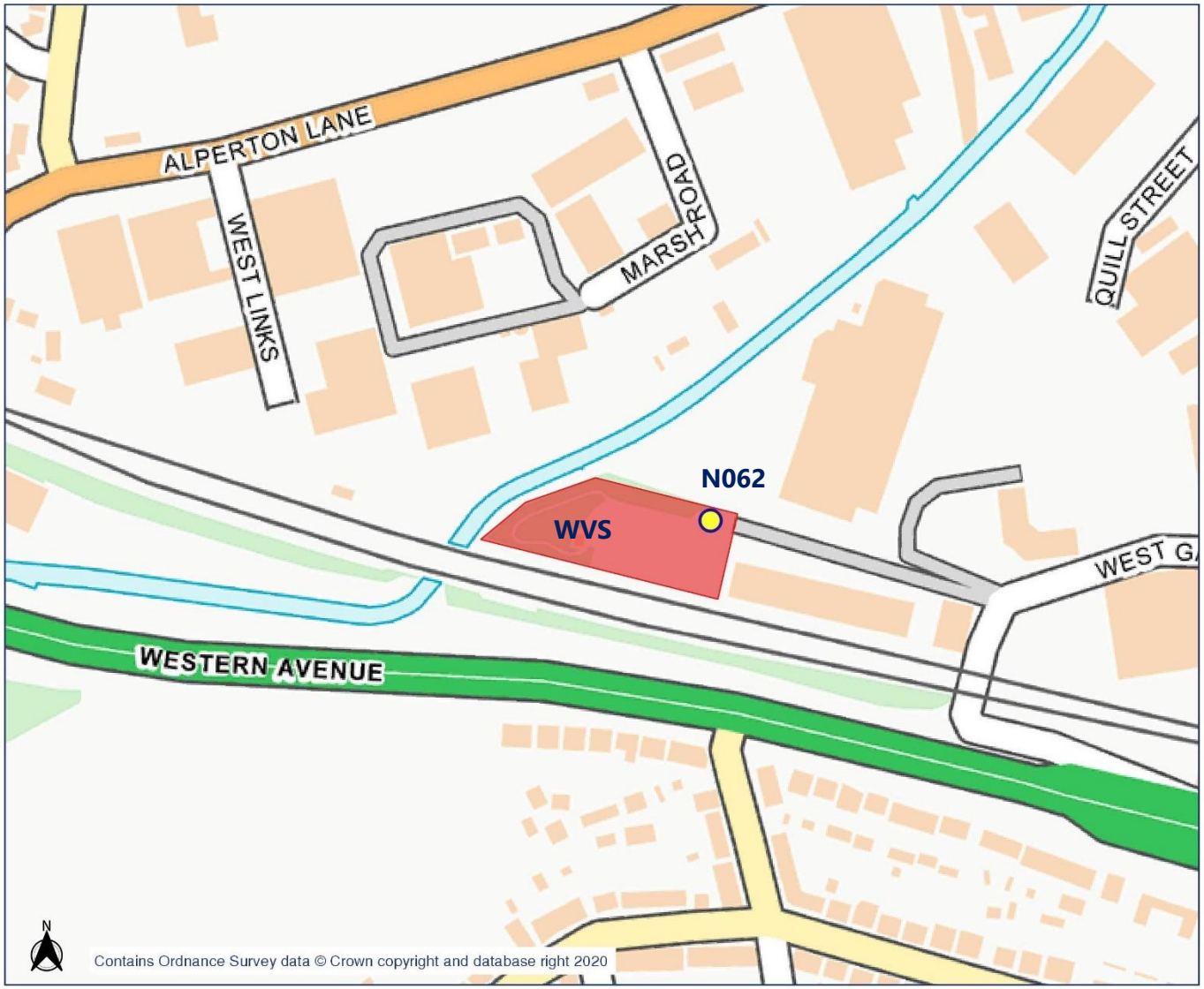
HS2 Noise and vibration monitoring plan - 1



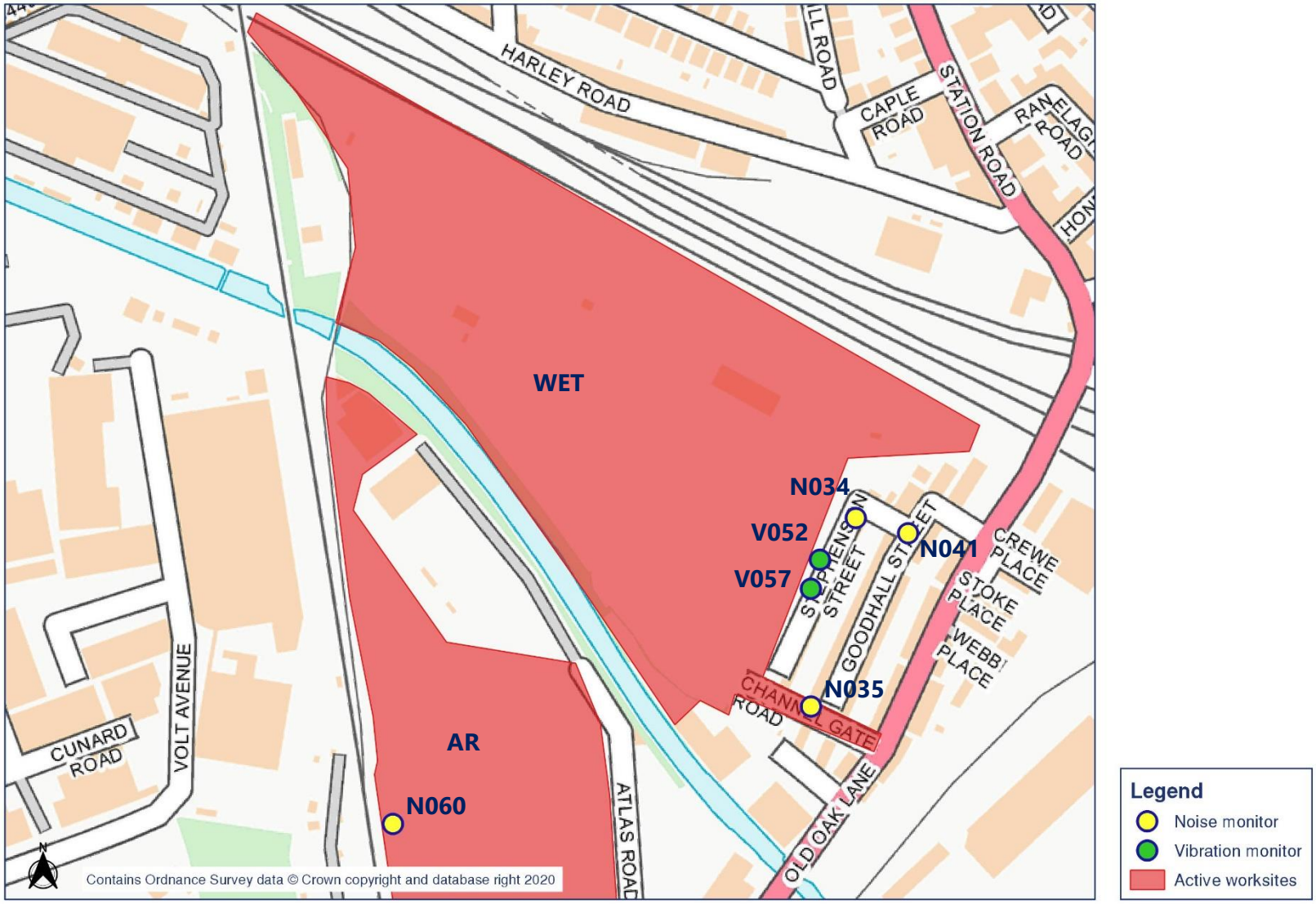
Noise and vibration monitoring plan - 2



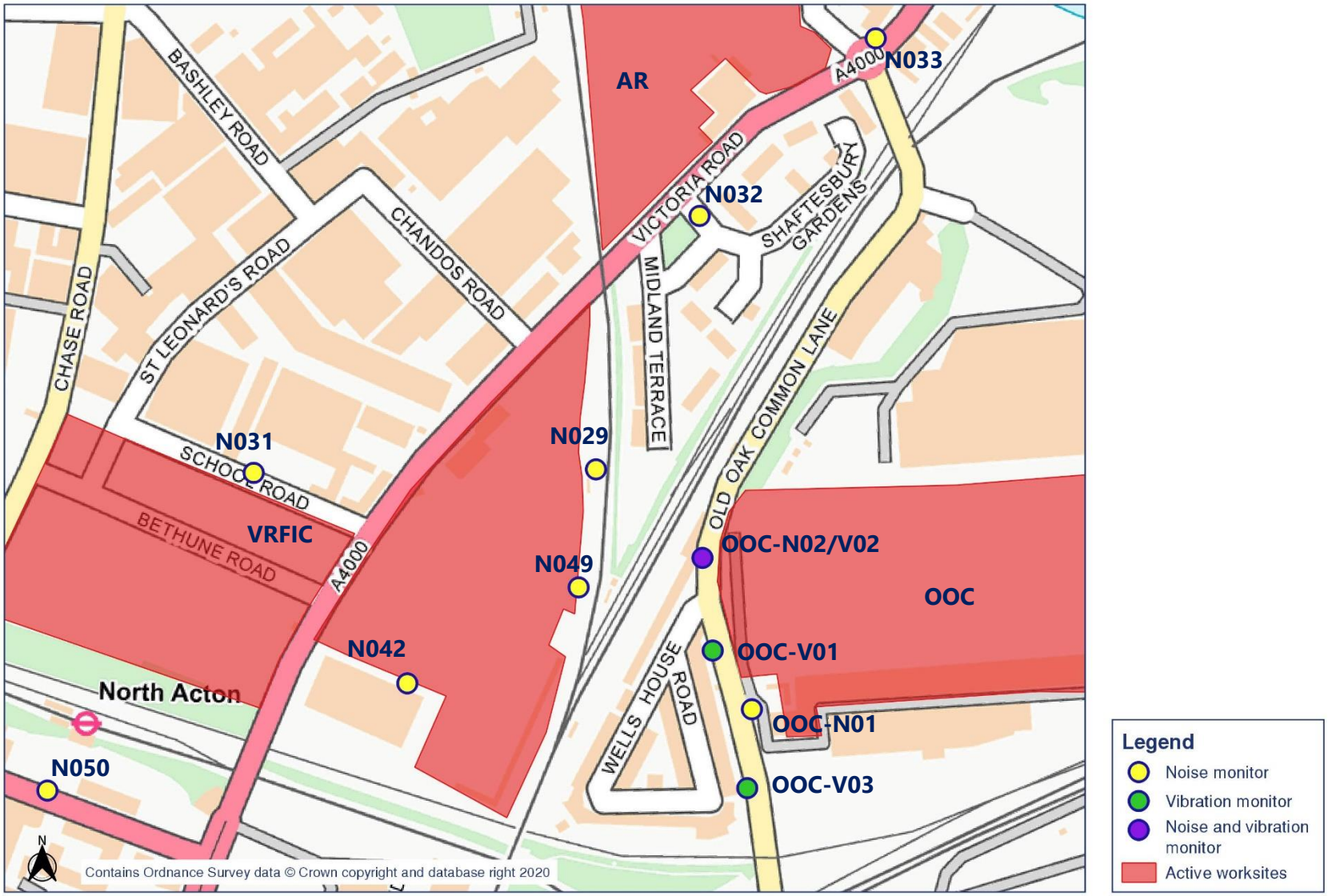
HS2 Noise and vibration monitoring plan - 3



Noise and vibration monitoring plan - 4



HS2 Noise and vibration monitoring plan - 5



Appendix C Data

Noise

The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have been excluded from the calculation of the $L_{Aeq,T}$ values in Table 3 of the main report.

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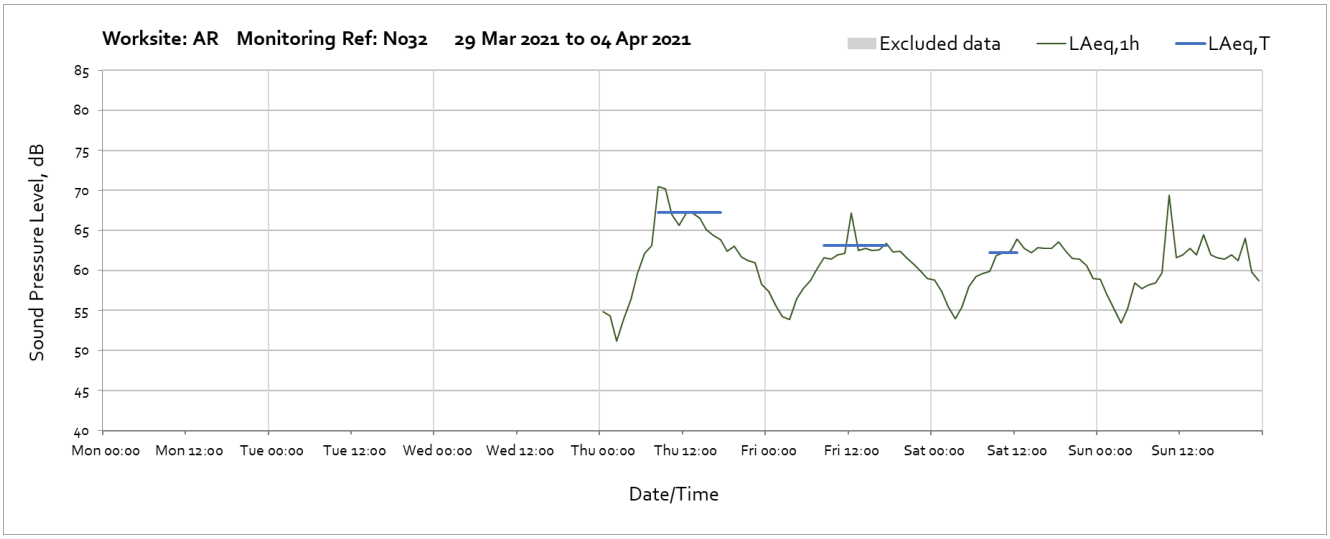

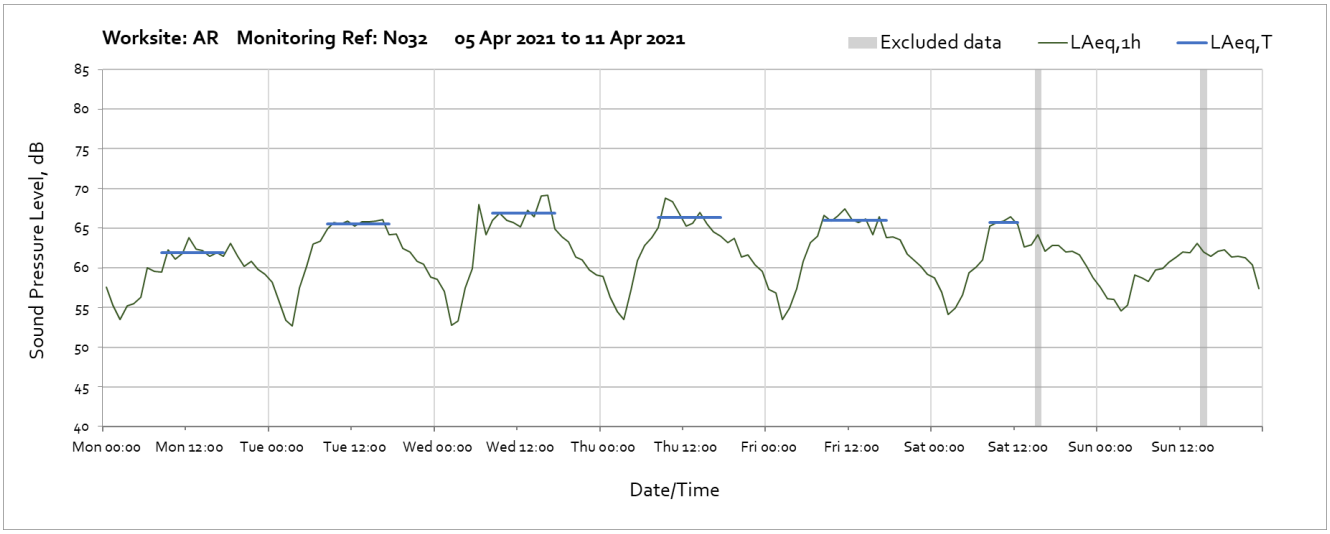

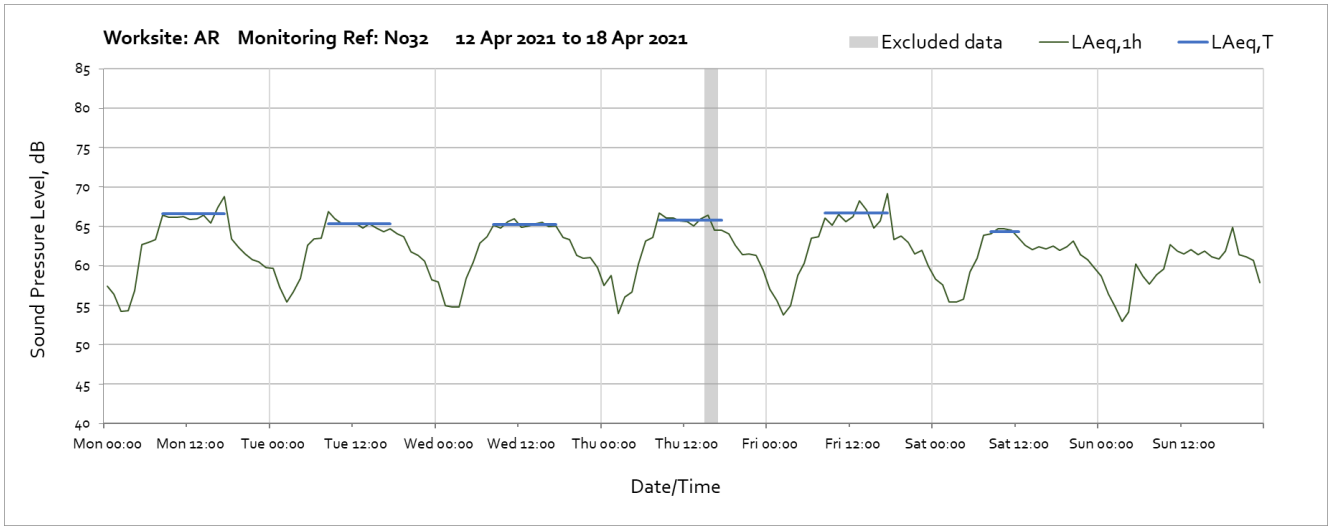
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LAeq,T
Sound Pressure Level, dB
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80
75
70
65
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55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
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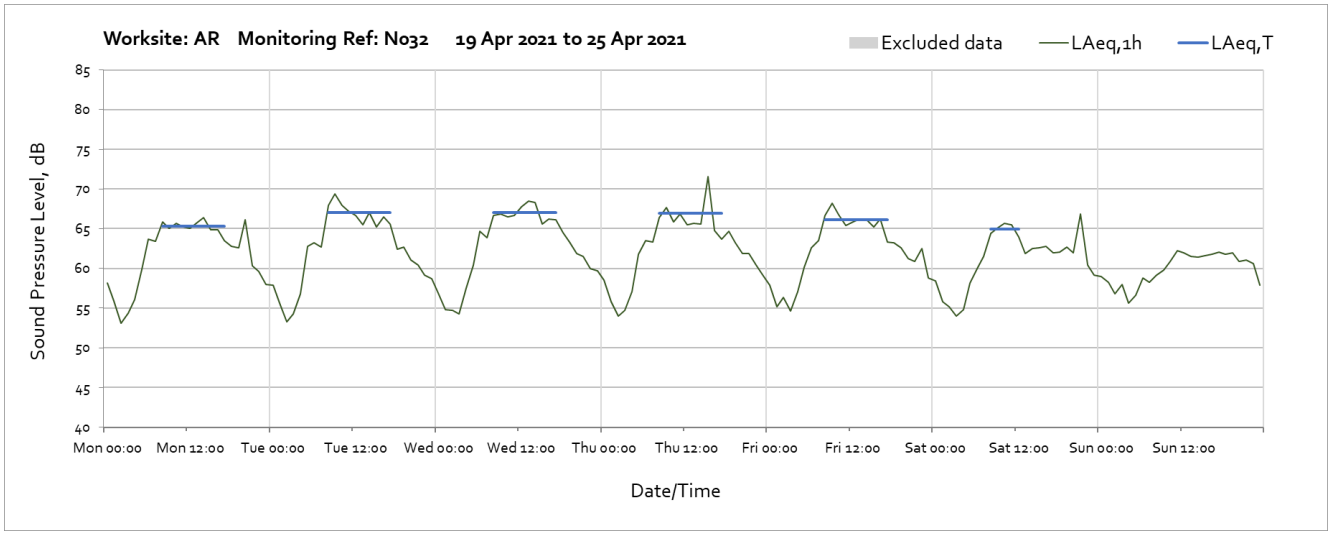
Sun 12:00
Date/Time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Sound Pressure Level, dB
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80
75
70
65
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Mon 12:00
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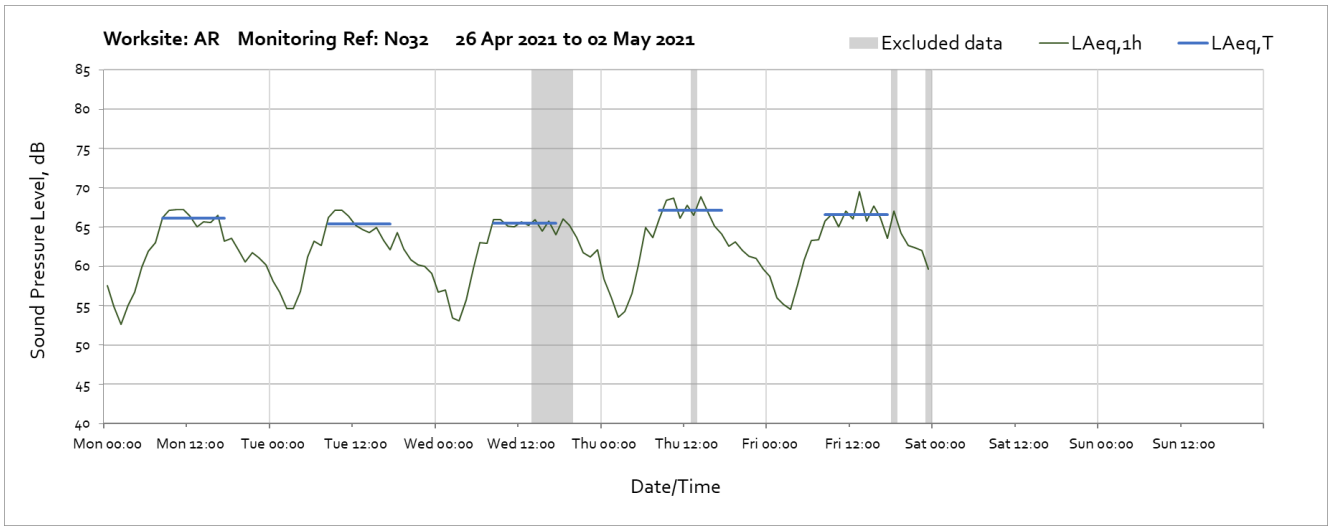
Date/Time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Excluded data
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LAeq,T
Sound Pressure Level, dB
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75
70
65
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Tue 00:00
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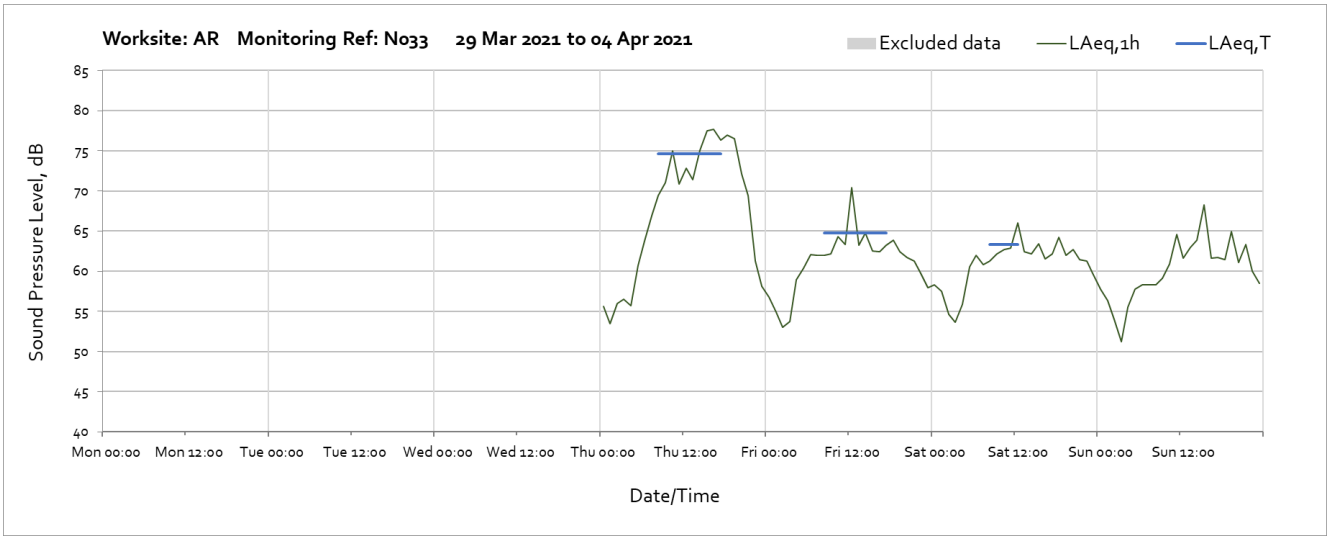
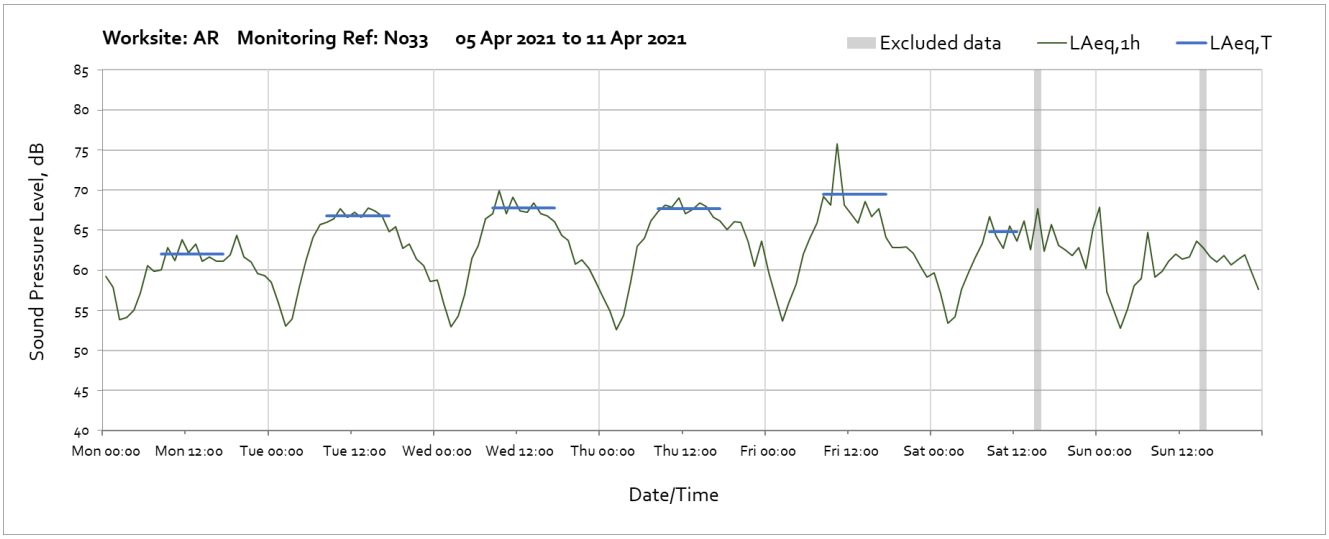
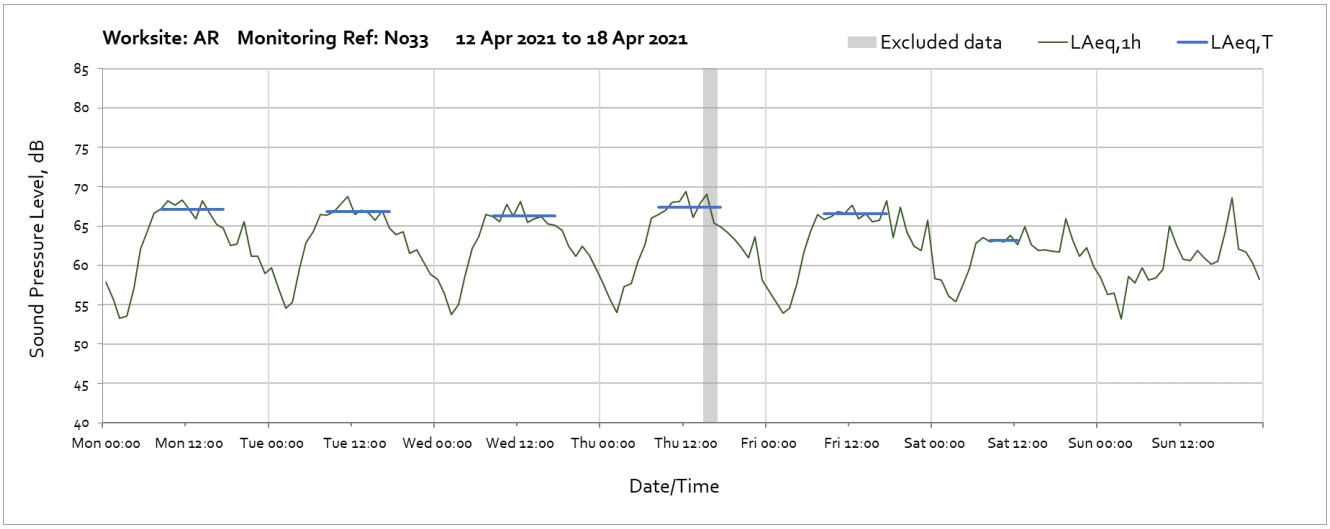
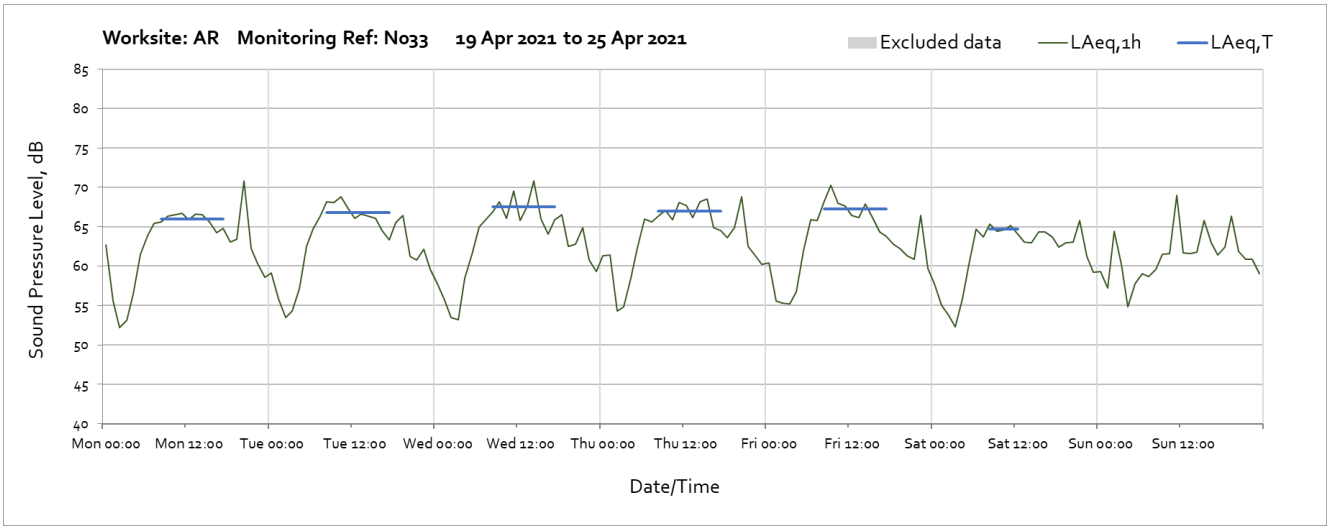
Date/Time

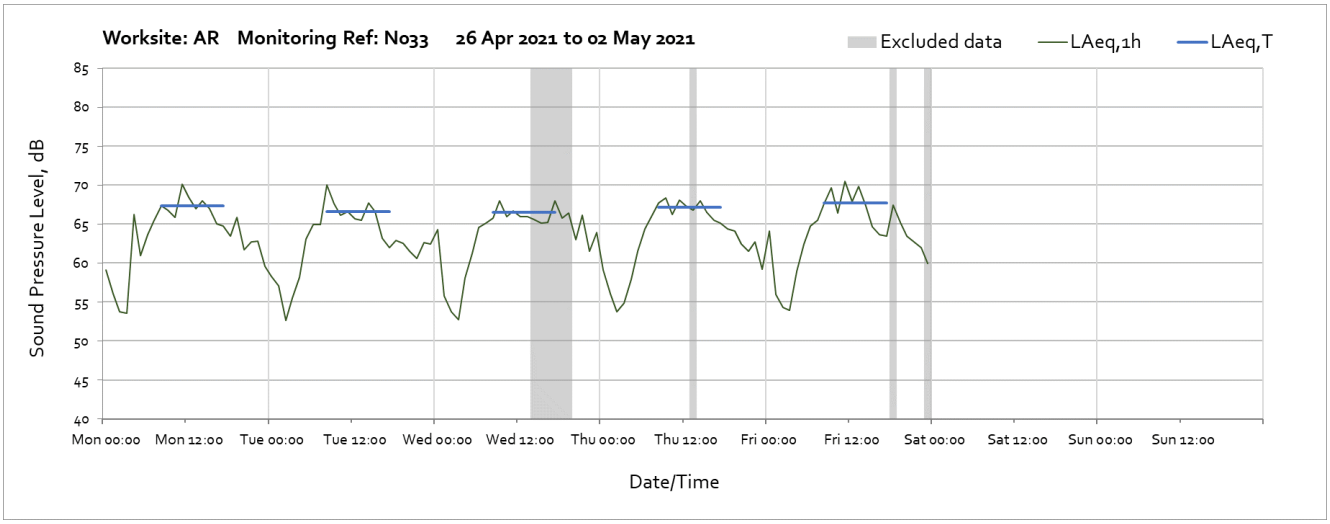
Worksite: Atlas Road worksite (AR) – Monitoring Ref: N033











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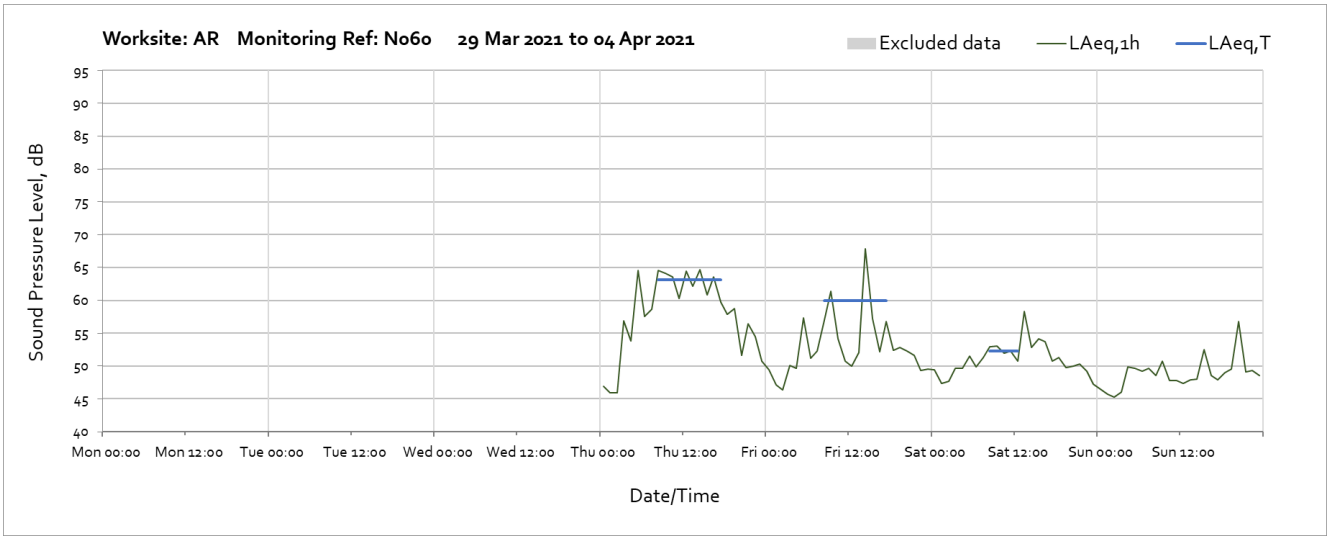

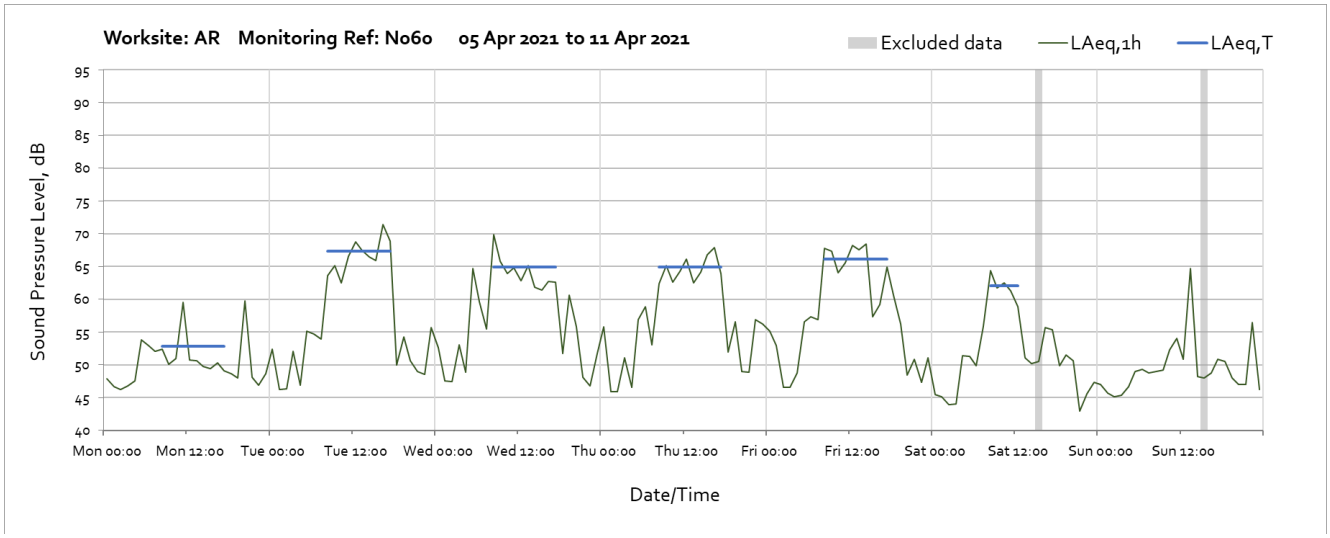
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75
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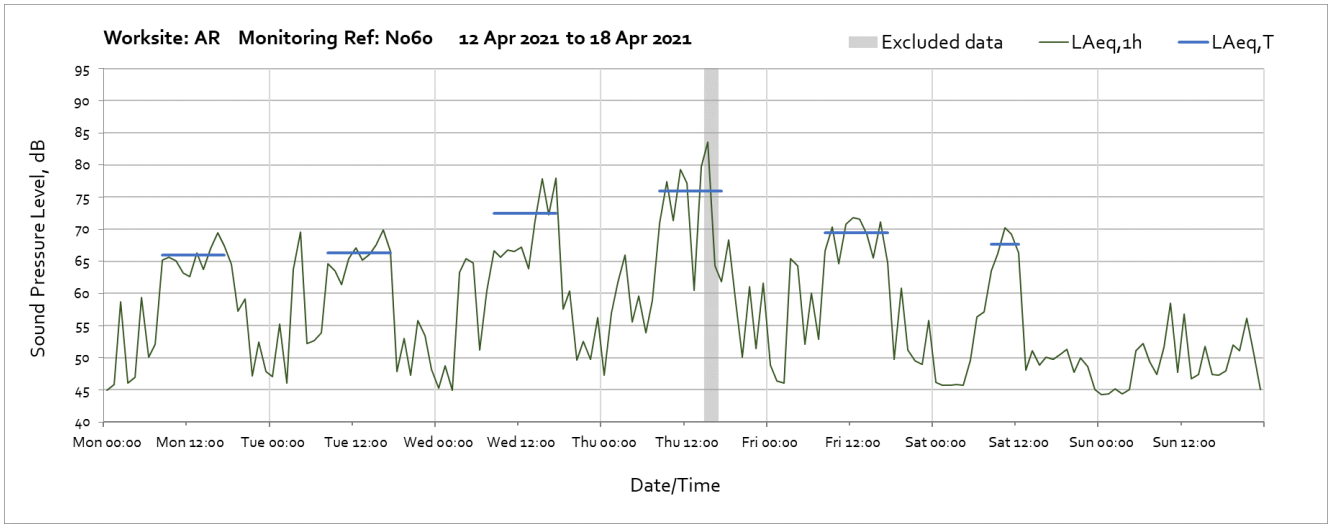
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LAeq,T
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85
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75
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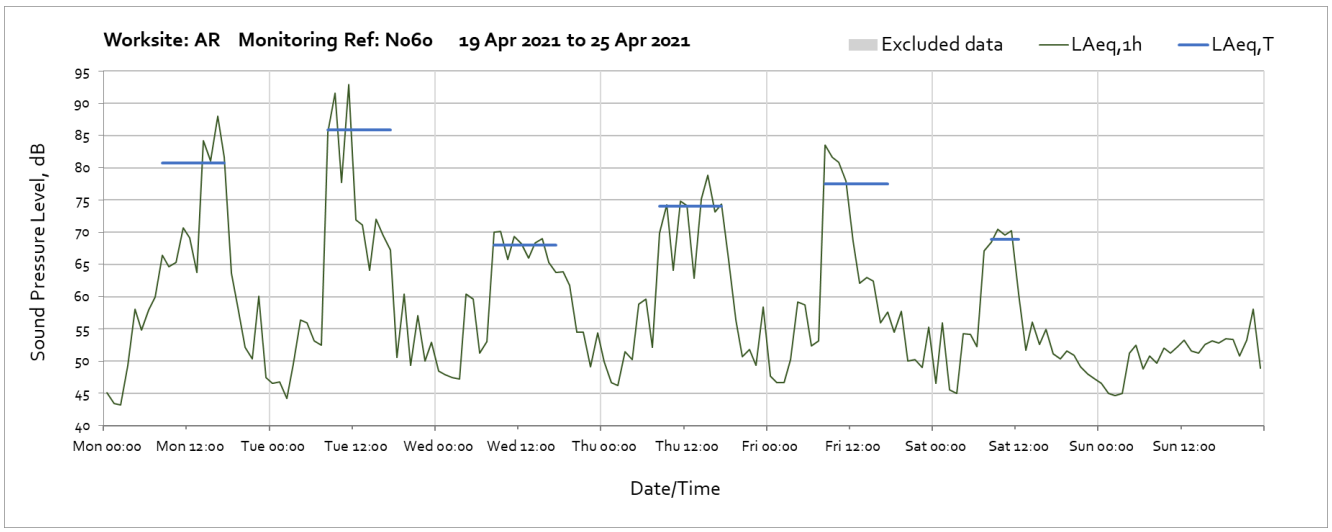
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LAeq,T
Sound Pressure Level, dB
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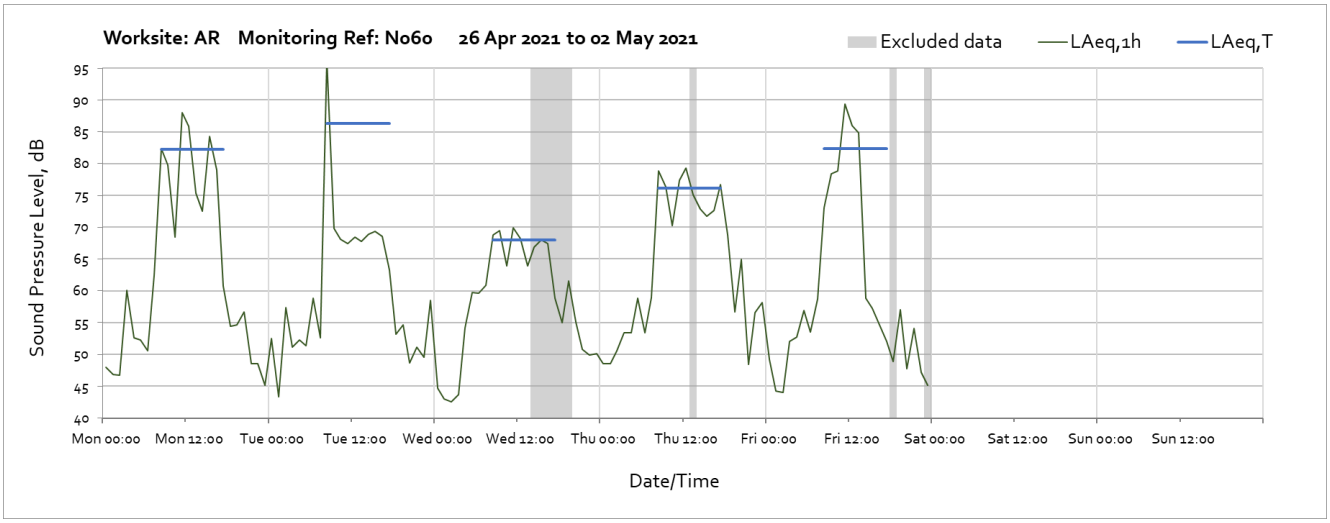

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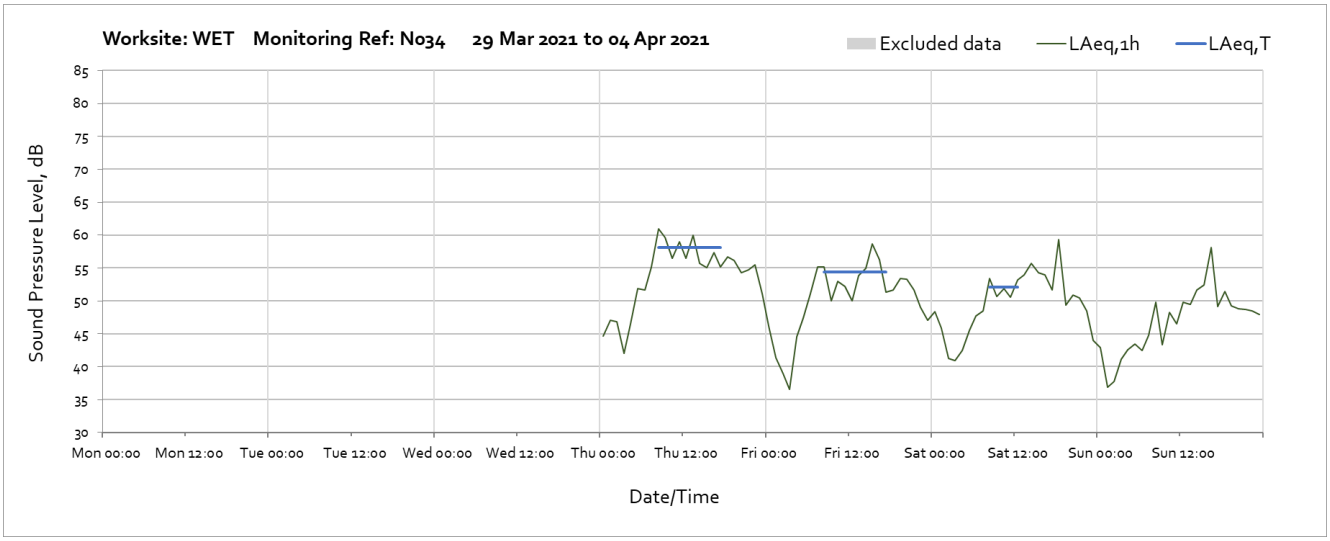

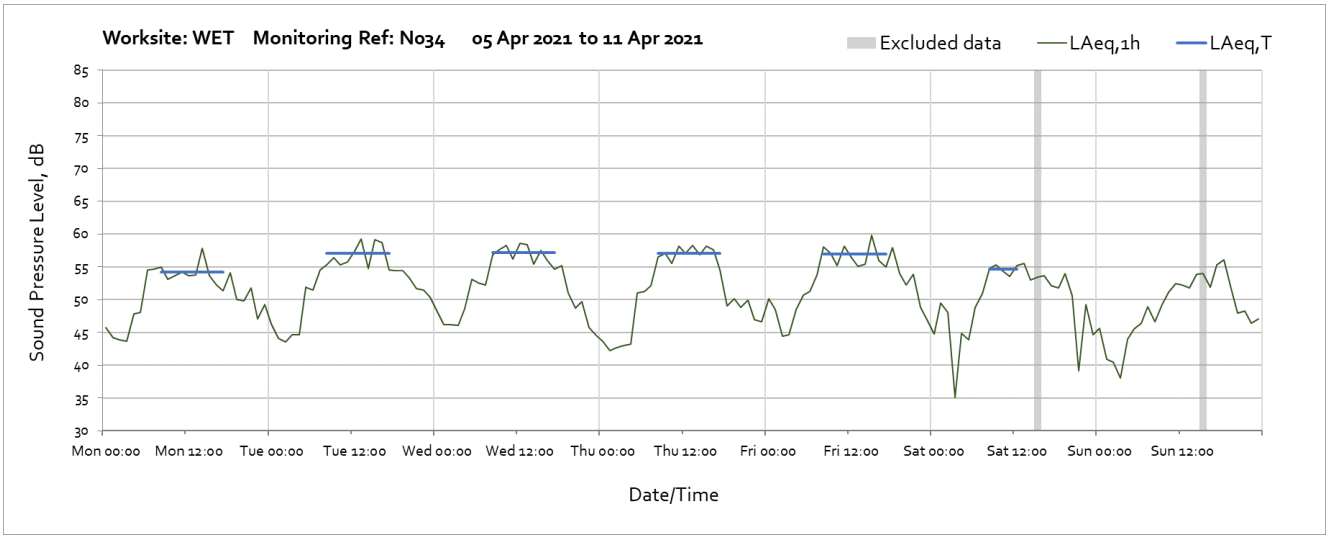

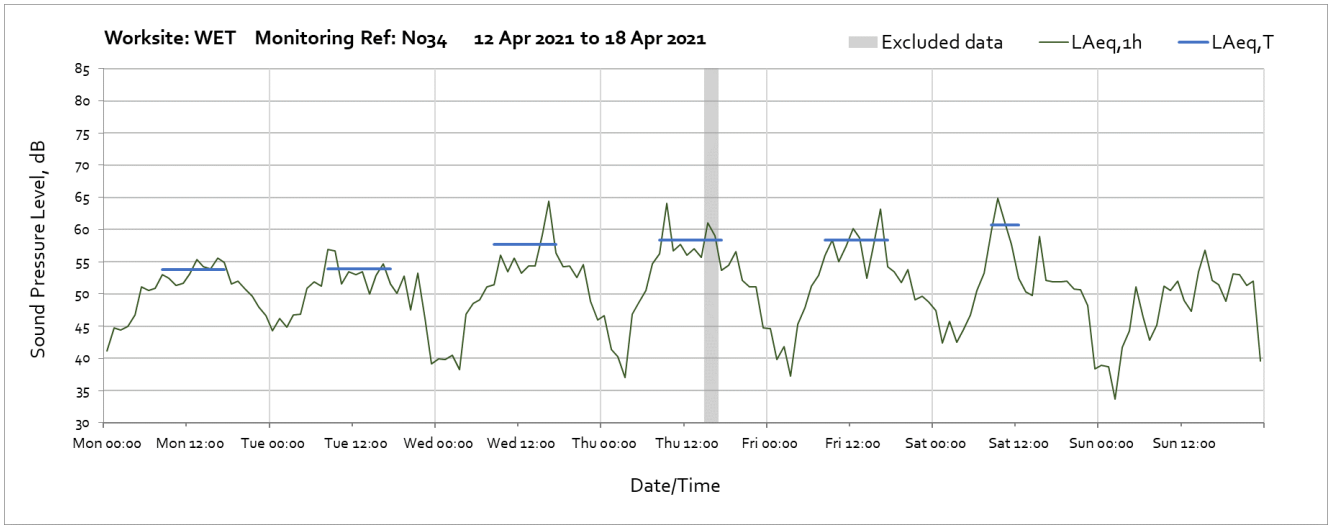
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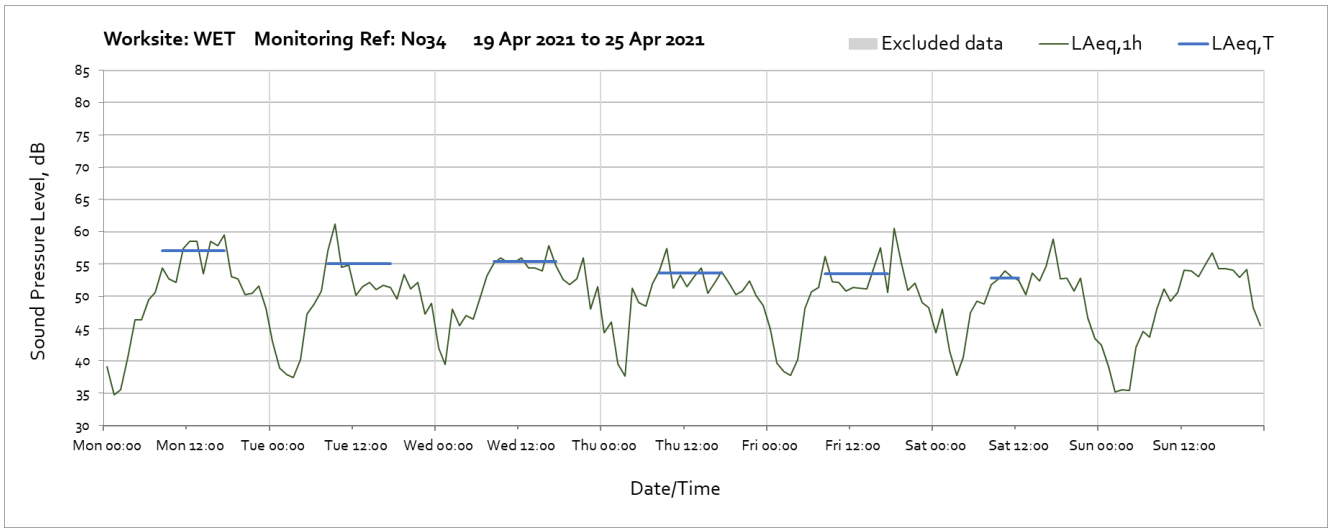
Date/Time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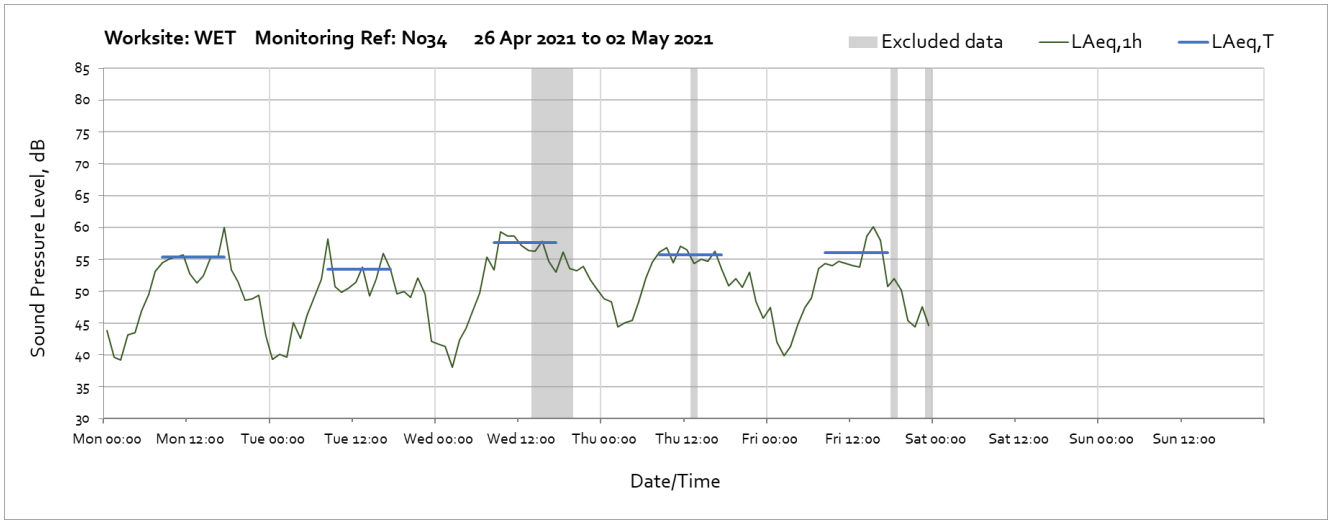
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Date/Time

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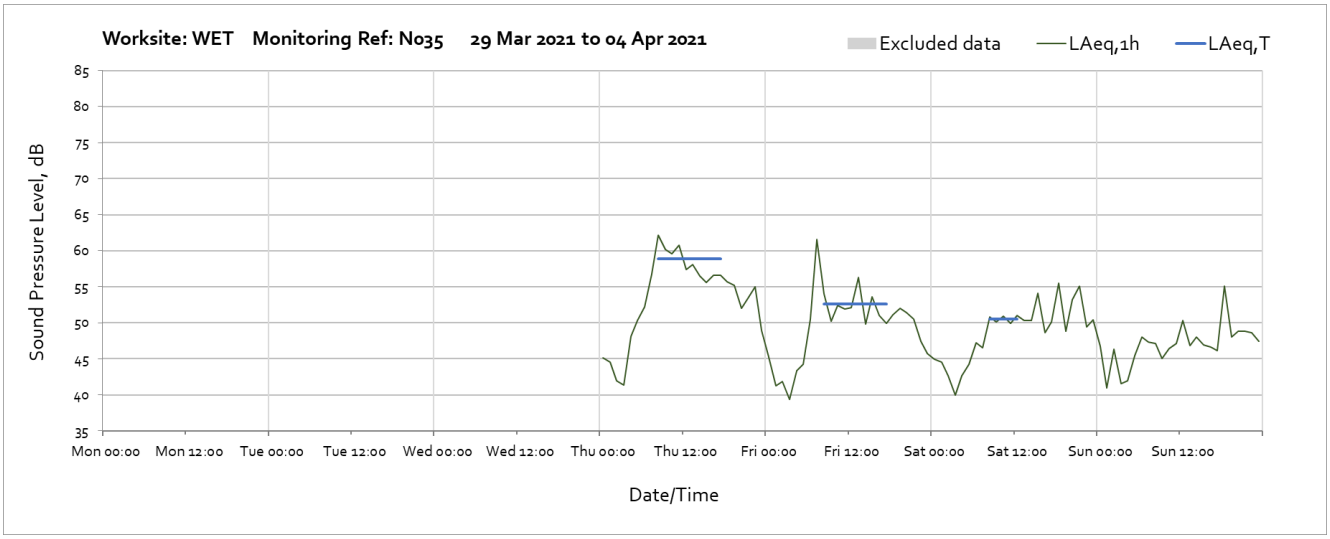
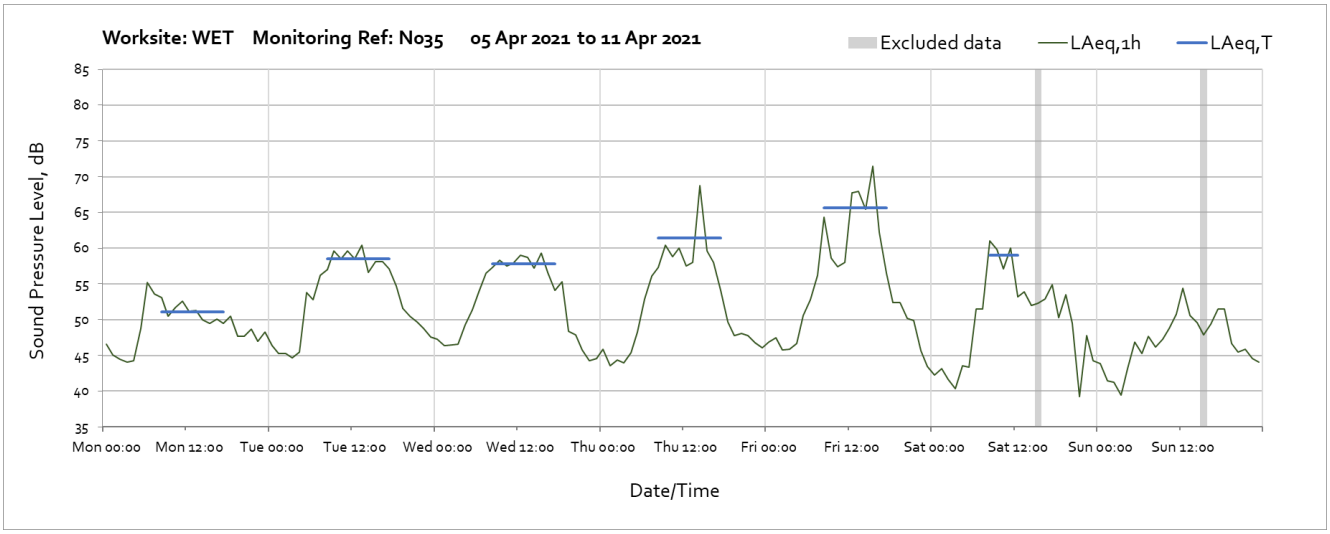
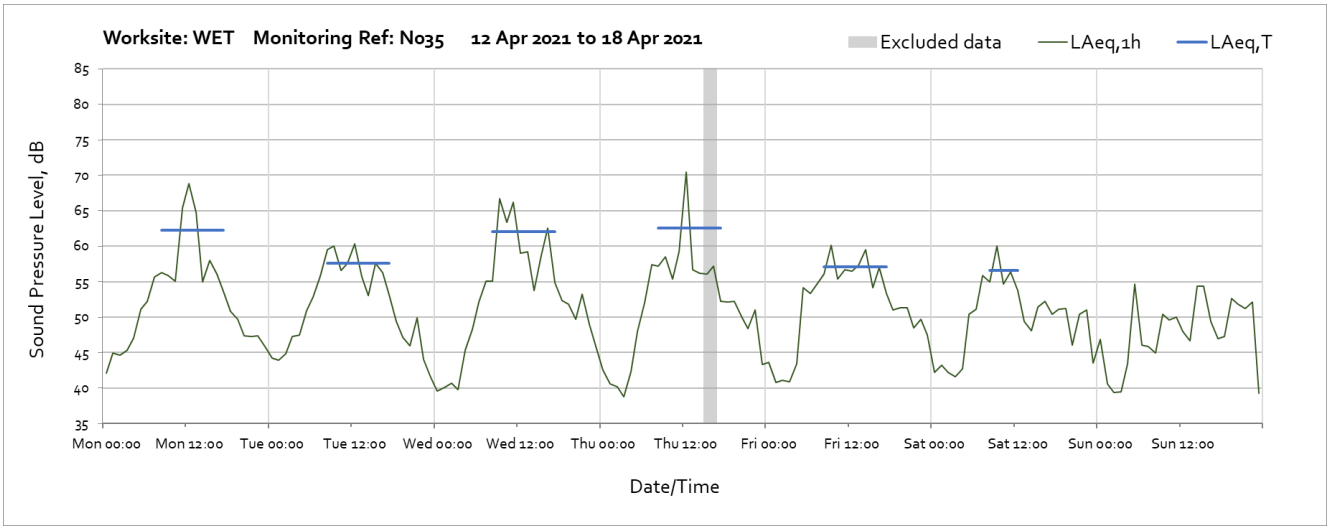
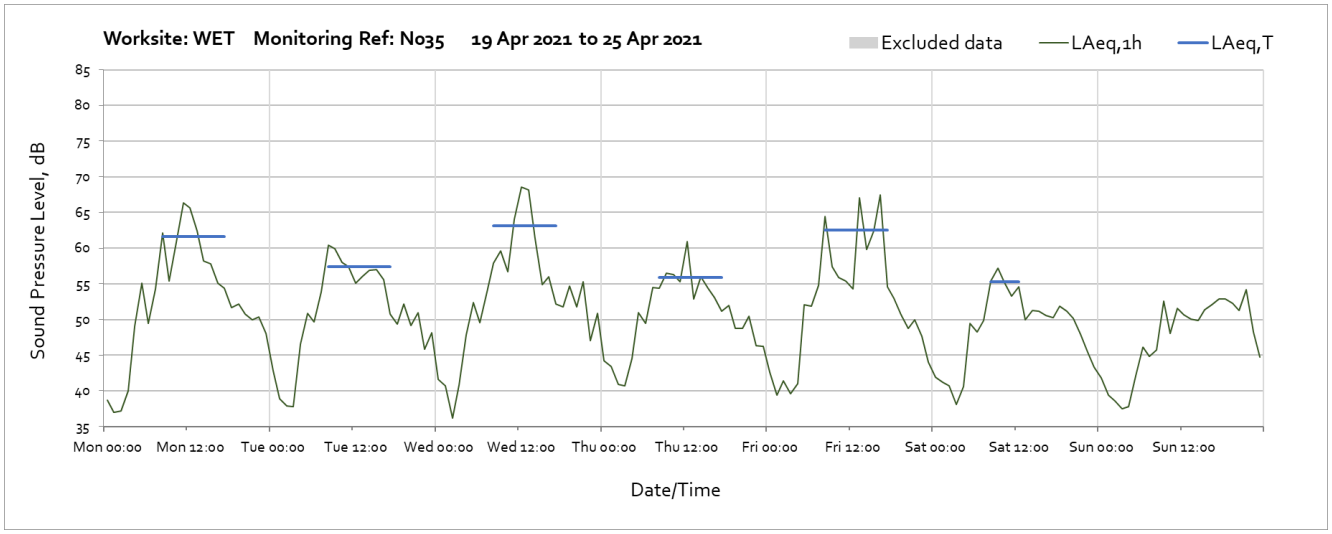
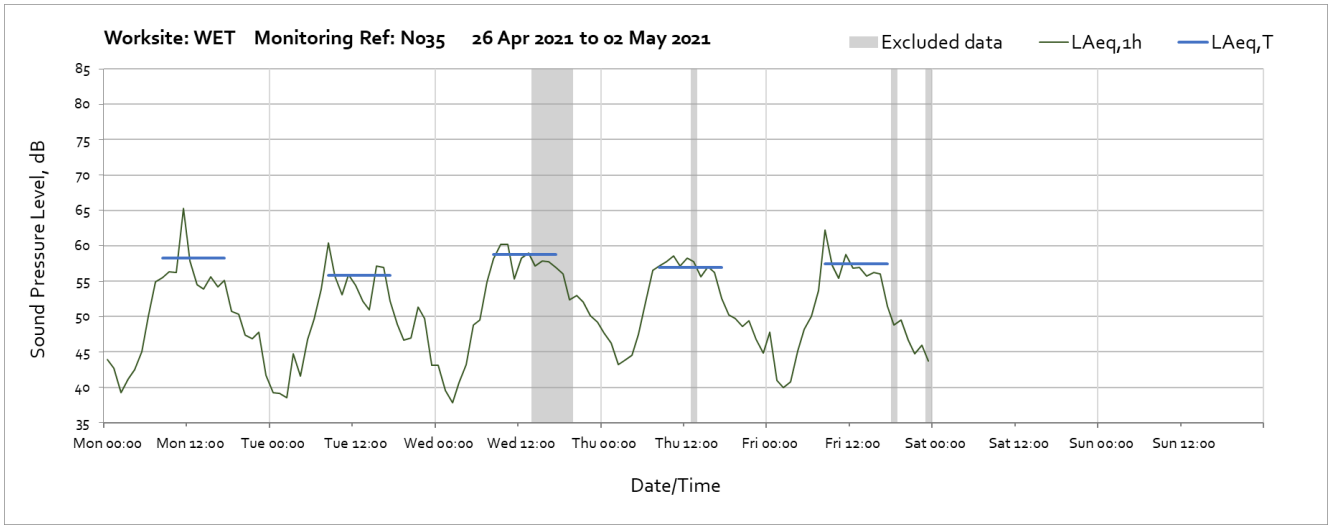


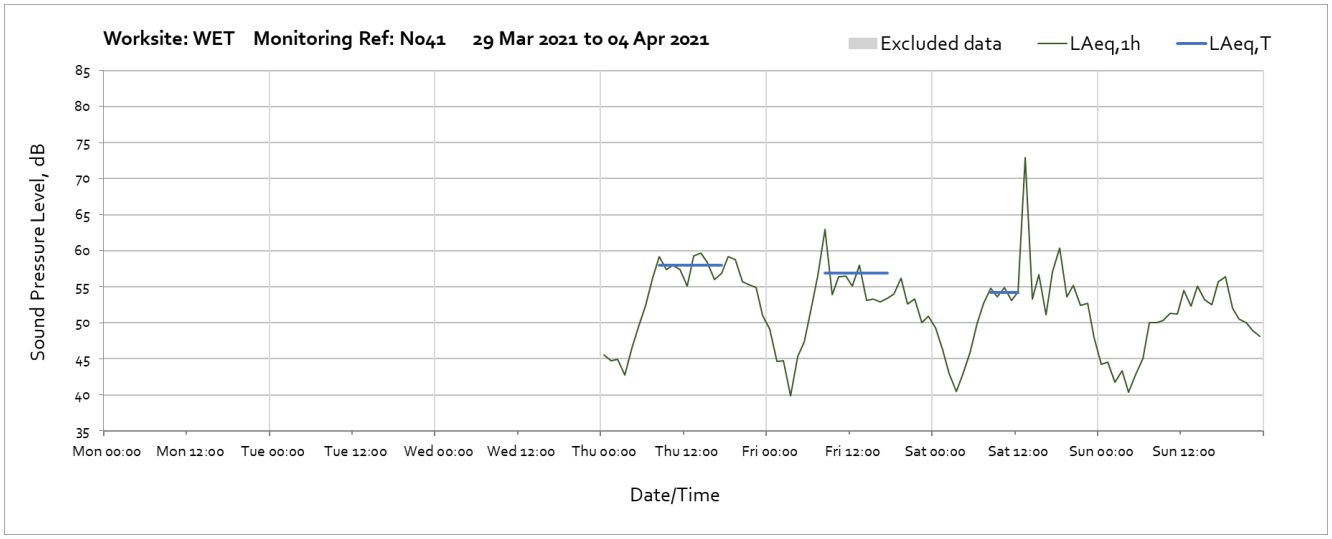


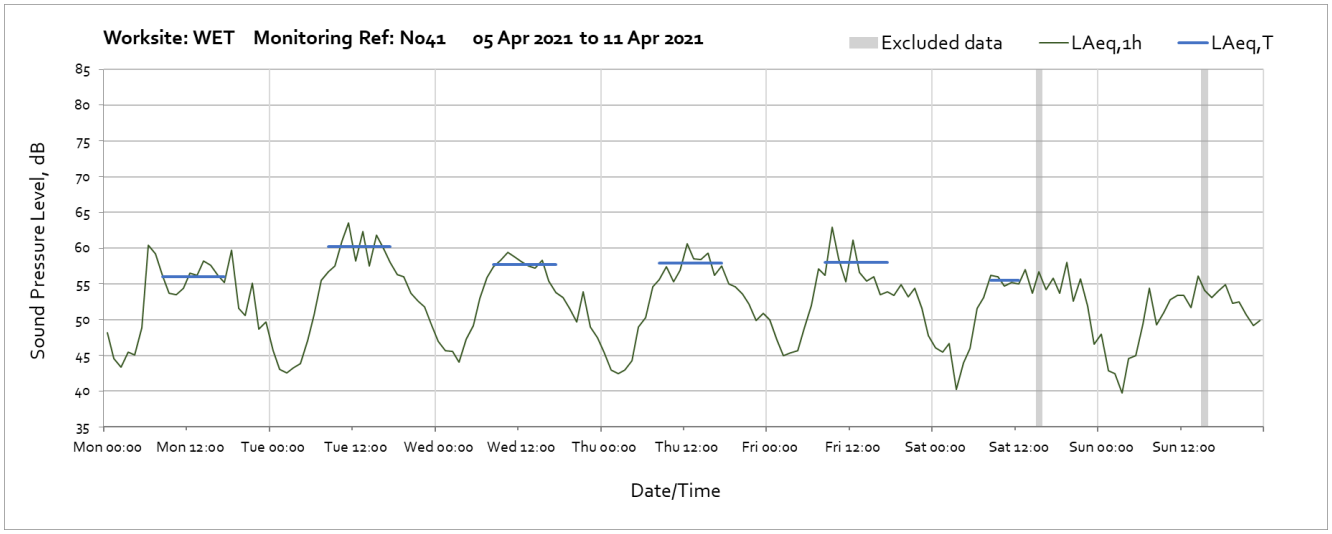






Worksite: Willesden Euro Terminal (WET) – Monitoring Ref: N041




Worksite: WET Monitoring Ref: No41 05 Apr 2021 to 11 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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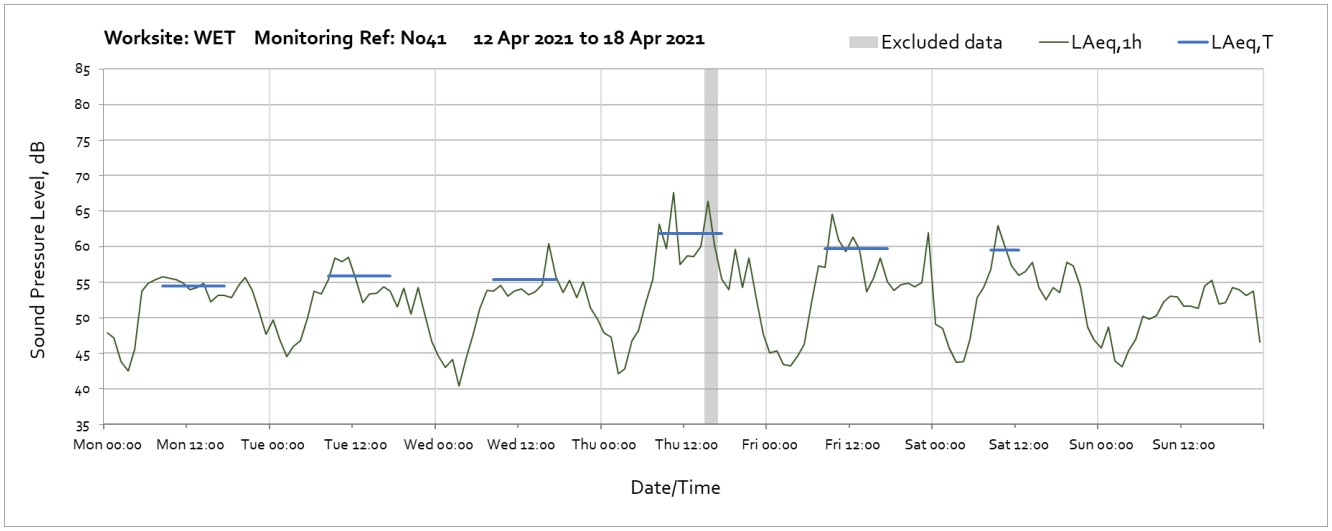
Date/Time


Worksite: WET Monitoring Ref: No41 12 Apr 2021 to 18 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
Mon 12:00
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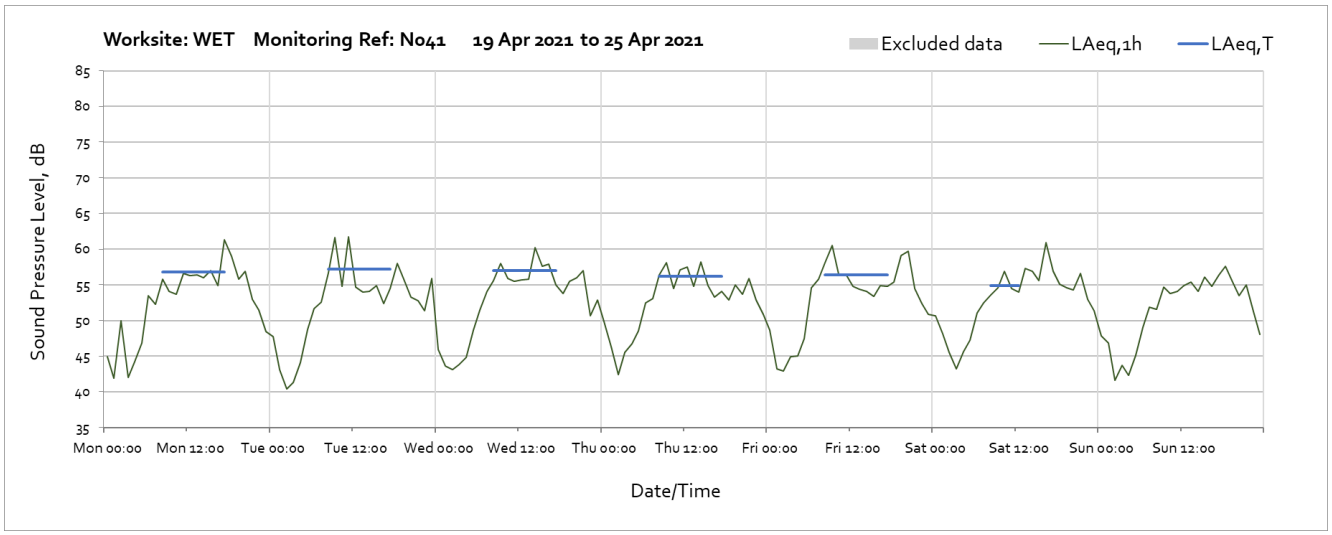
Date/Time


Worksite: WET Monitoring Ref: No41 19 Apr 2021 to 25 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
Mon 12:00
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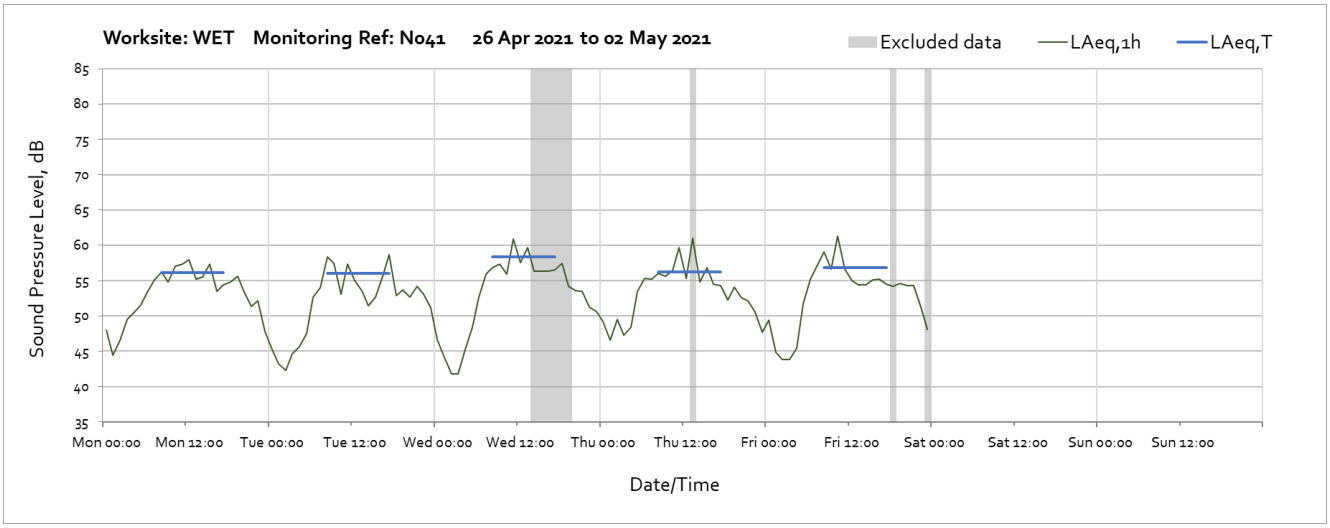
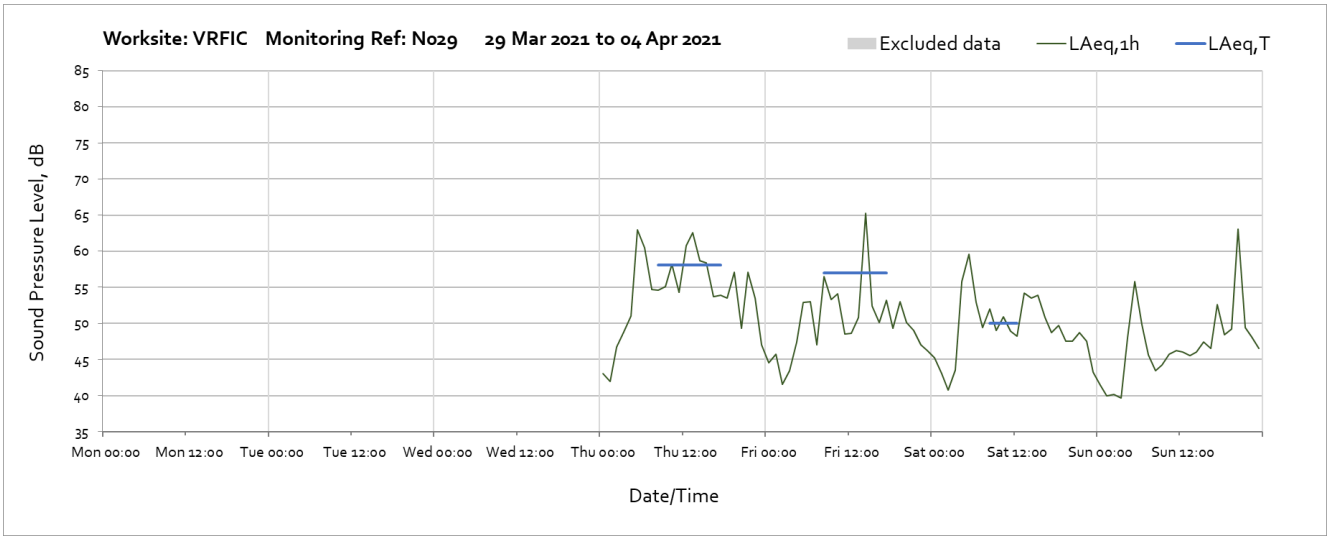
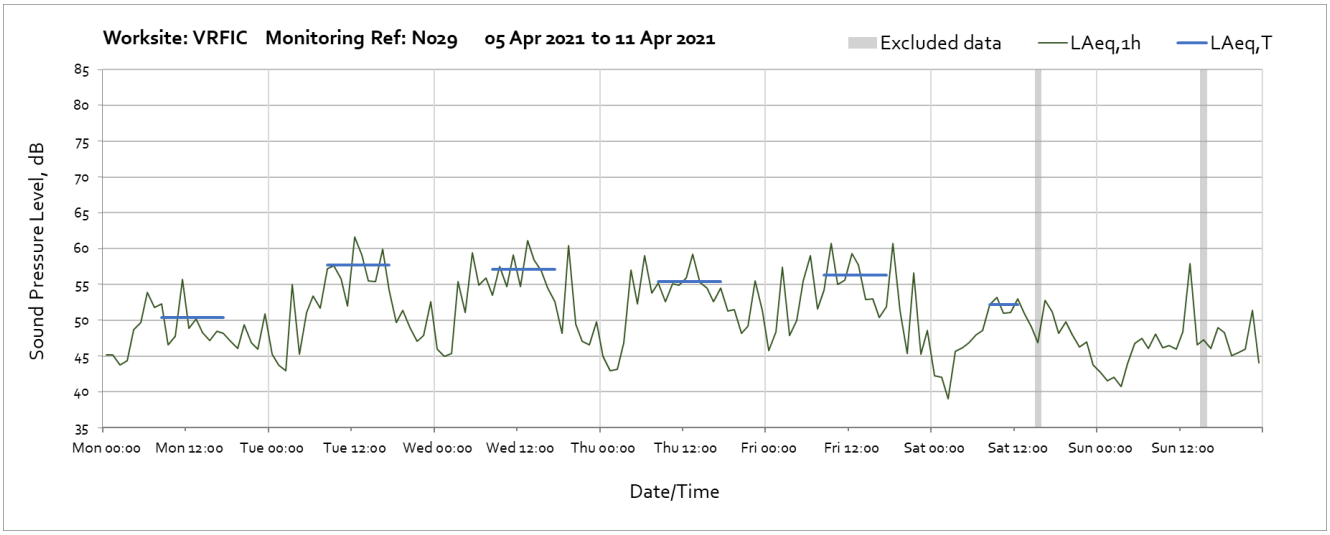
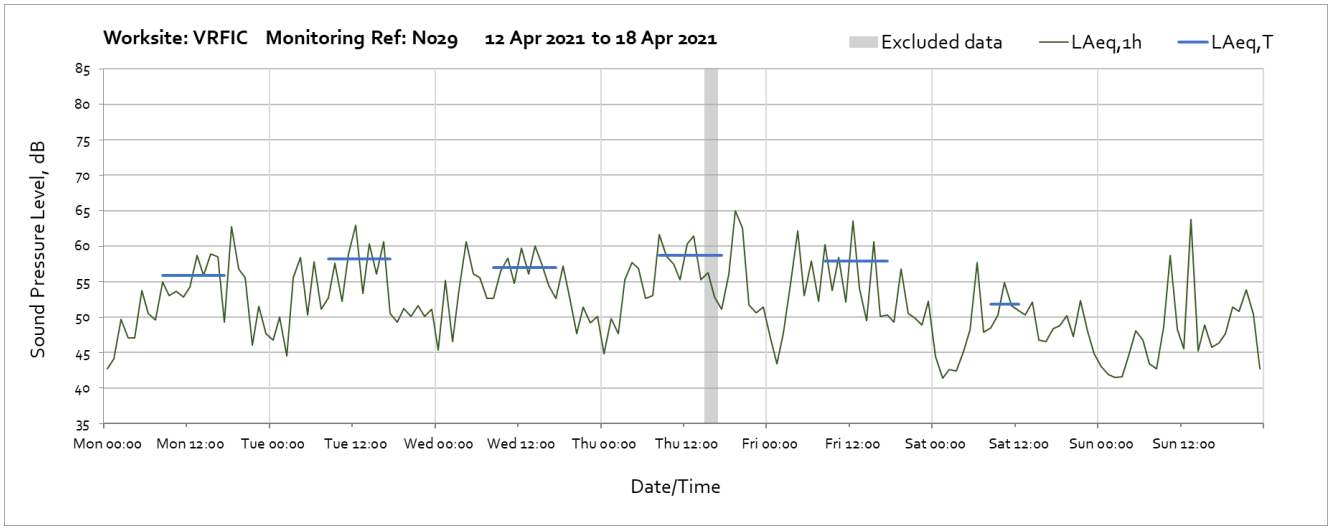
Date/Time



Worksite: Victoria Road and Flat Iron Compound (VRFIC) – Monitoring Ref: N029






Worksite: VRFIC Monitoring Ref: No29 12 Apr 2021 to 18 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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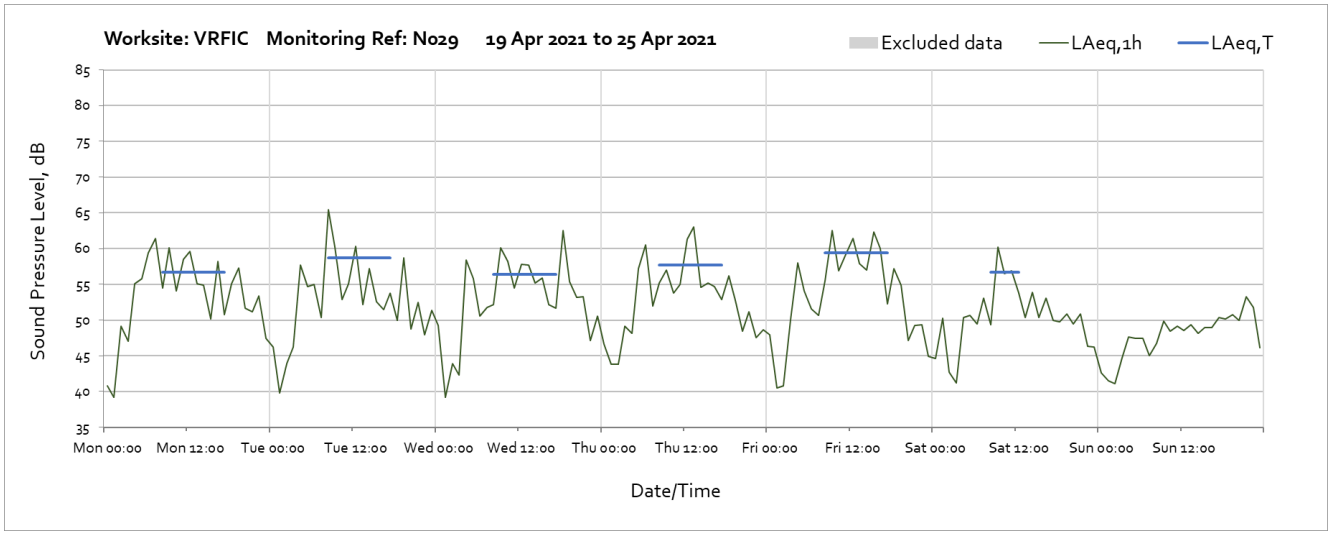
Date/Time


Worksite: VRFIC Monitoring Ref: No29 19 Apr 2021 to 25 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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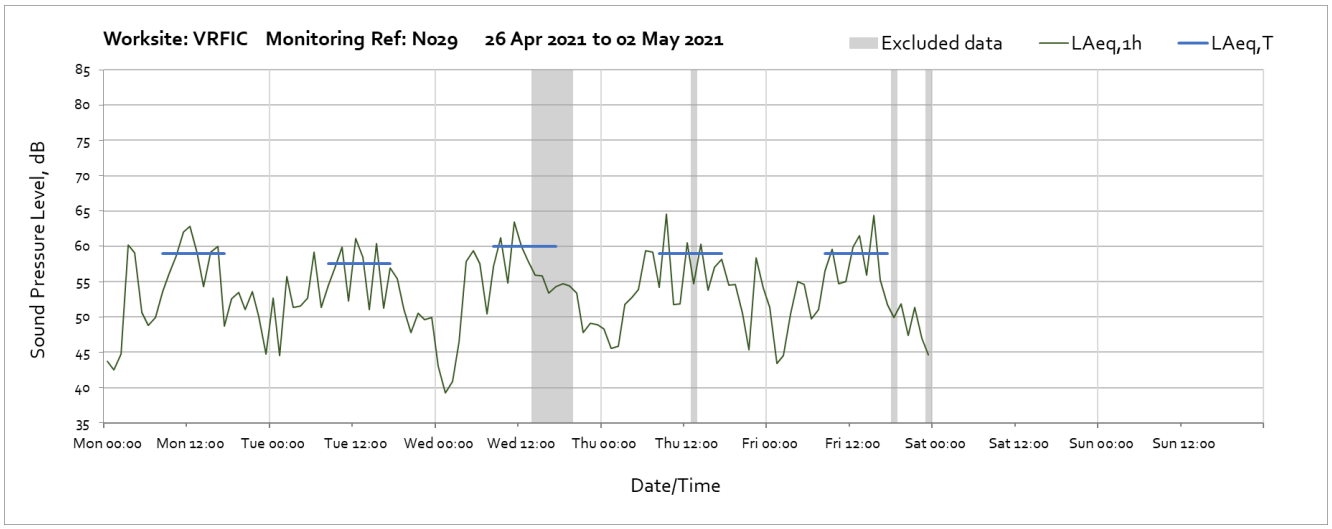
Date/Time


Worksite: VRFIC Monitoring Ref: No29 26 Apr 2021 to 02 May 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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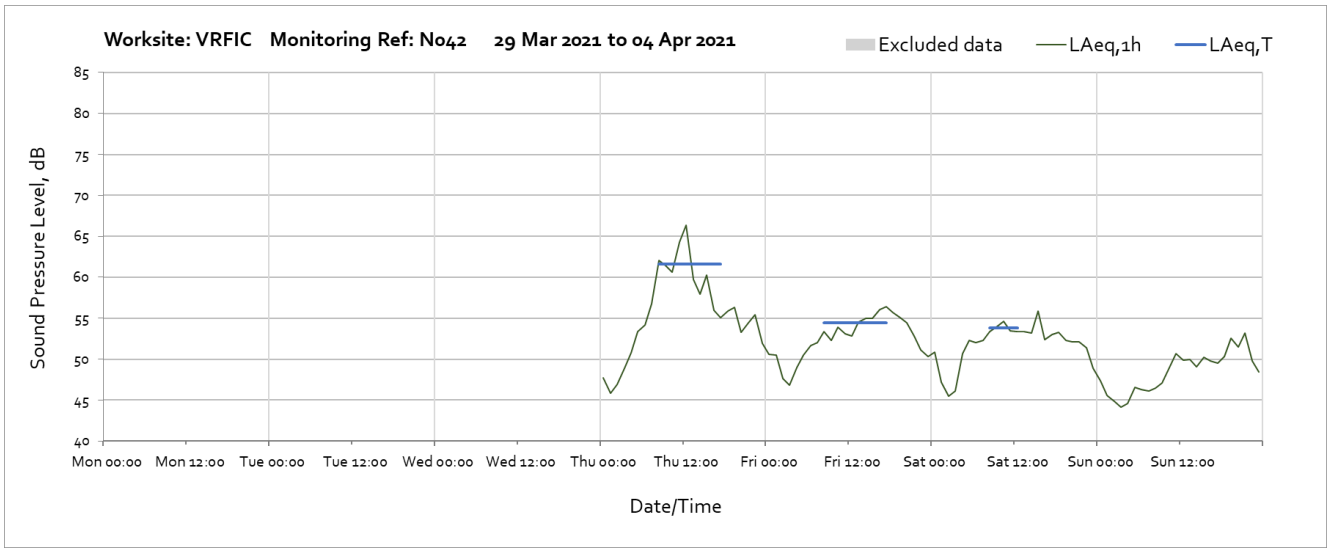
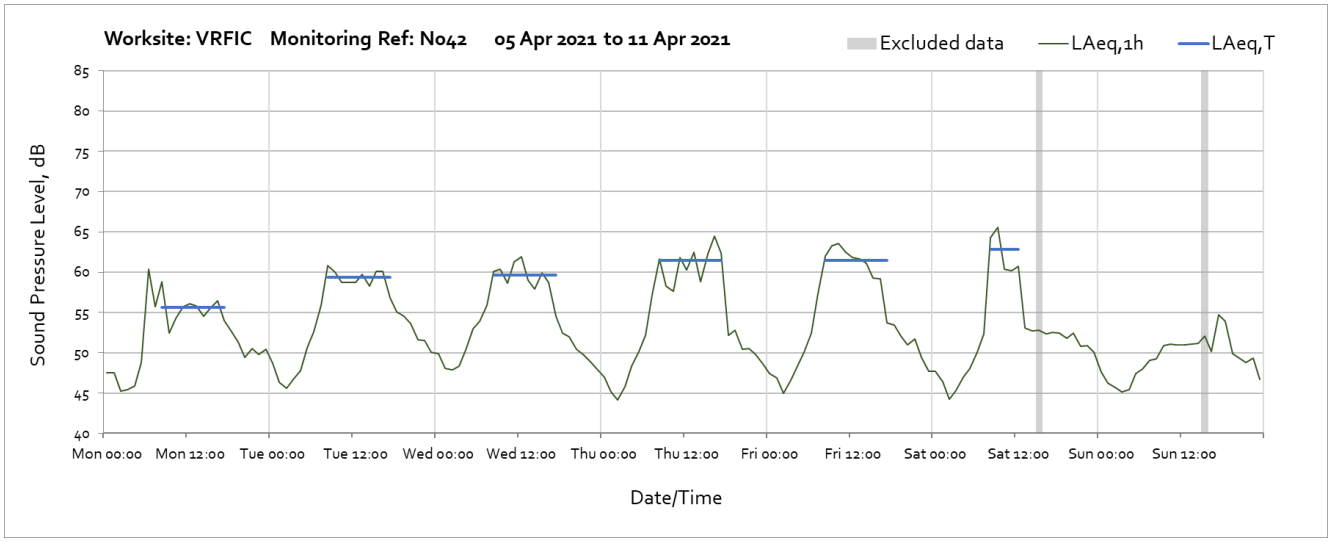
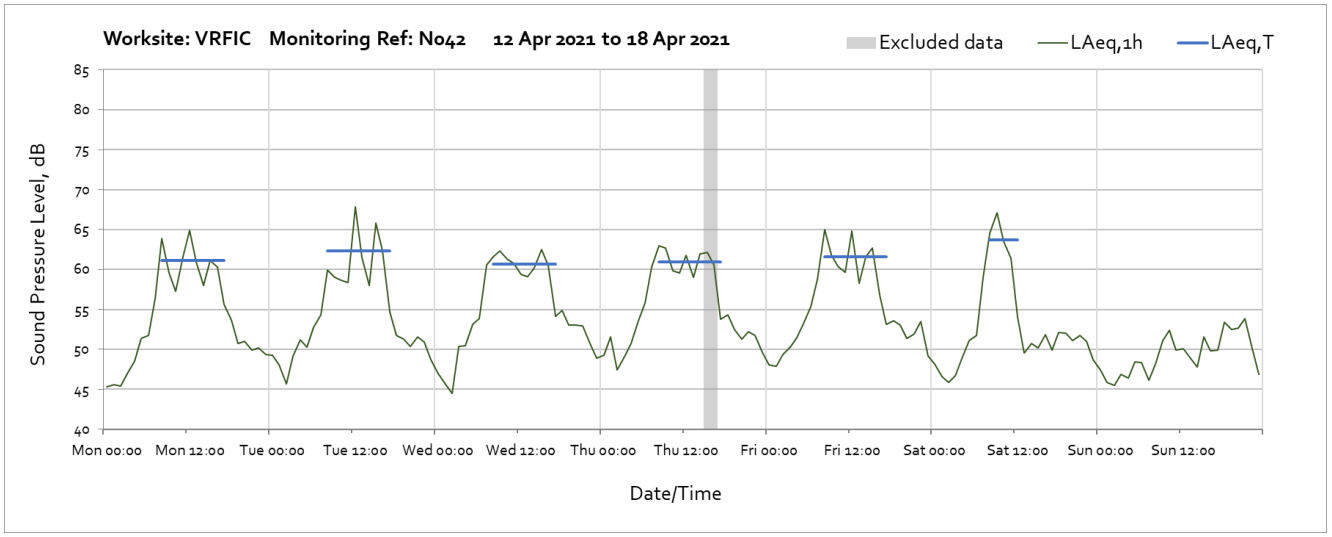
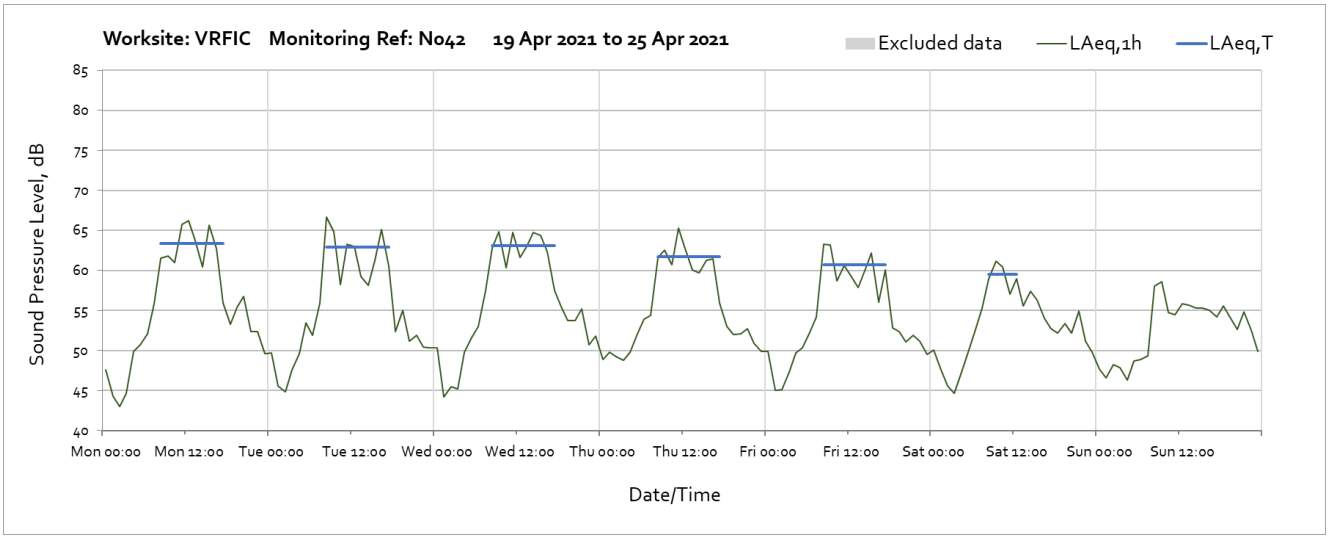
Date/Time

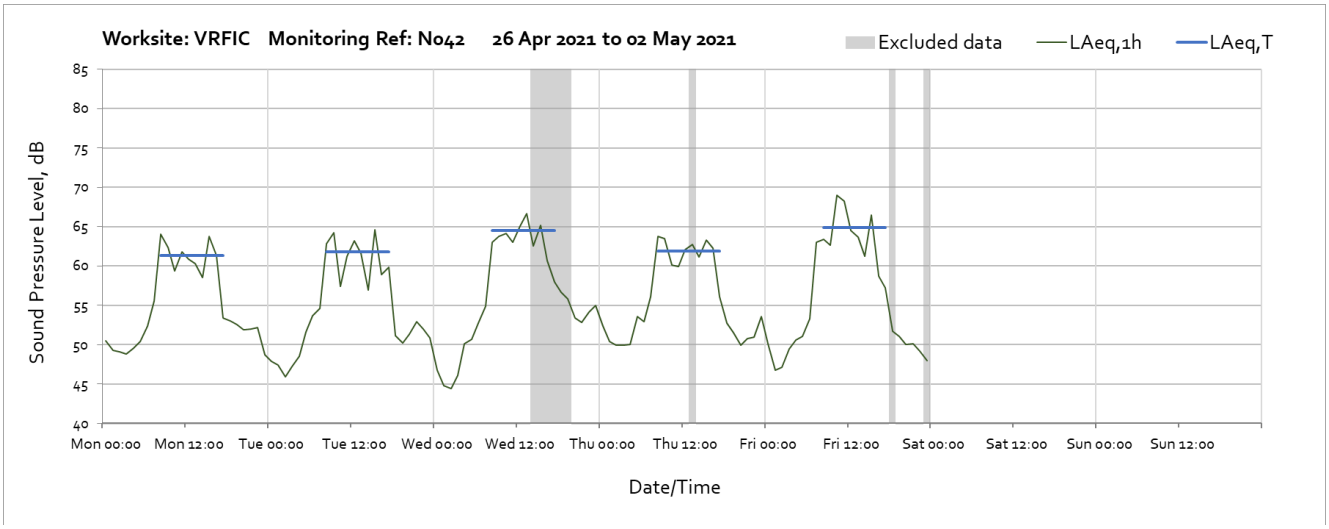
Worksite: Victoria Road and Flat Iron Compound (VRFIC) – Monitoring Ref: N042



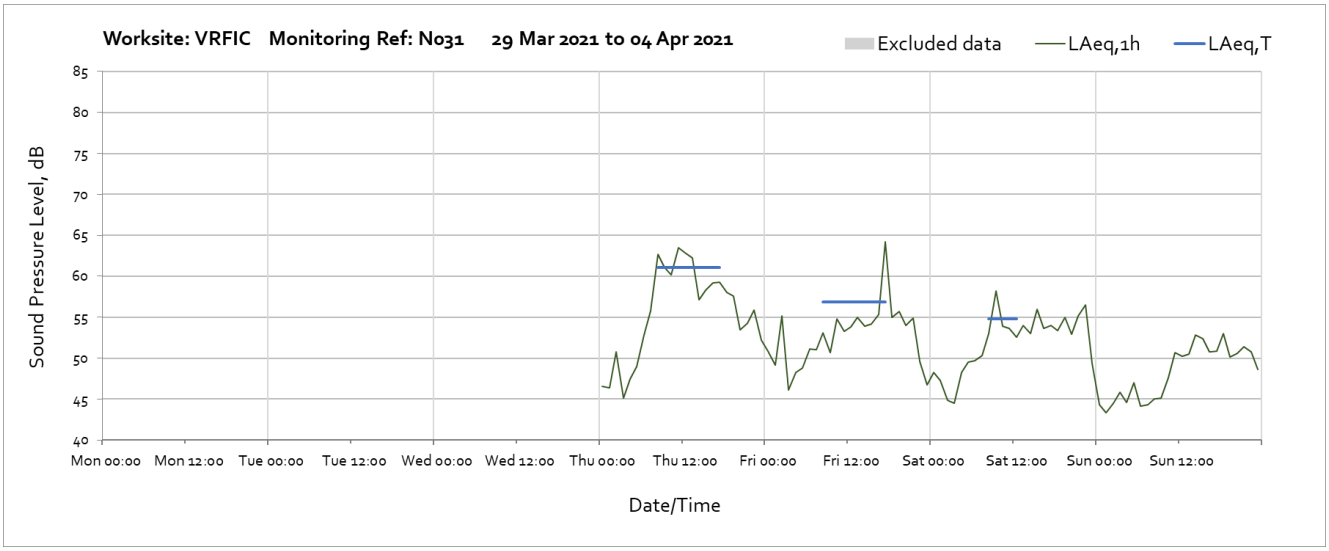


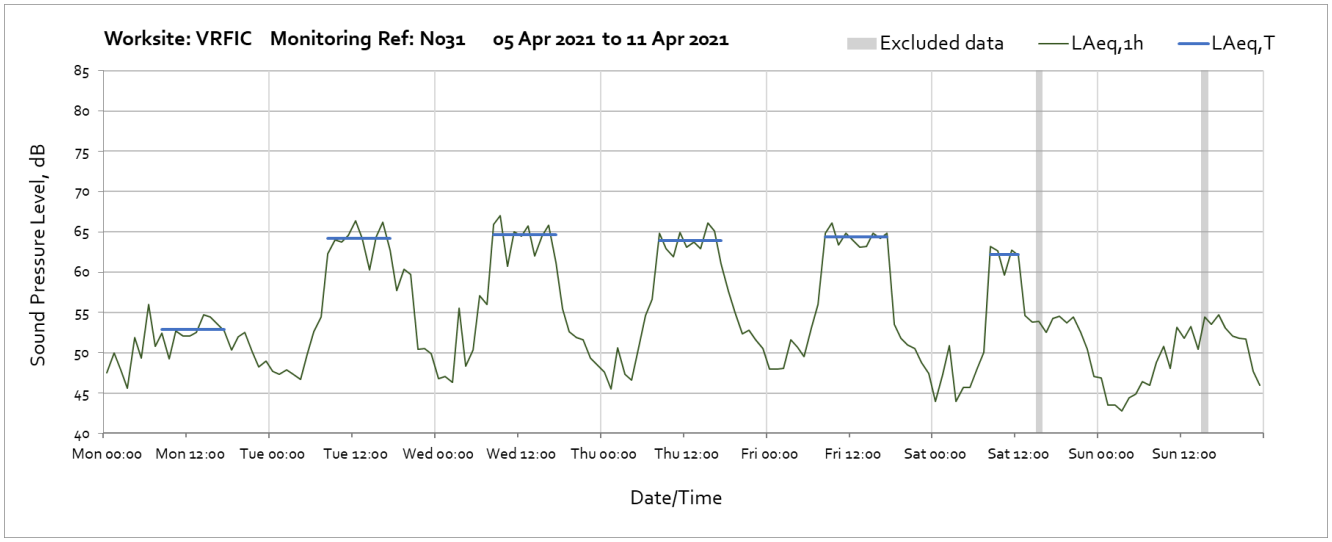






Worksite: Victoria Road and Flat Iron Compound (VRFIC) – Monitoring Ref: N031




Worksite: VRFIC Monitoring Ref: No31 05 Apr 2021 to 11 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
Mon 12:00
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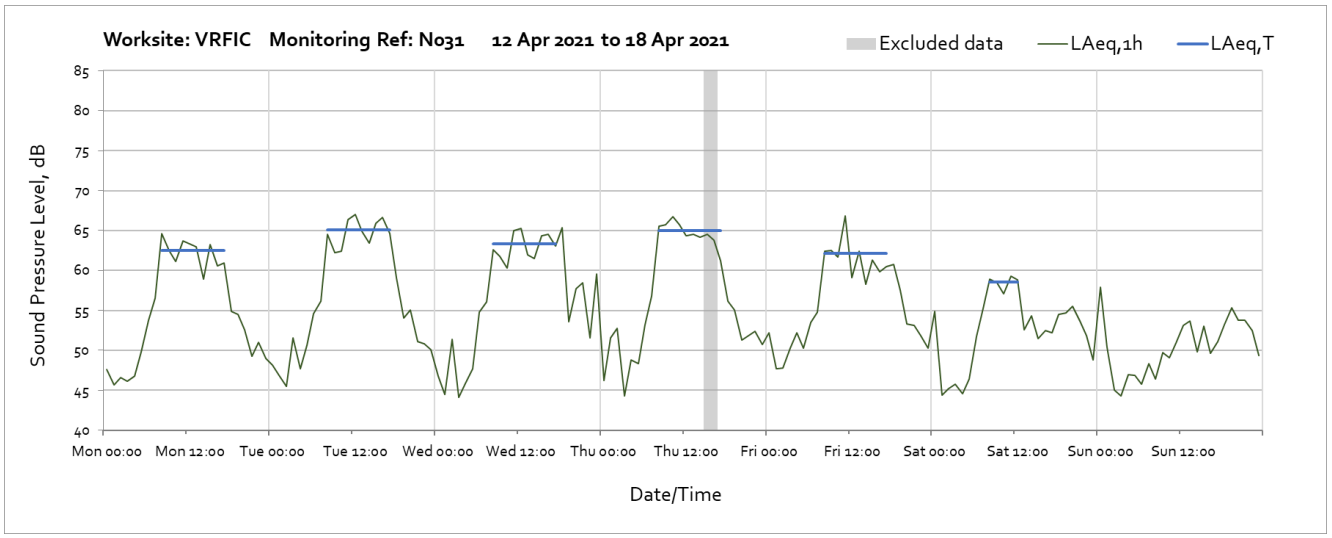
Date/Time


Worksite: VRFIC Monitoring Ref: No31 12 Apr 2021 to 18 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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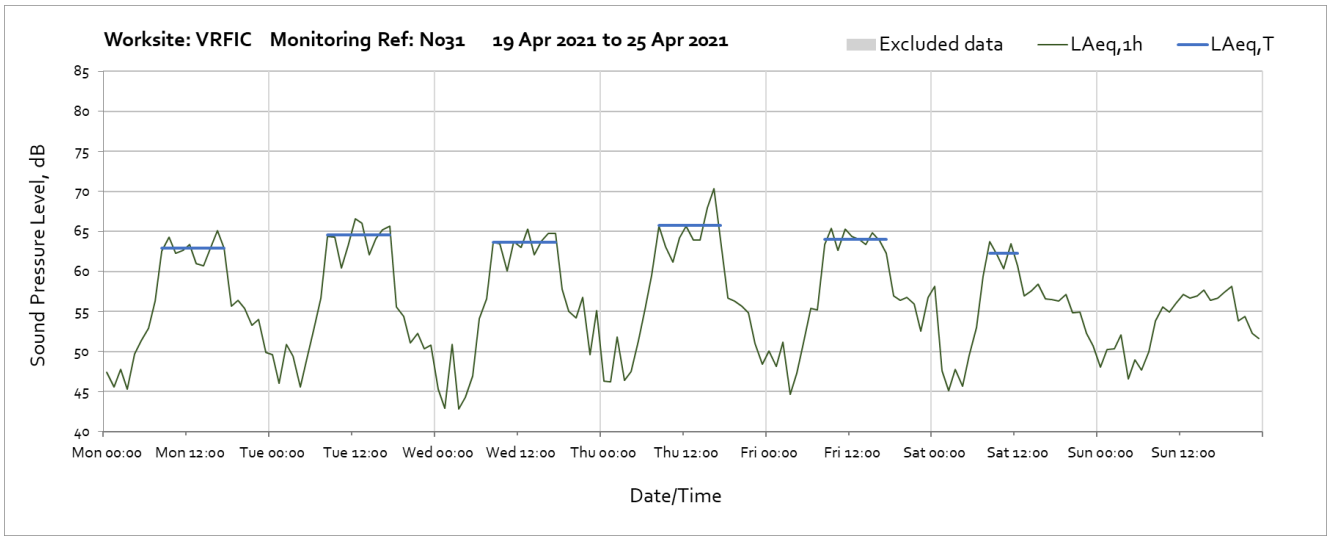
Date/Time


Worksite: VRFIC Monitoring Ref: No31 19 Apr 2021 to 25 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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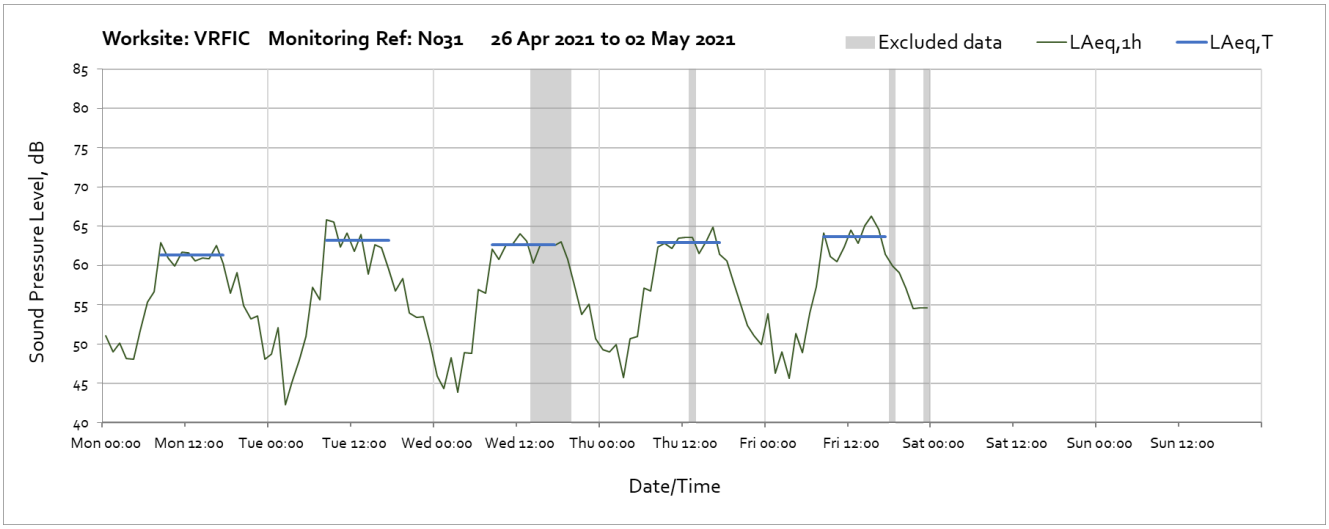
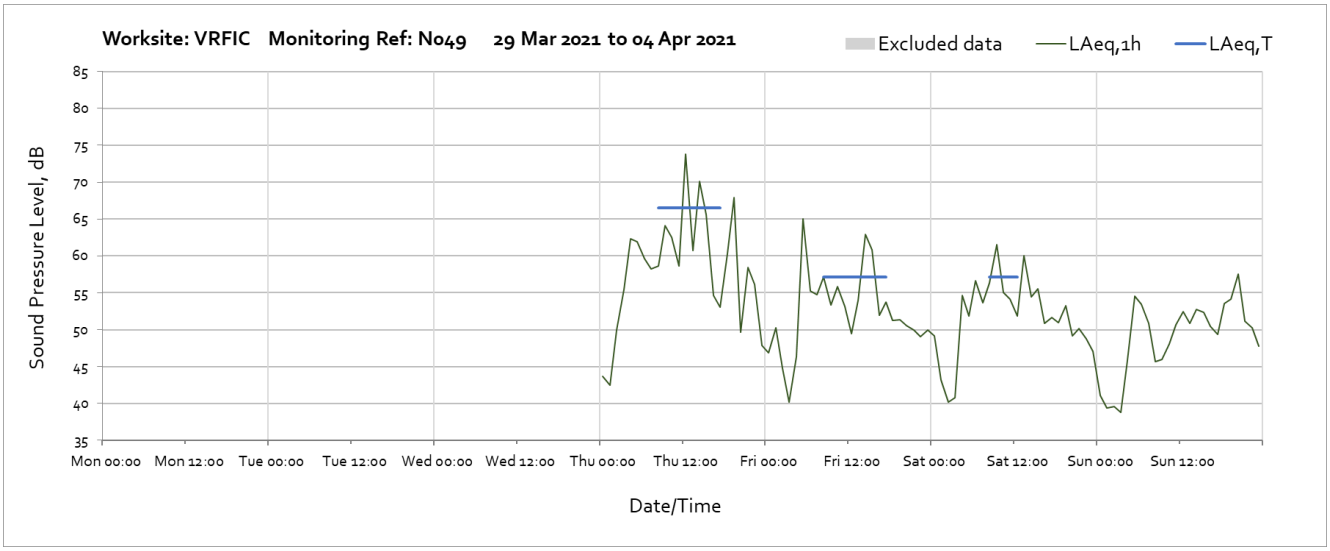
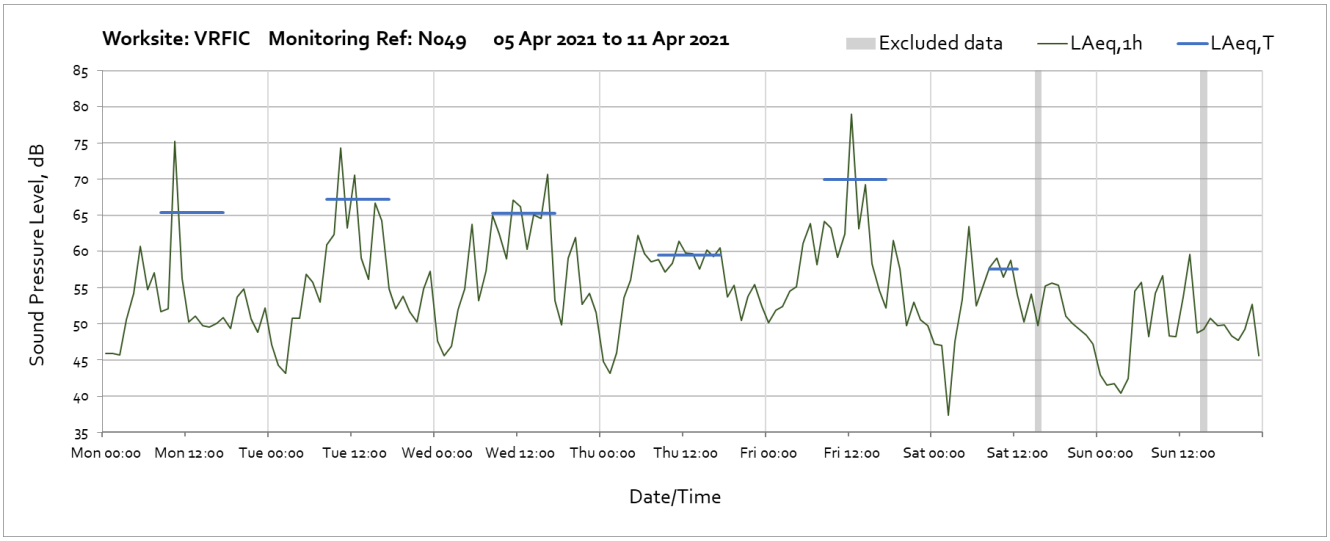
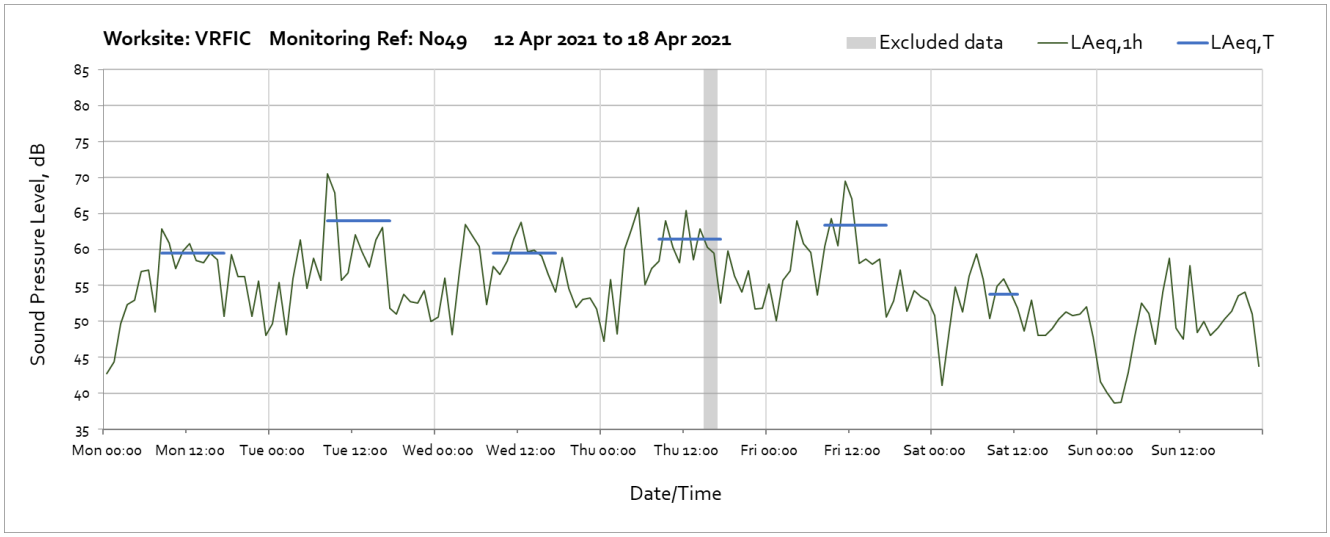
Date/Time



Worksite: Victoria Road and Flat Iron Compound (VRFIC) – Monitoring Ref: N049






Worksite: VRFIC Monitoring Ref: N049 12 Apr 2021 to 18 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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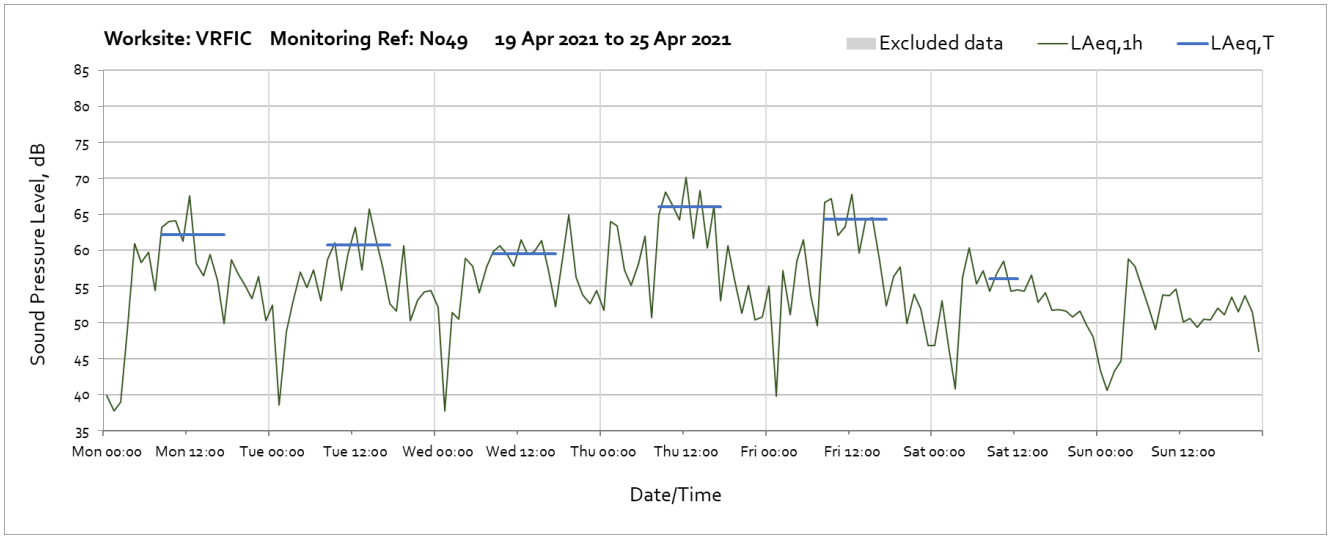
Worksite: VRFIC Monitoring Ref: N049 19 Apr 2021 to 25 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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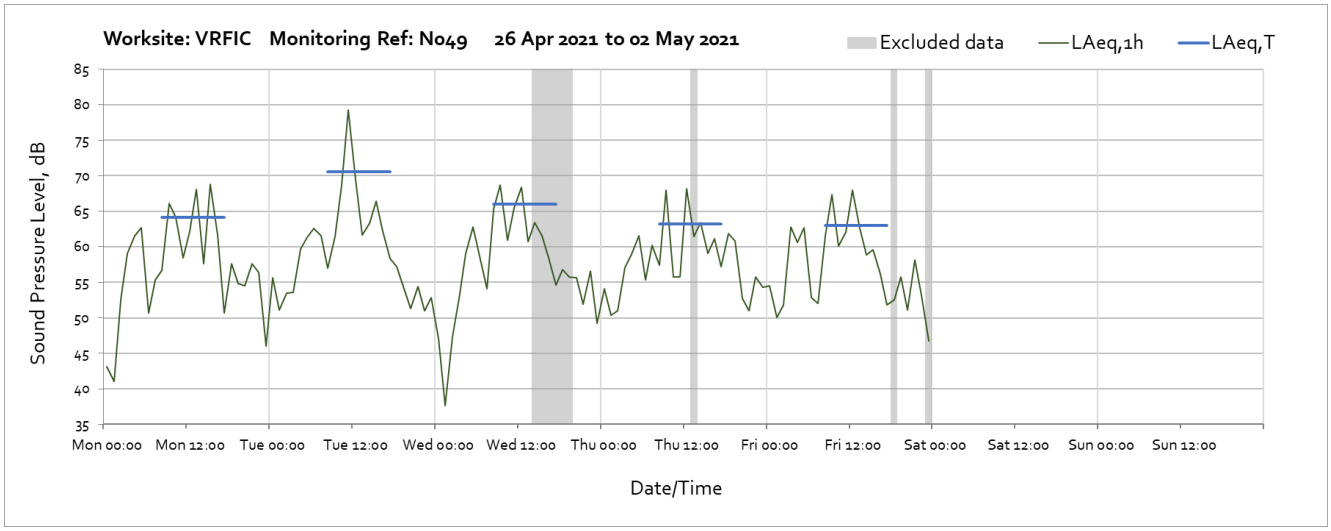
Date/Time


Worksite: VRFIC Monitoring Ref: N049 26 Apr 2021 to 02 May 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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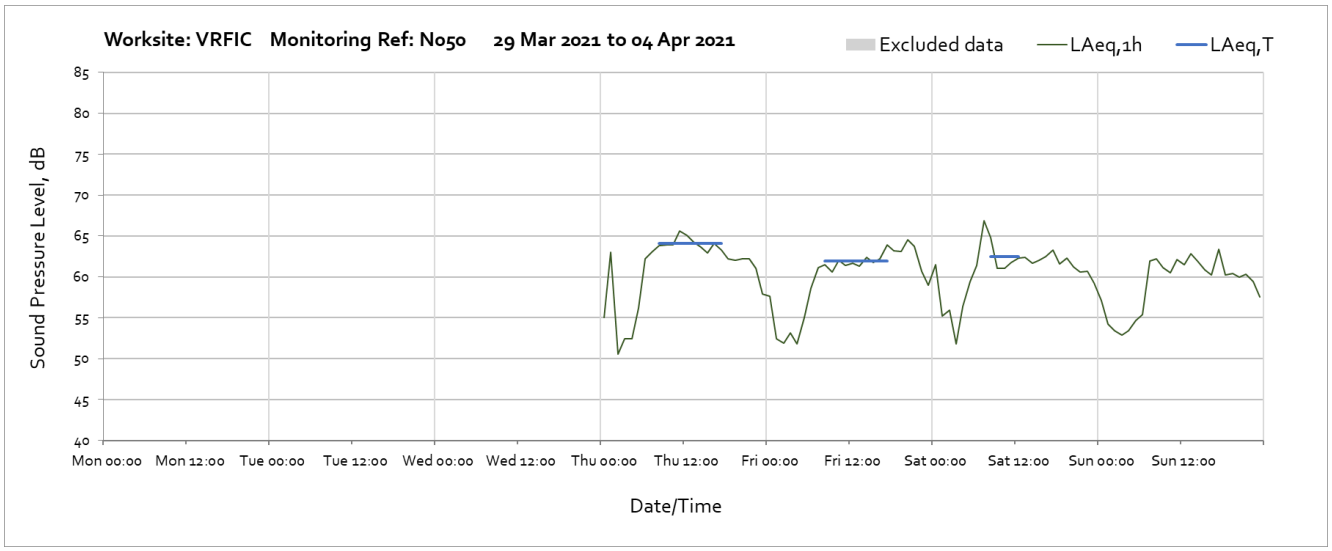
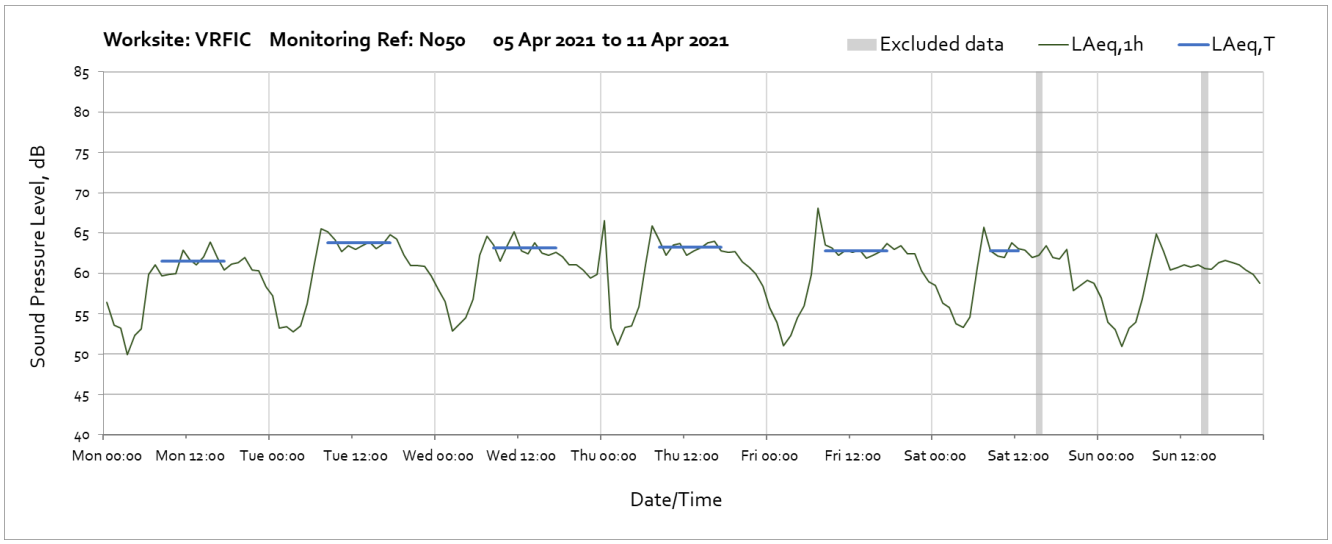
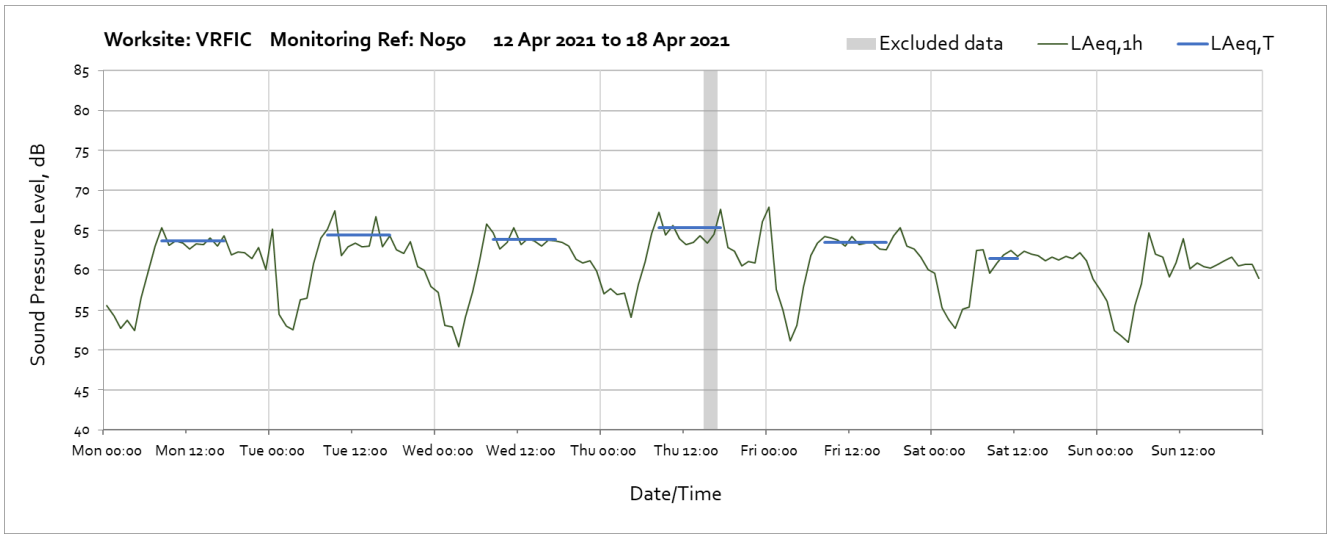
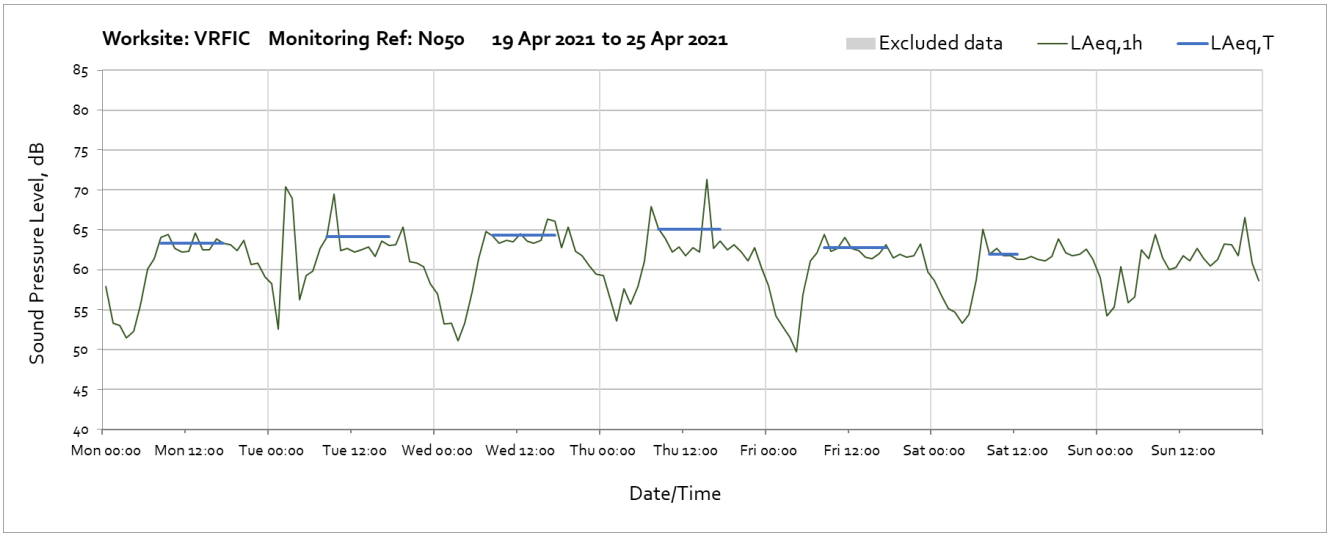
Date/Time

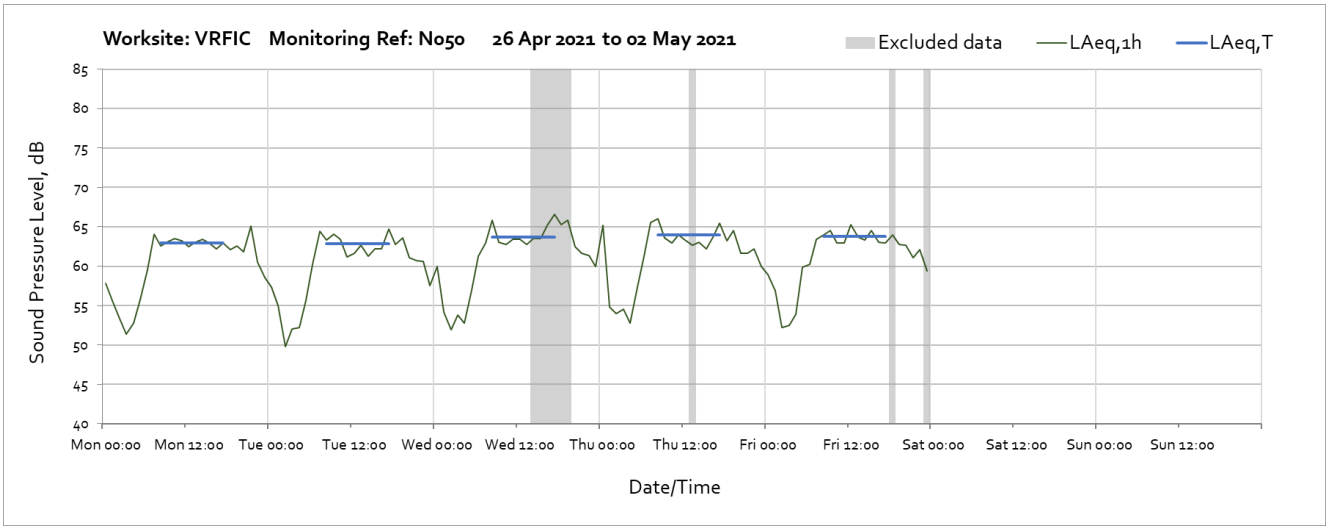
Worksite: Victoria Road and Flat Iron Compound (VRFIC) – Monitoring Ref: N050



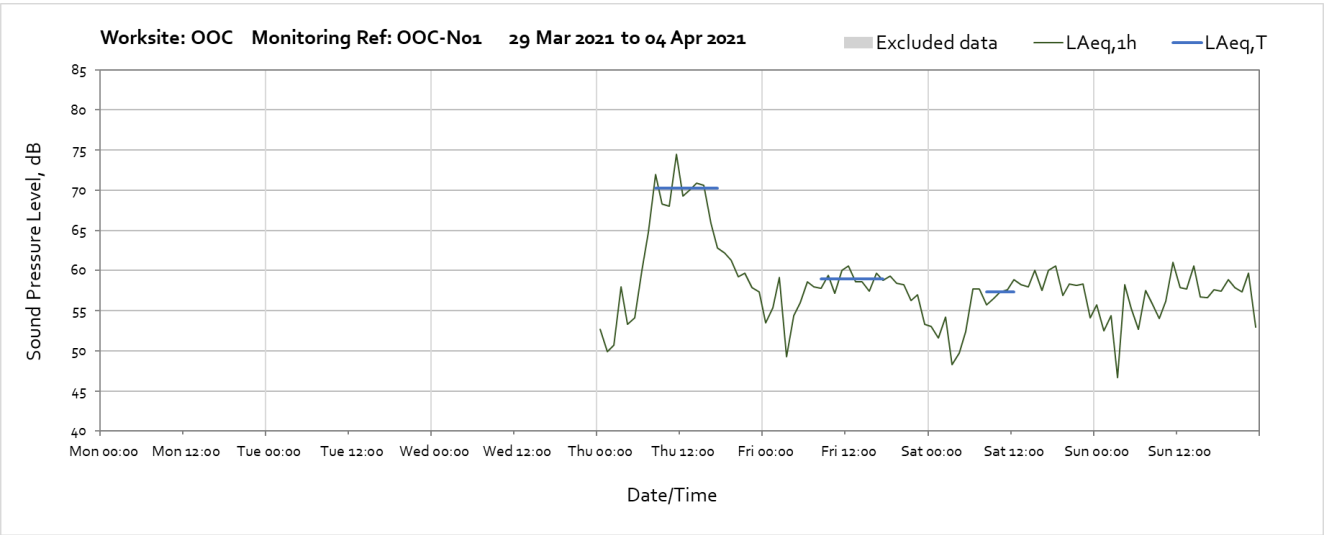


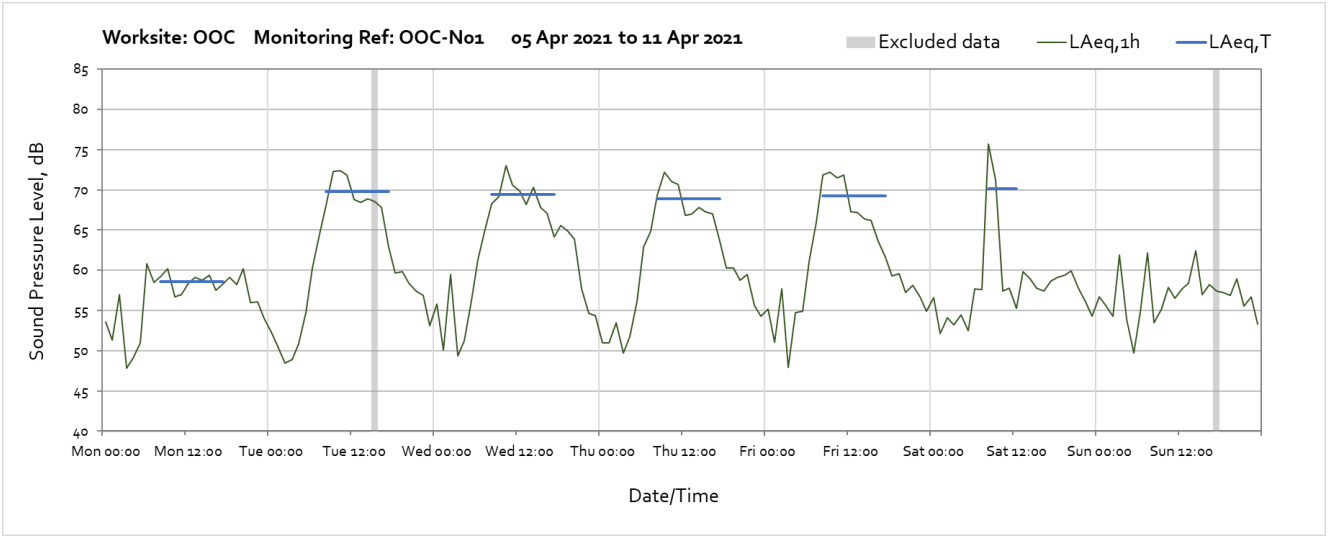






Worksite: Oal Oak Common (OOC) – Monitoring Ref: OOC-N01




Worksite: OOC Monitoring Ref: OOC-No1 05 Apr 2021 to 11 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
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Mon 00:00
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Tue 12:00
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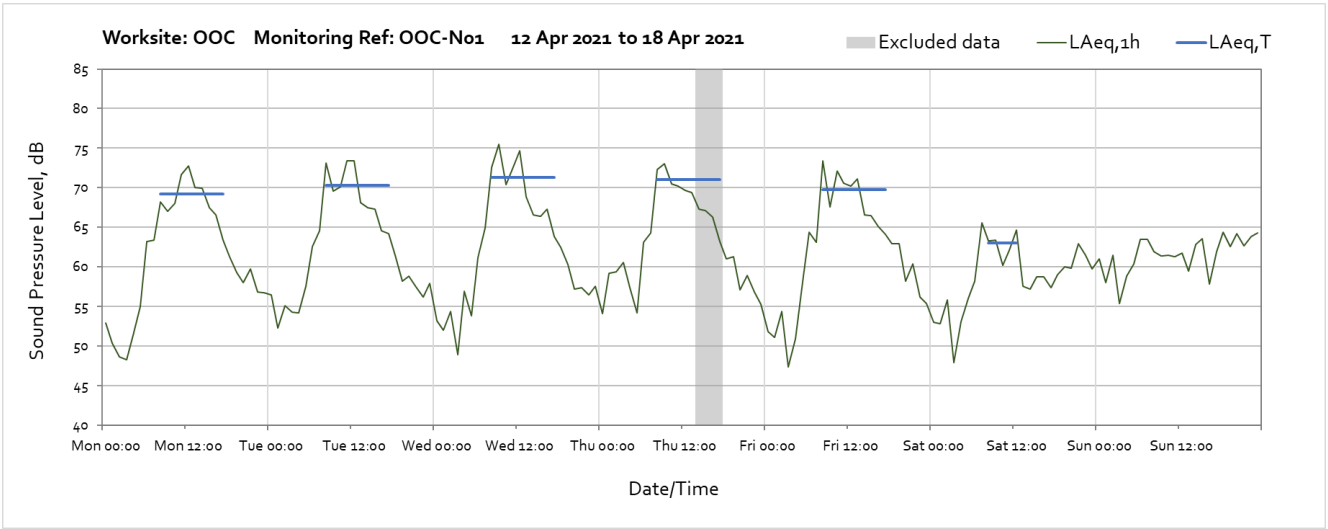
Date/Time


Worksite: OOC Monitoring Ref: OOC-No1 12 Apr 2021 to 18 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
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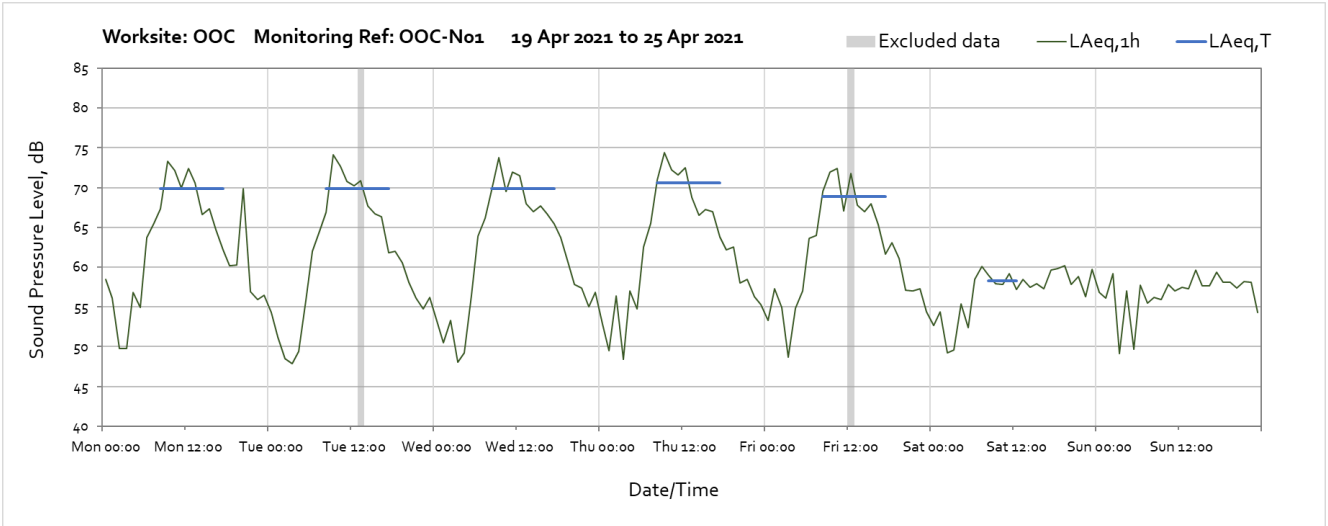
Sun 12:00
Date/Time


Worksite: OOC Monitoring Ref: OOC-No1 19 Apr 2021 to 25 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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75
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Mon 12:00
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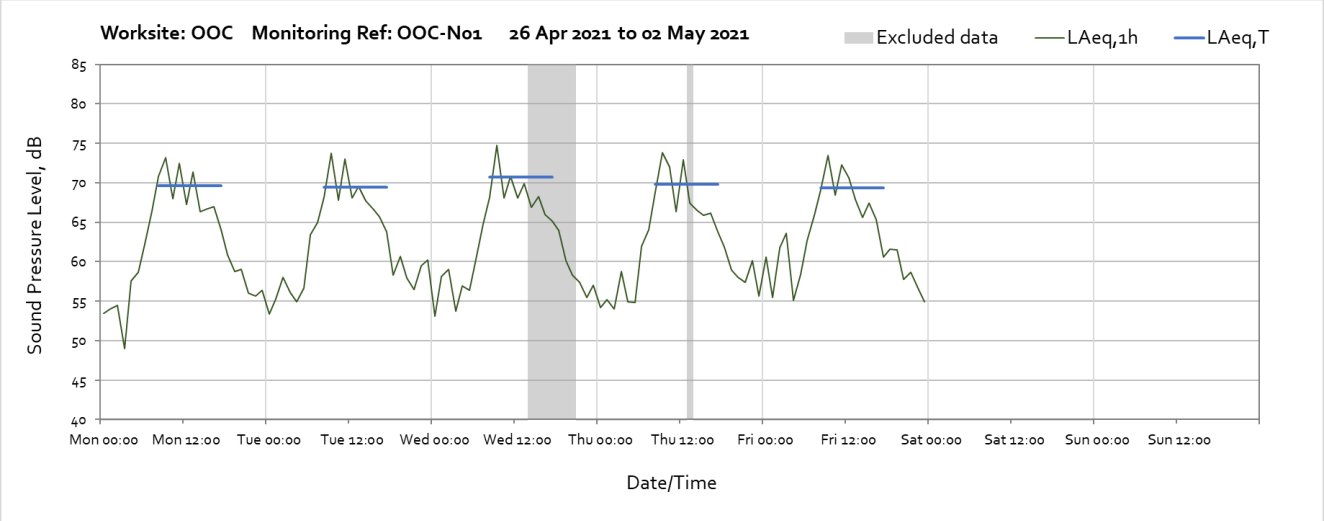
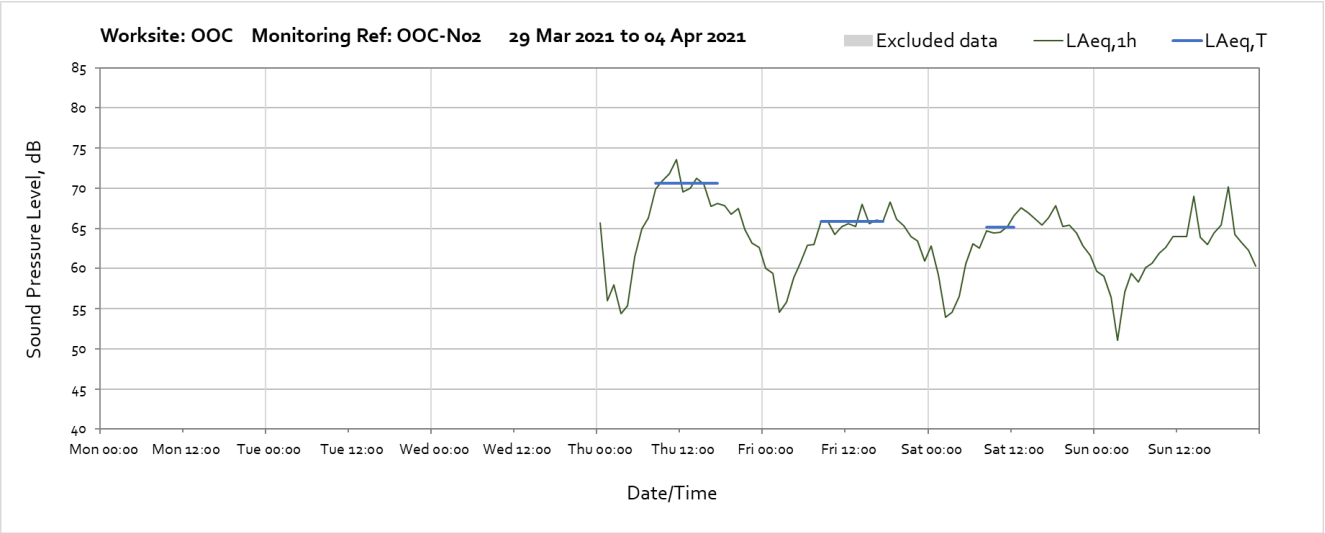
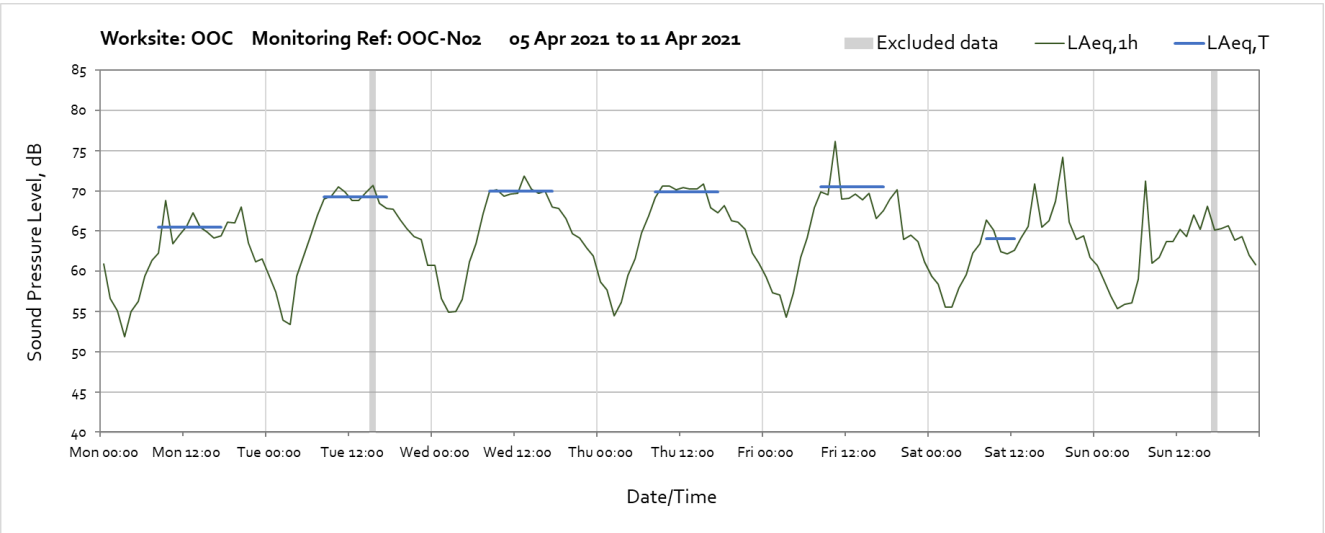
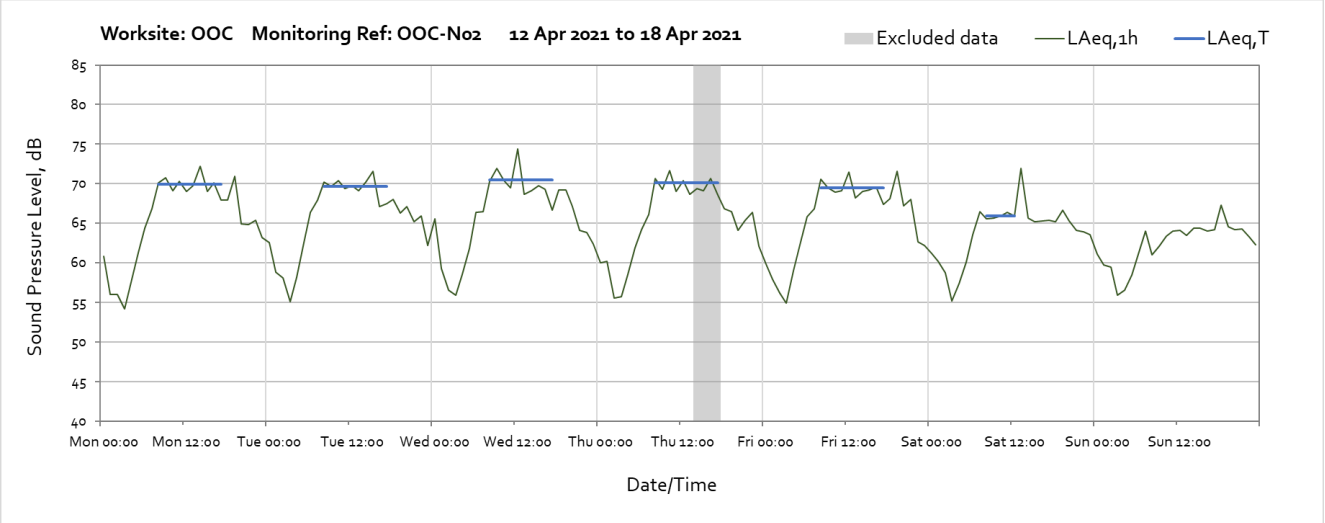
Date/Time



Worksite: Oal Oak Common (OOC) – Monitoring Ref: OOC-N02






Worksite: OOC Monitoring Ref: OOC-No2 12 Apr 2021 to 18 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 12:00
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Tue 12:00
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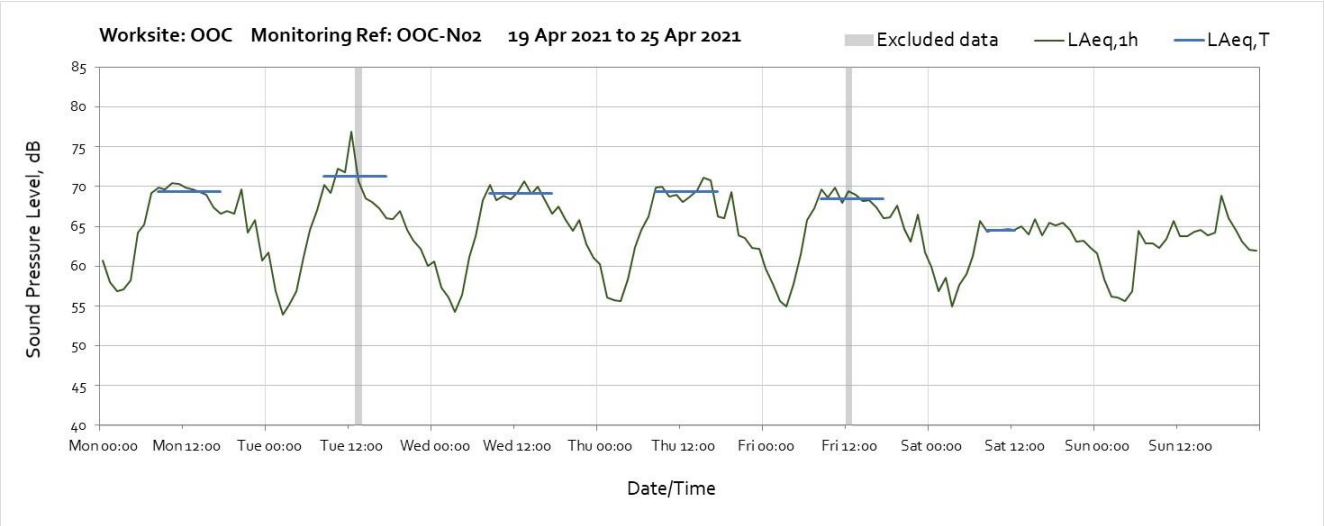
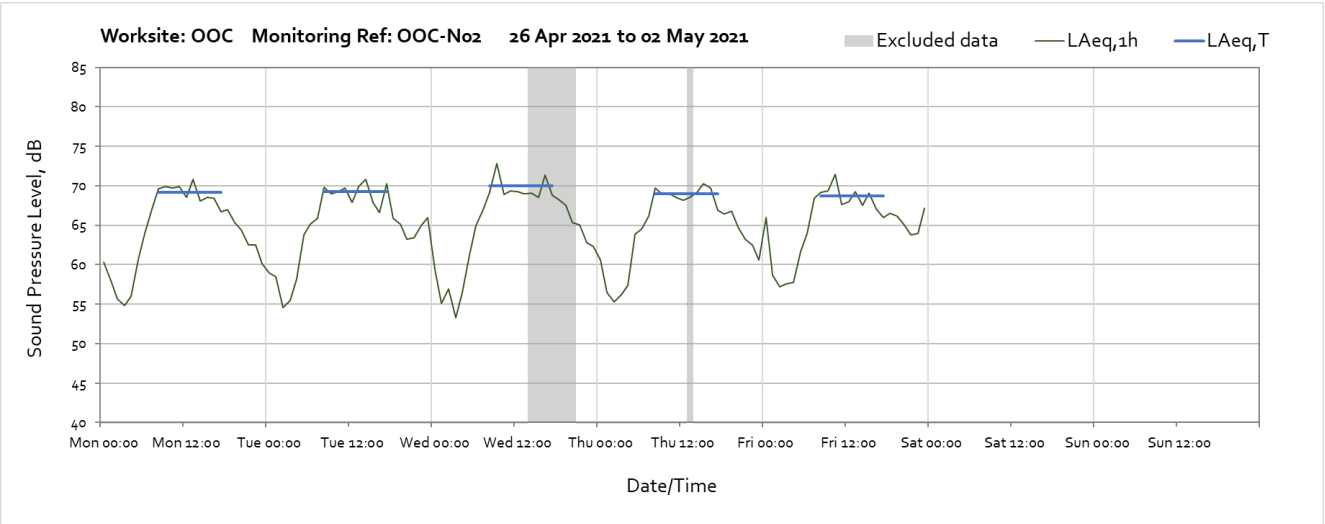
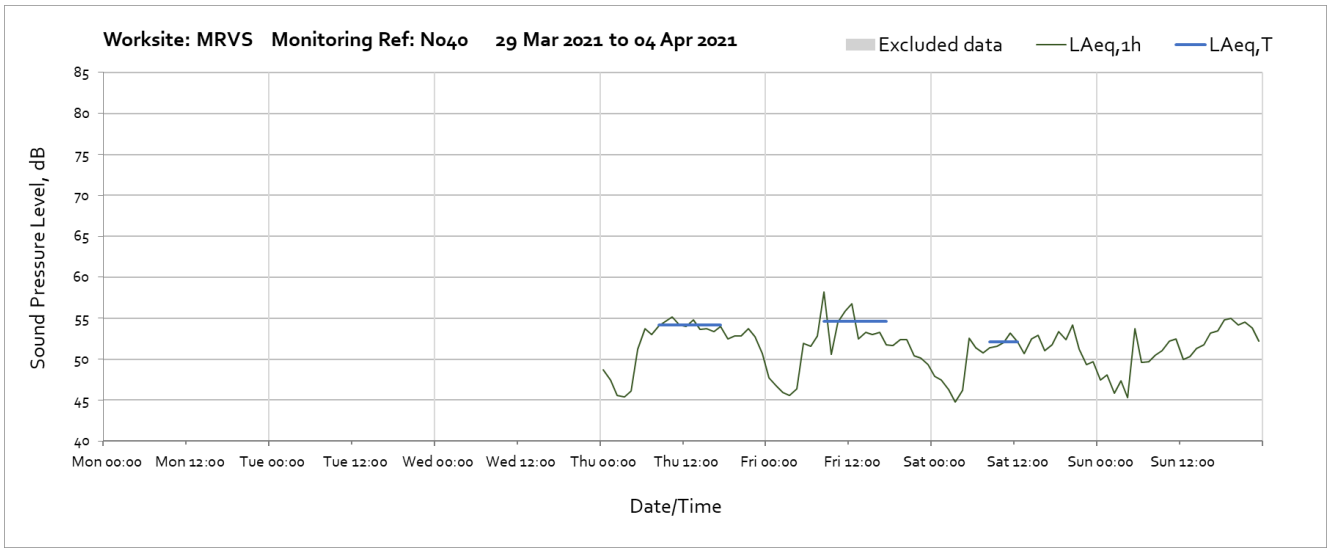
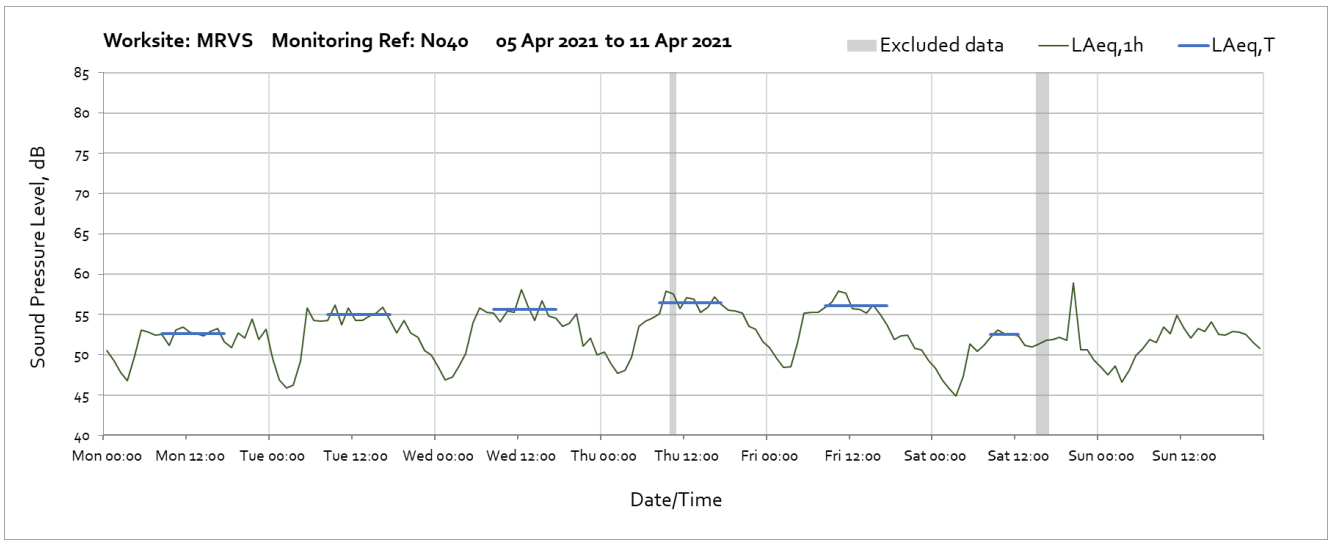
Sun 12:00
Date/Time

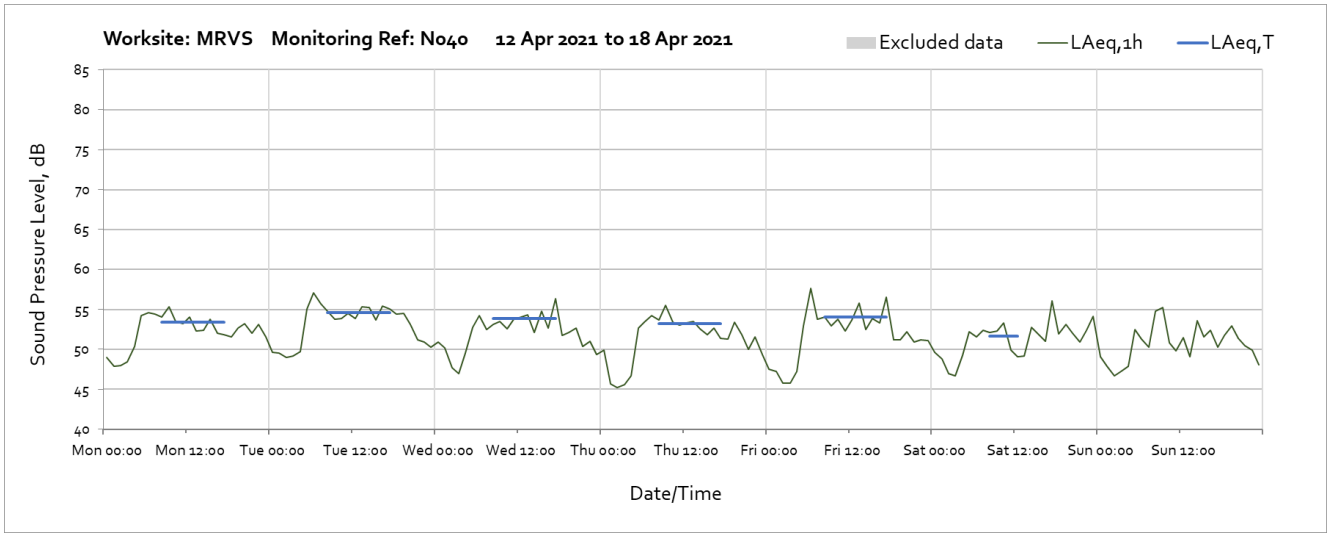

Worksite: OOC Monitoring Ref: OOC-No2 19 Apr 2021 to 25 Apr 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

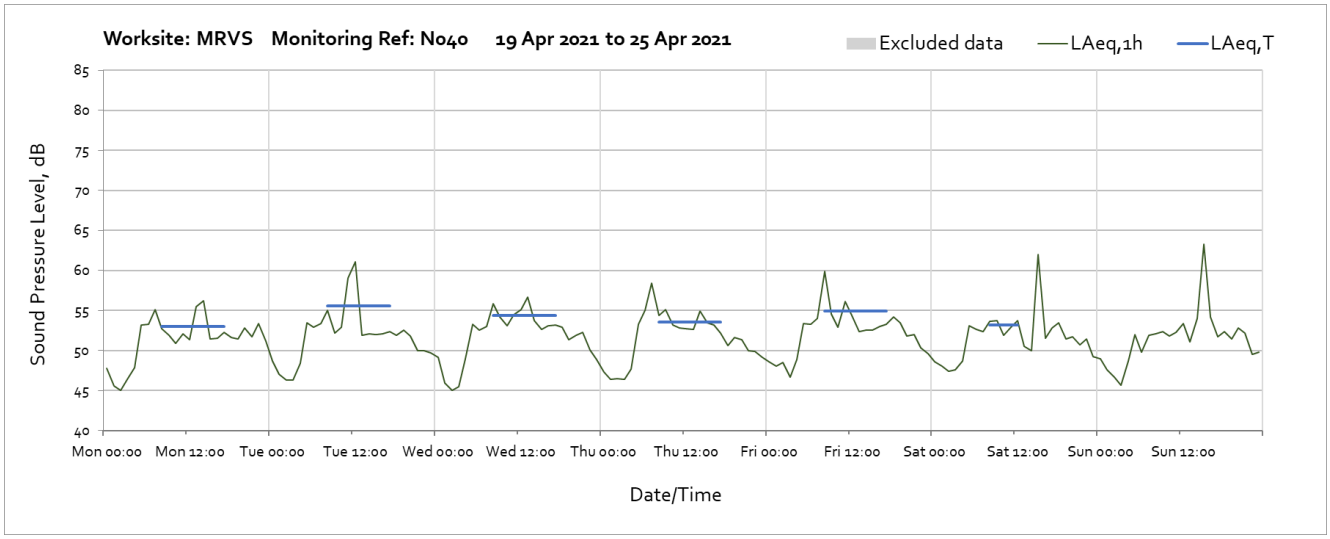

Worksite: OOC Monitoring Ref: OOC-No2 26 Apr 2021 to 02 May 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

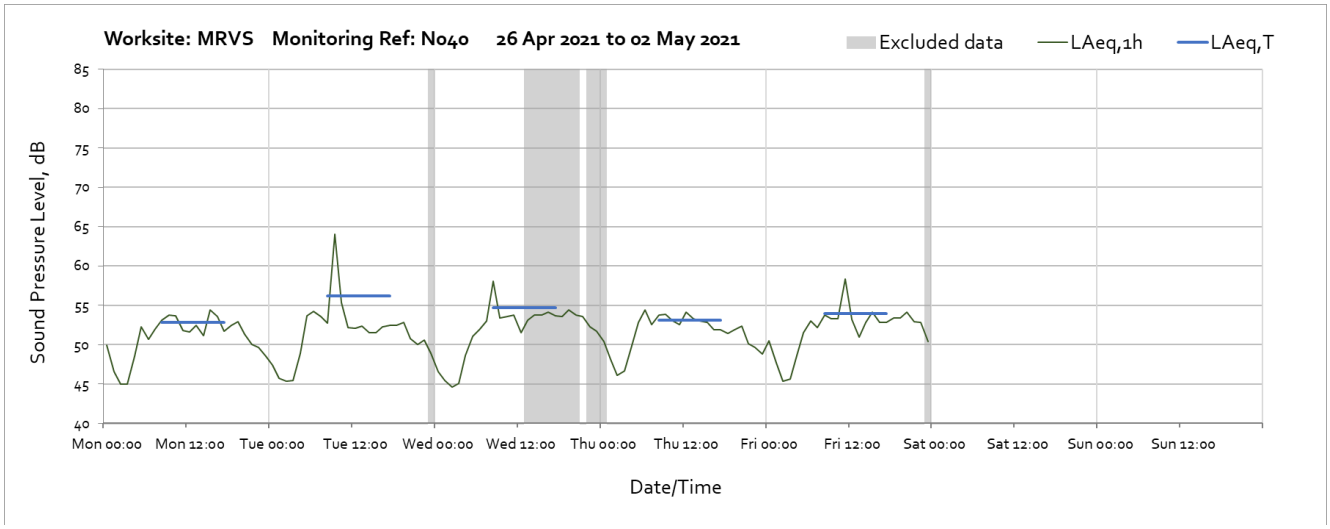
Worksite: Mandeville Road Ventilation Shaft (MRVS) – Monitoring Ref: N040



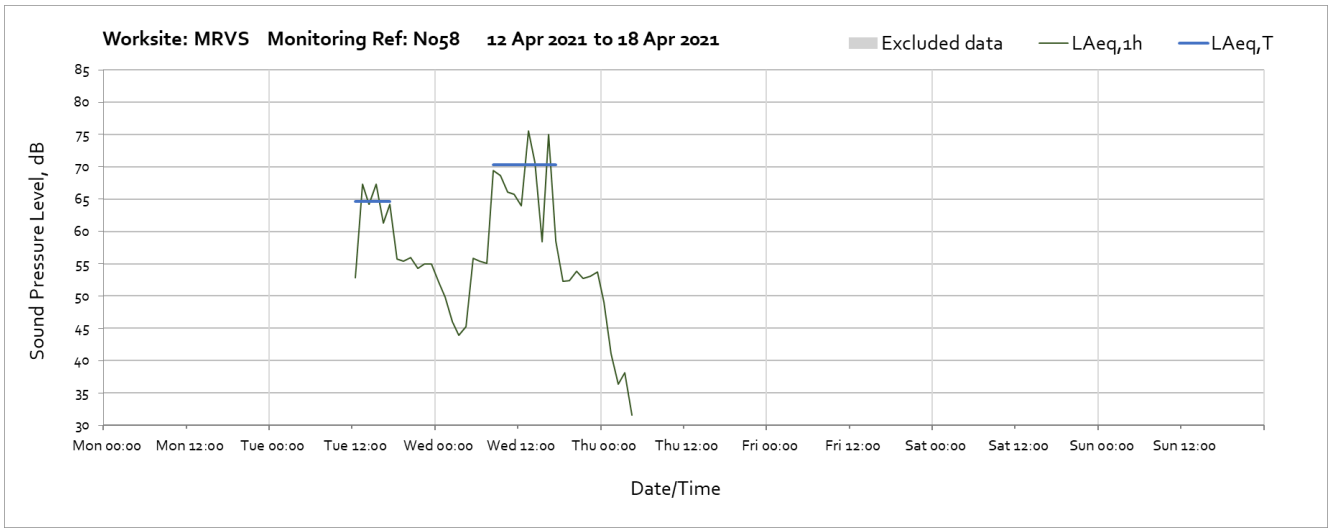




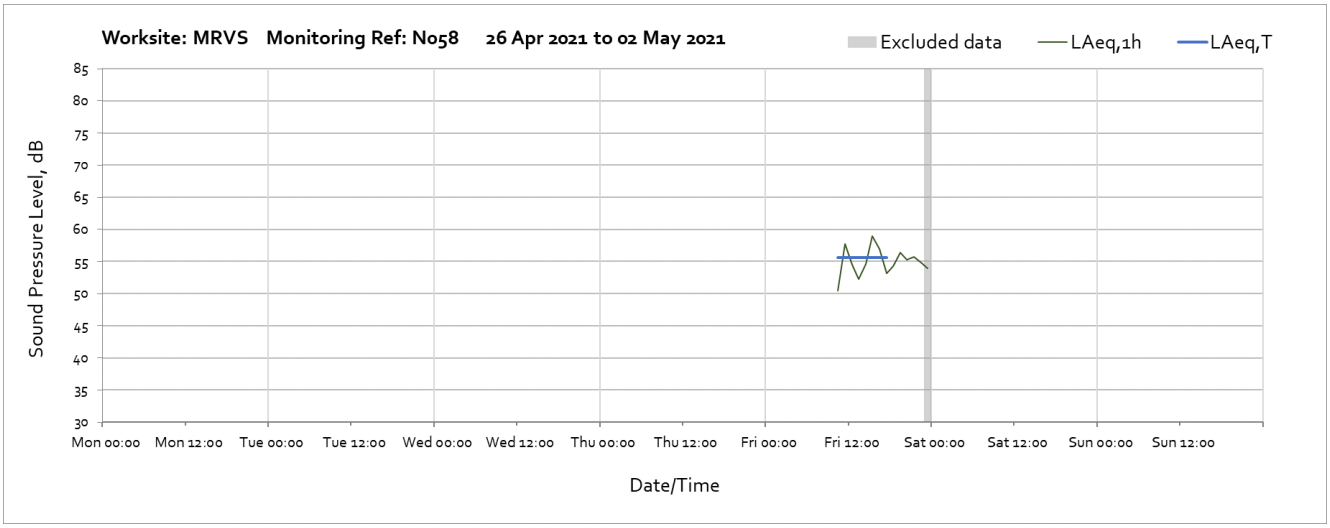




Worksite: Mandeville Road Ventilation Shaft (MRVS) – Monitoring Ref: N058

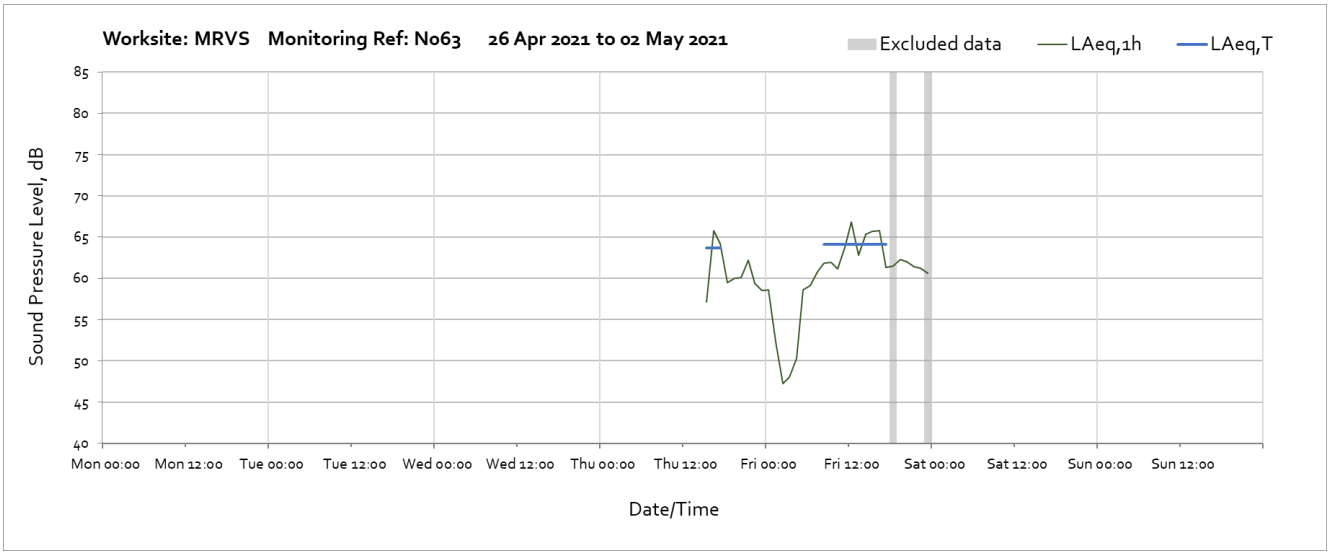


Note: The noise monitor was installed at 12:00 on Tuesday 13th April 2021. Missing data between 05:00 on Thursday 15th April and 10:00 on Friday 30th April 2021 was due to loss of power at the monitor locations. Site power connection has been installed at the noise monitor on Friday 30th April 2021.



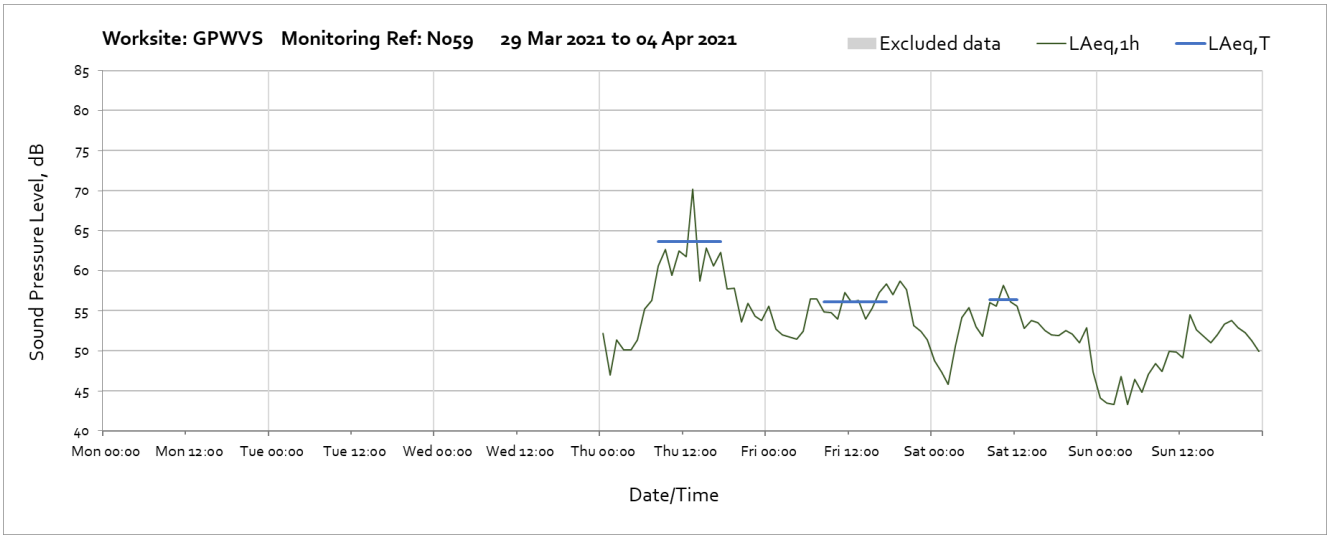
Missing data between 05:00 on Thursday 15th April and 10:00 on Friday 30th April 2021 was due to loss of power at the monitor locations. Site power connection has been installed at the noise monitor location on Friday 30th April 2021.

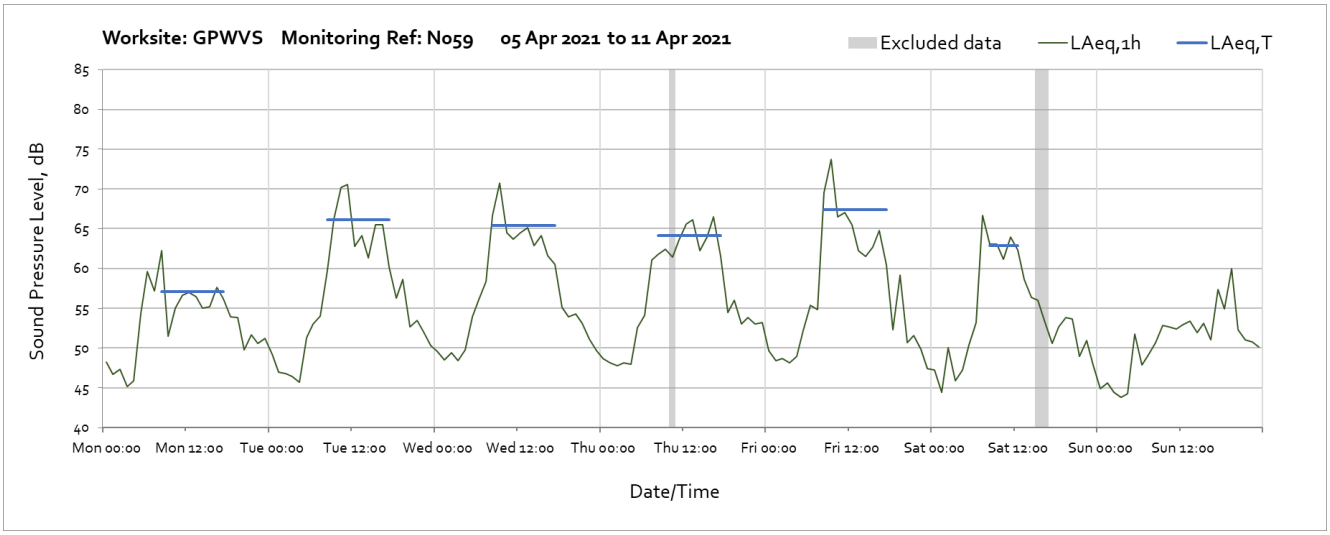
Worksite: Mandeville Road Ventilation Shaft (MRVS) – Monitoring Ref: N063

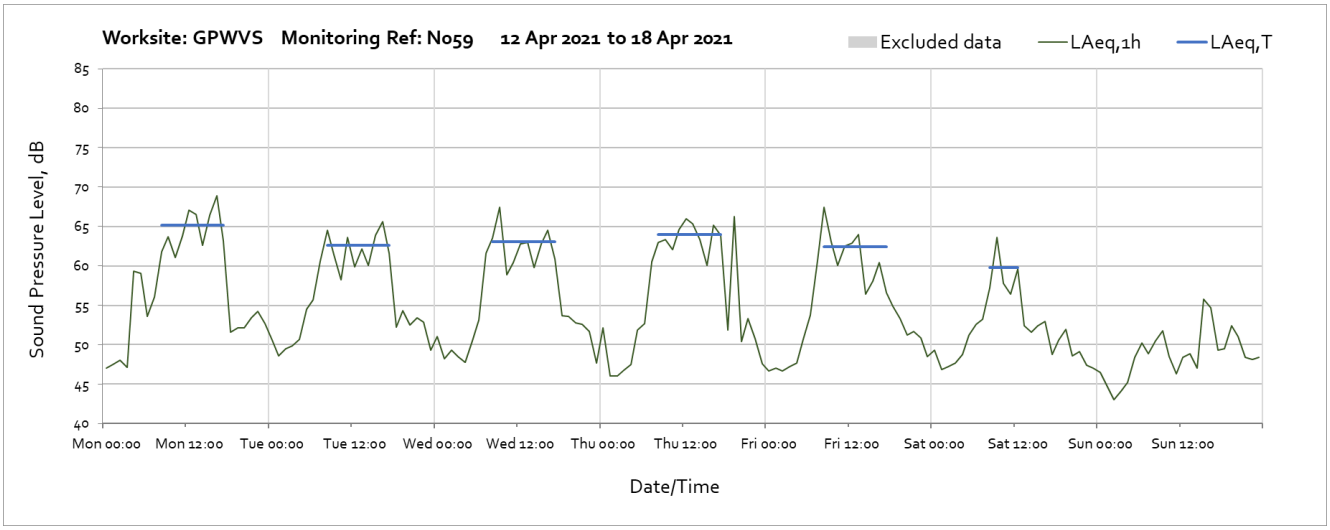


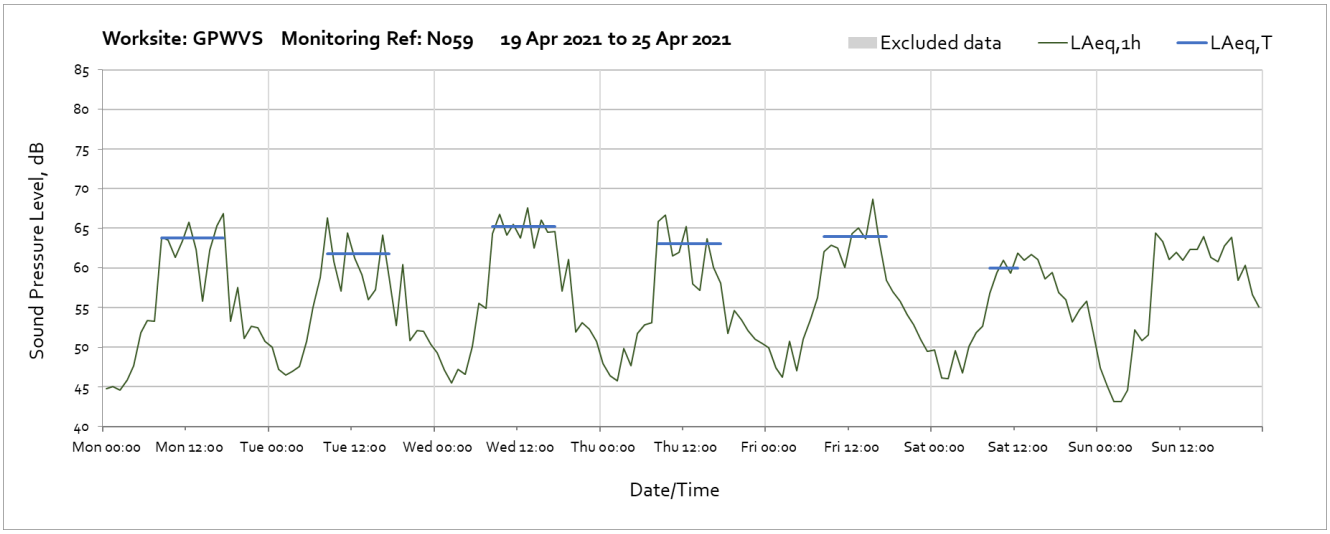
Note: The noise monitor was installed at 15:00 on Thursday 29th April 2021.

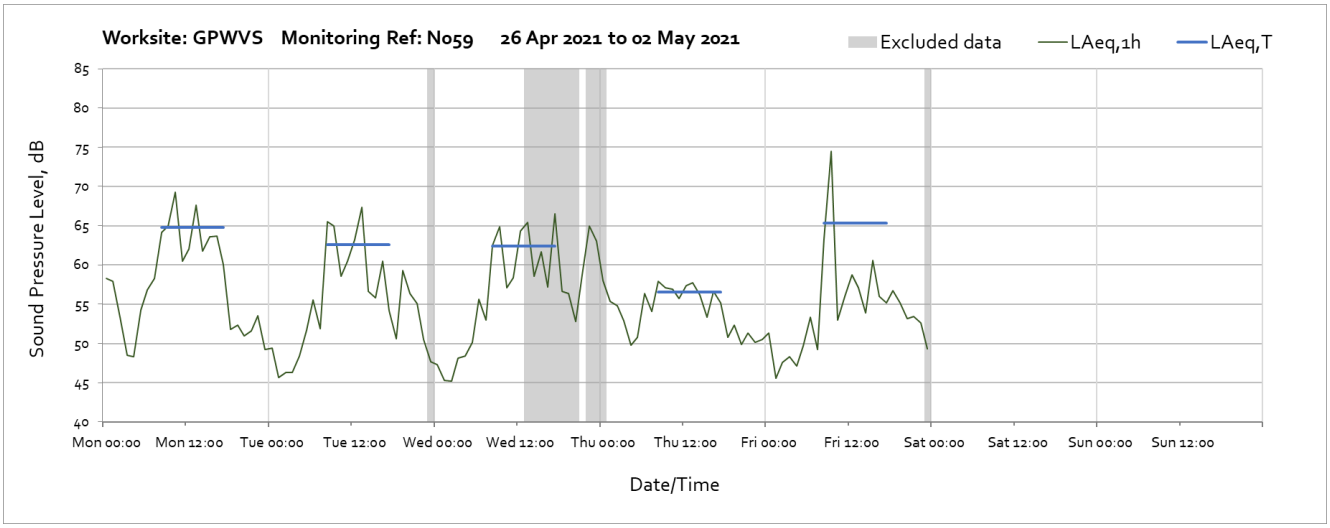
Worksite: Green Park Way Vent Shaft (GPWVS) – Monitoring Ref: N059



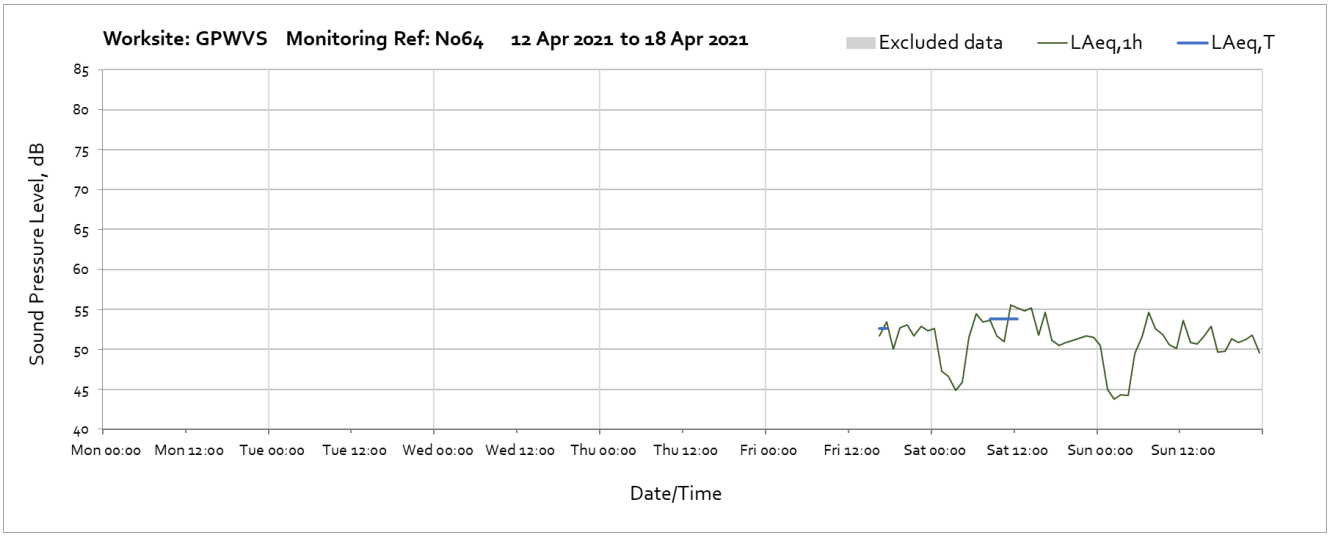




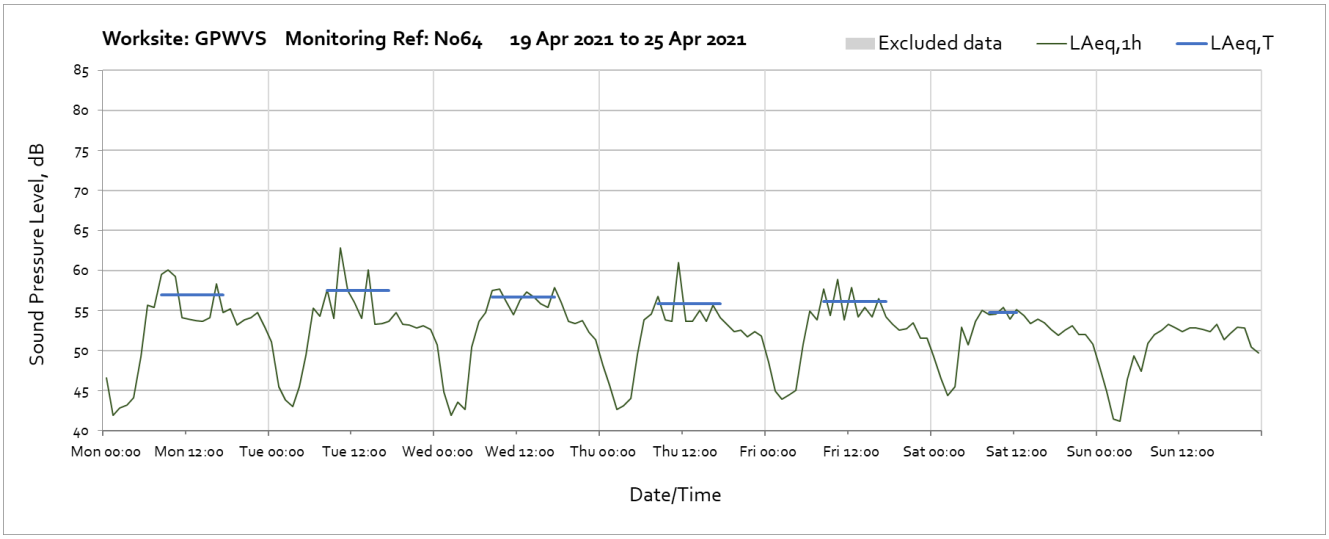


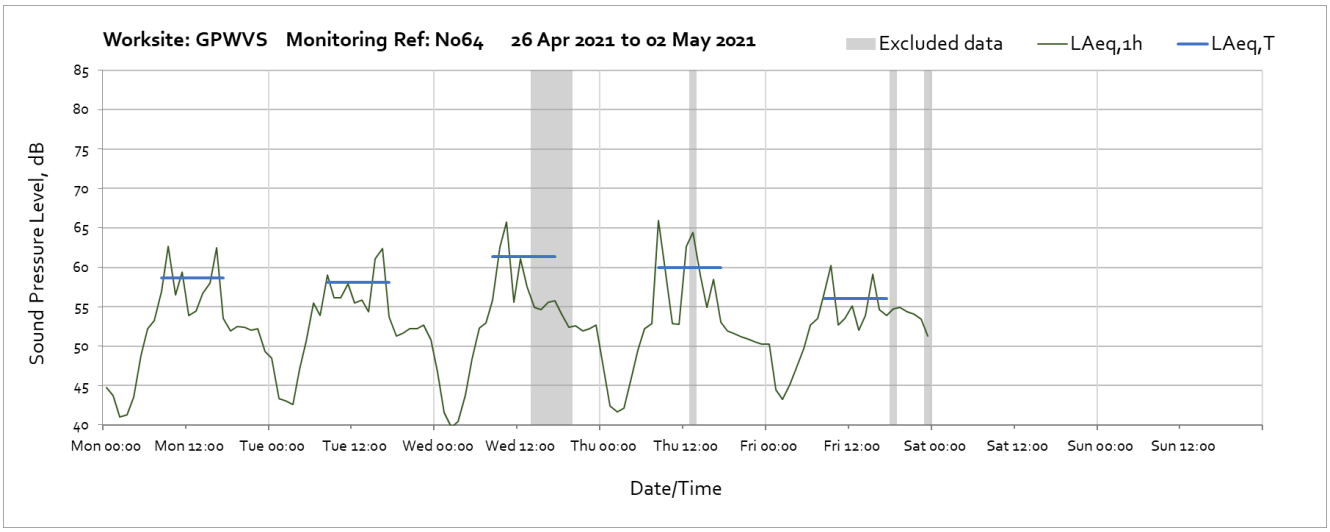


Worksite: Green Park Way Vent Shaft (GPWVS) – Monitoring Ref: N064

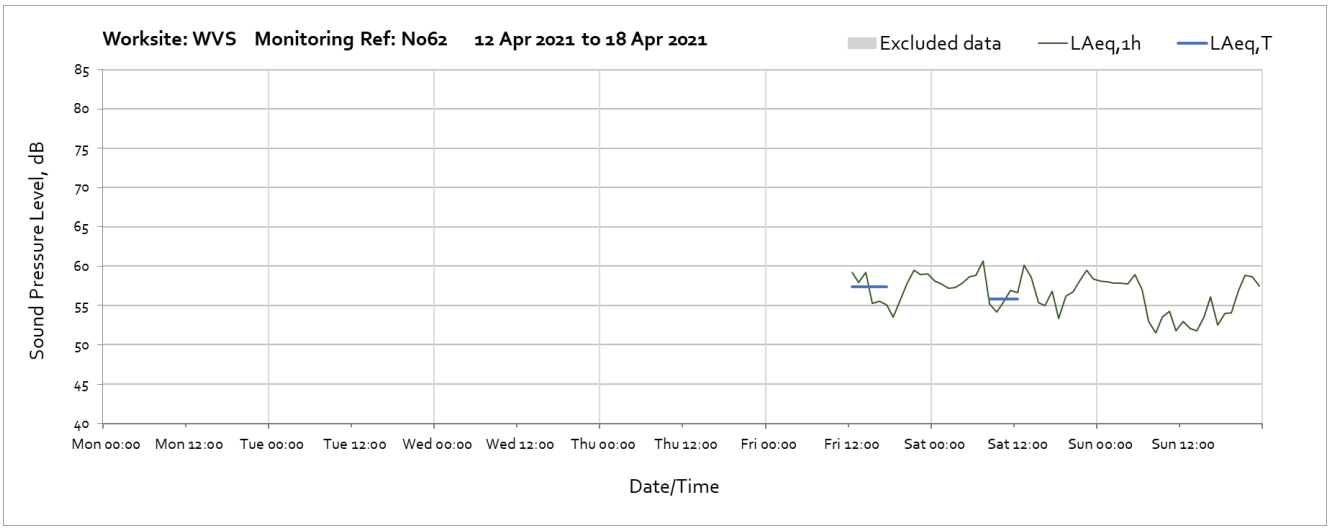


Note: The noise monitor was installed at 16:00 on Friday 16th April 2021.

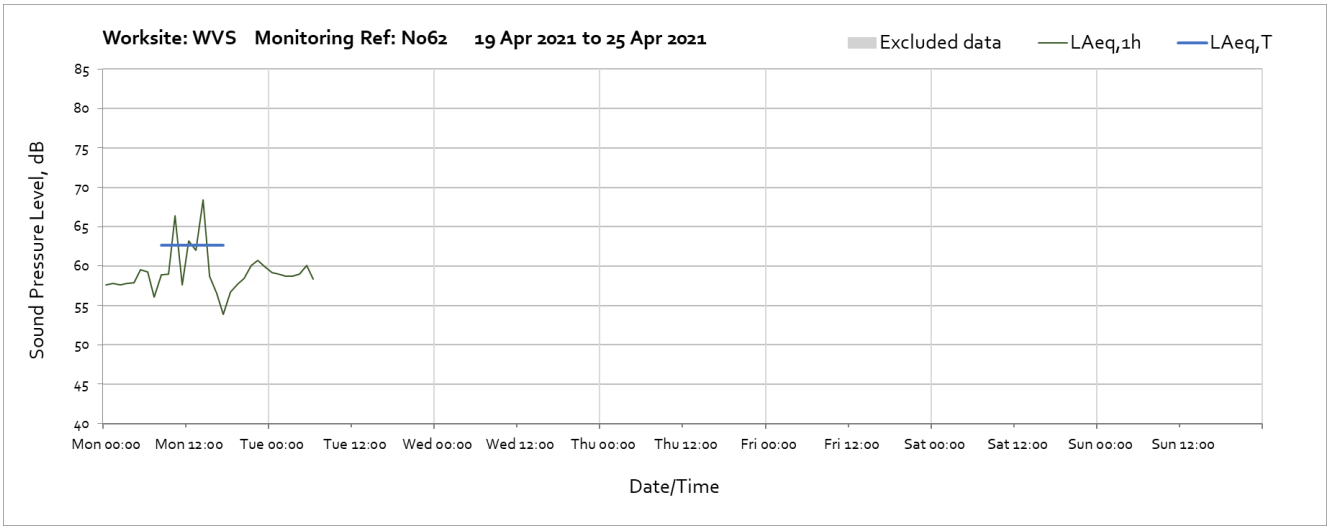




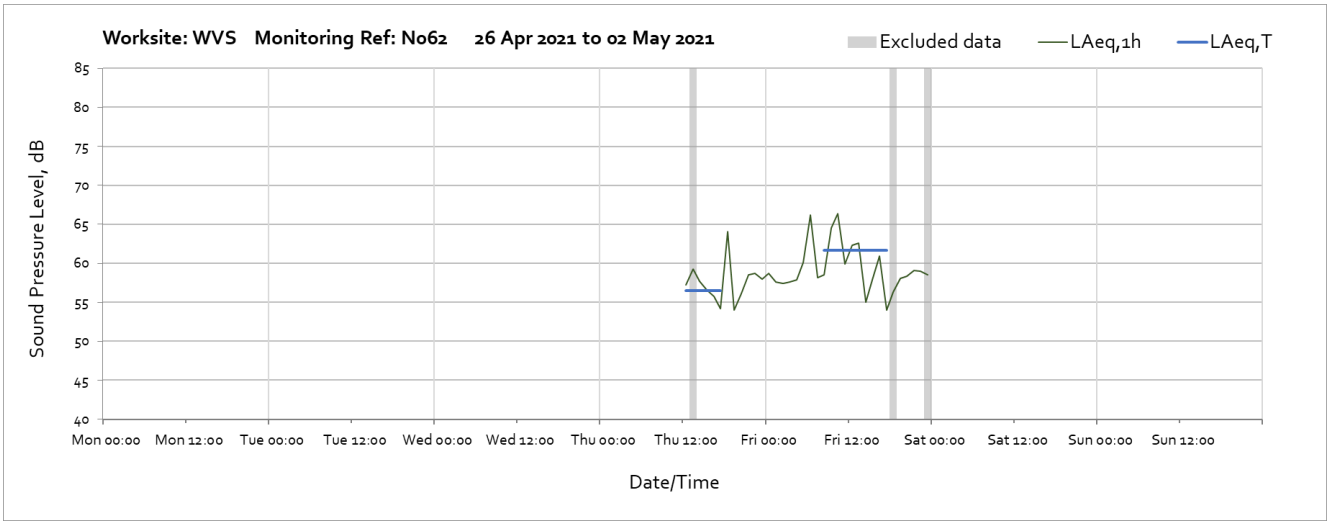
Worksite: Westgate Ventilation Shaft (WVS) – Monitoring Ref: N062



Note: The noise monitor was installed at 12:00 on Friday 16th April 2021.



Note: Missing data between 07:00 on Tuesday 20th April 2021 and 12:00 on Thursday 29th April 2021 was due to loss of power at the monitor location.

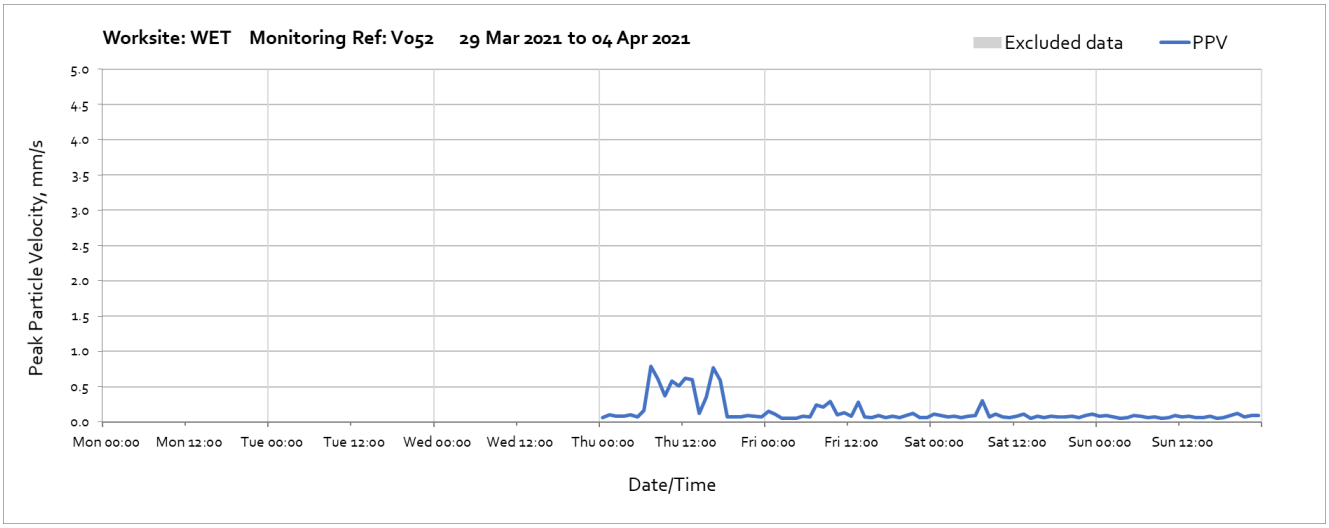


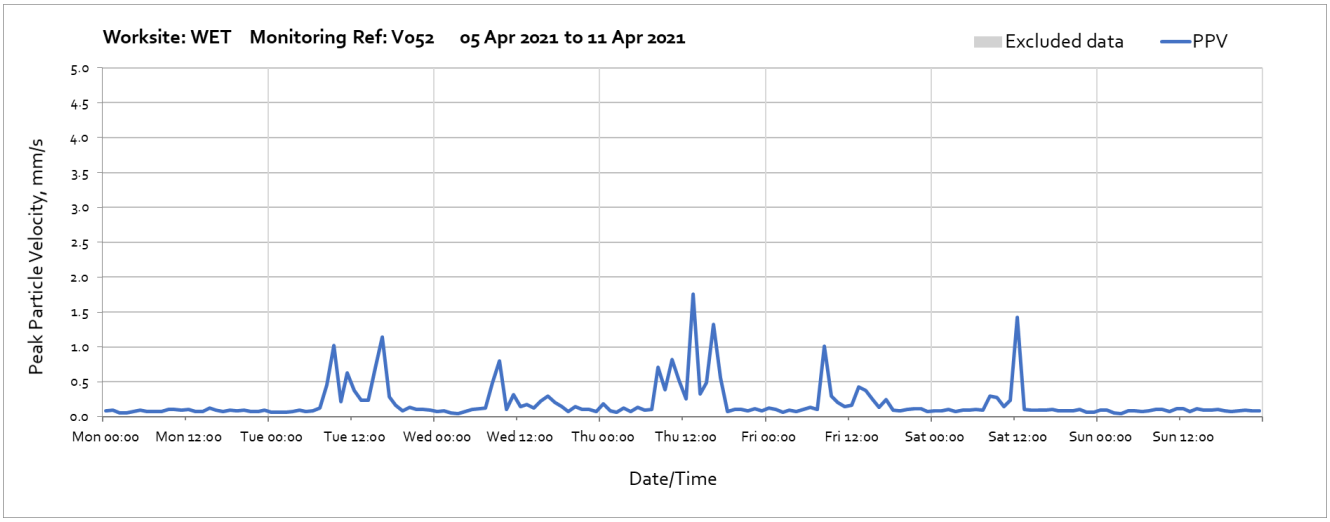
Note: Missing data between 07:00 on Tuesday 20th April 2021 and 12:00 on Thursday 29th April 2021 was due to loss of power at the monitor location.

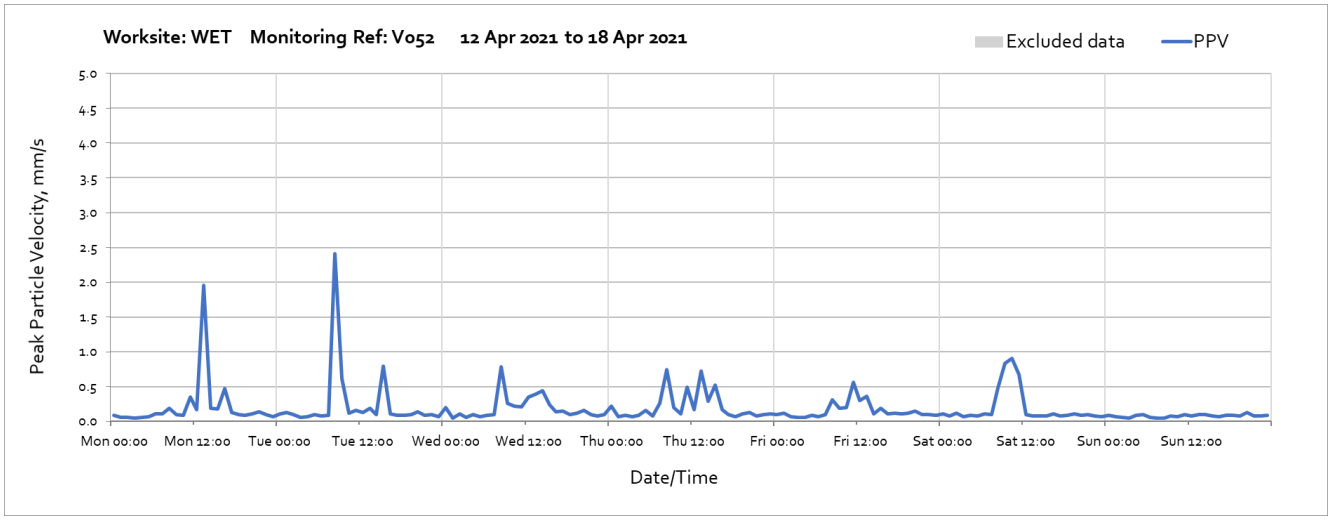
Vibration

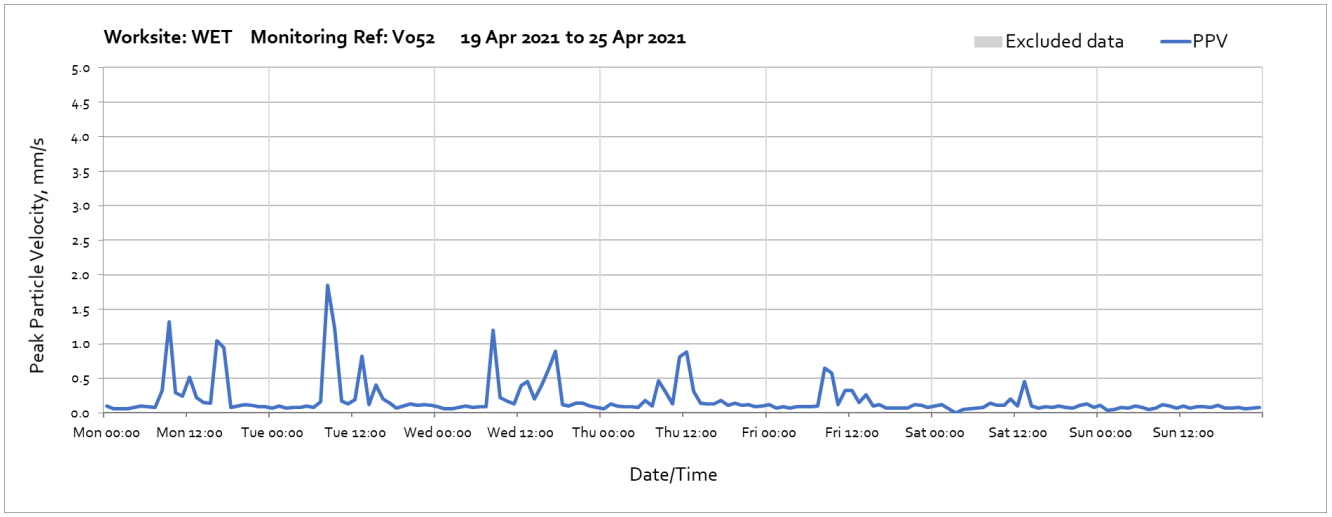
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axis x, y and z. Where high values of PPV were caused by local interference with the vibration monitor, which are not representative of HS2 construction works, these values have been greyed out in the following charts and have been excluded to calculate values in Table 4 of the main report.

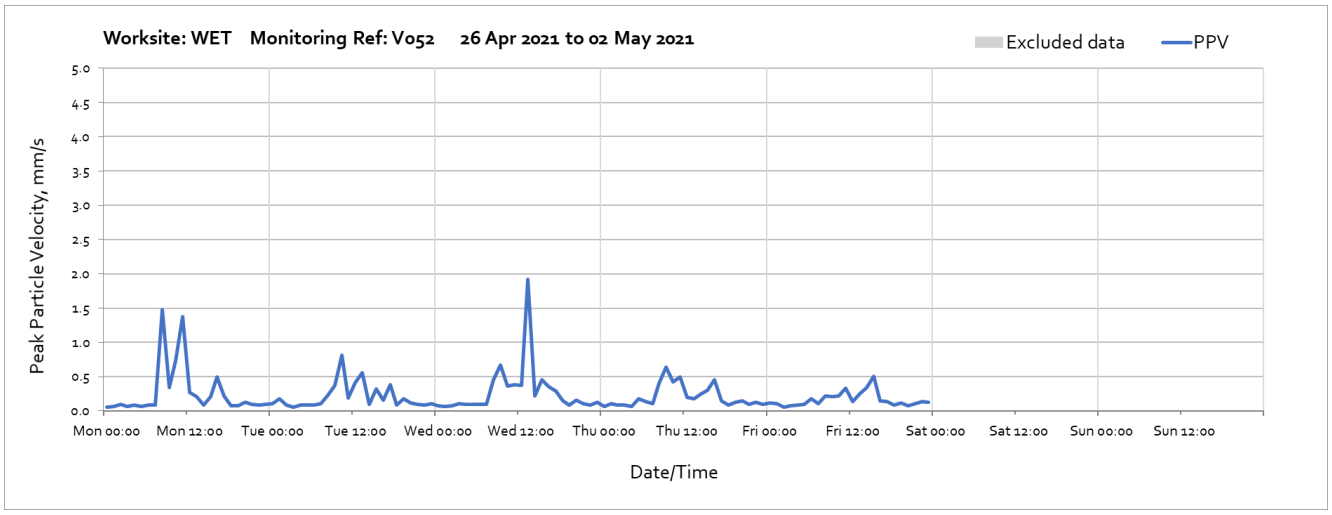
Worksite: Willesden Euro Terminal (WET) – Monitoring Ref: V052



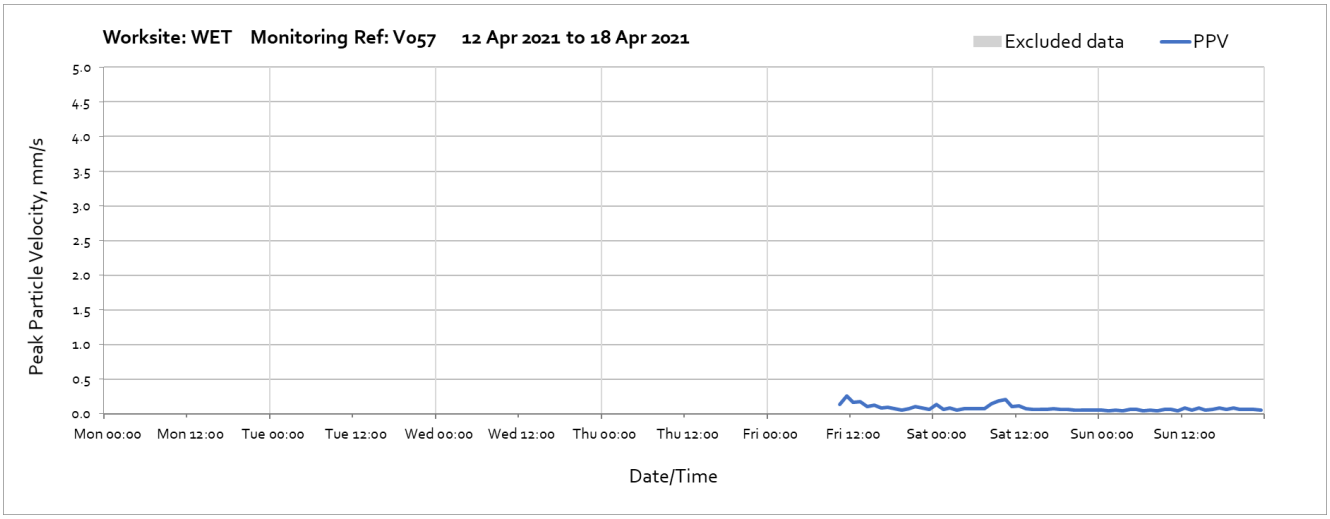



Worksite: WET Monitoring Ref: V052 12 Apr 2021 to 18 Apr 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

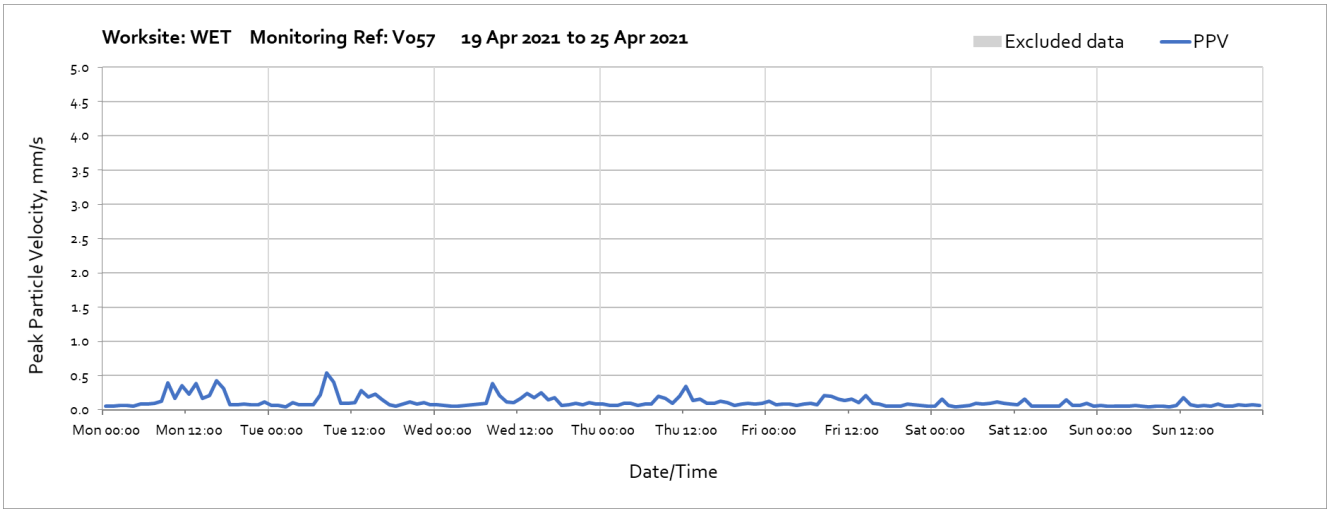

Worksite: WET Monitoring Ref: V052 19 Apr 2021 to 25 Apr 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: WET Monitoring Ref: V052 26 Apr 2021 to 02 May 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

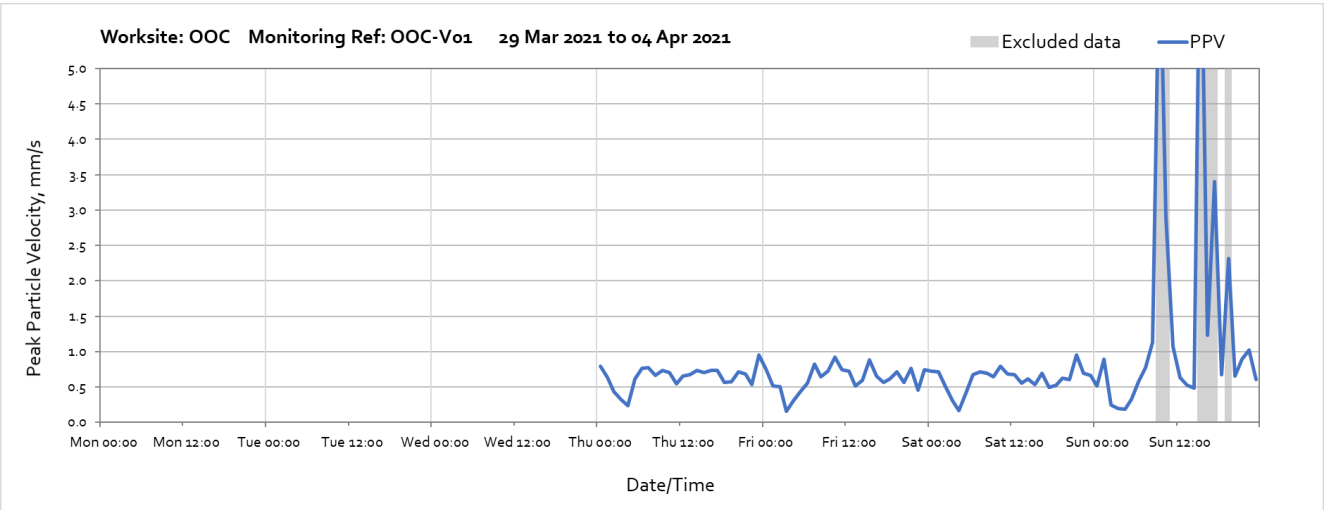
Worksite: Willesden Euro Terminal (WET) – Monitoring Ref: V057



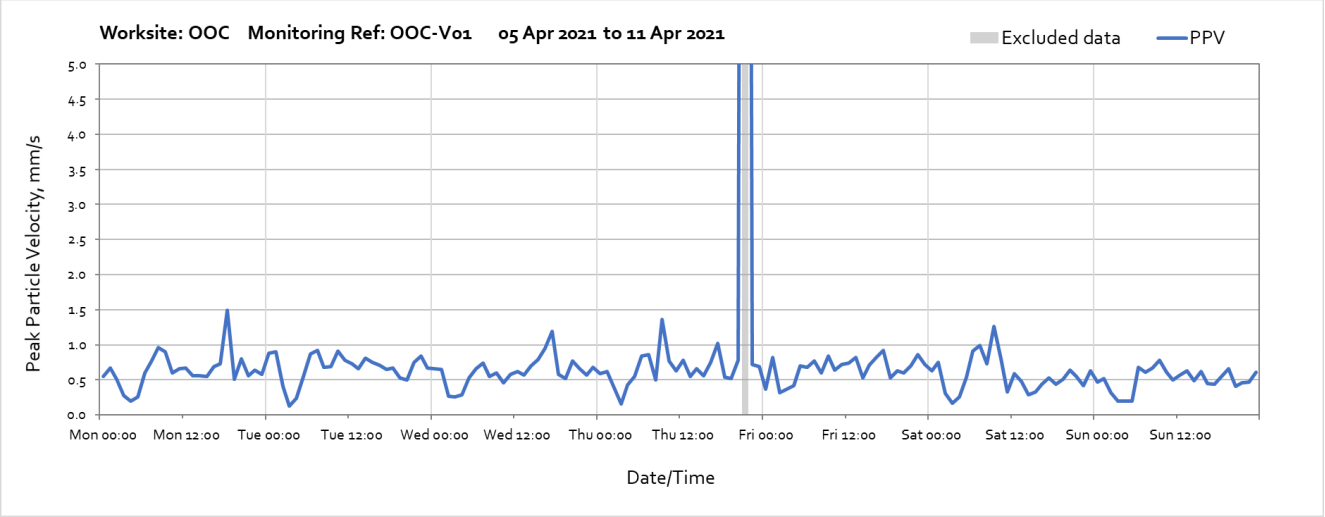
Note: The vibration monitor was installed at 10:00 on Friday 16th April 2021.



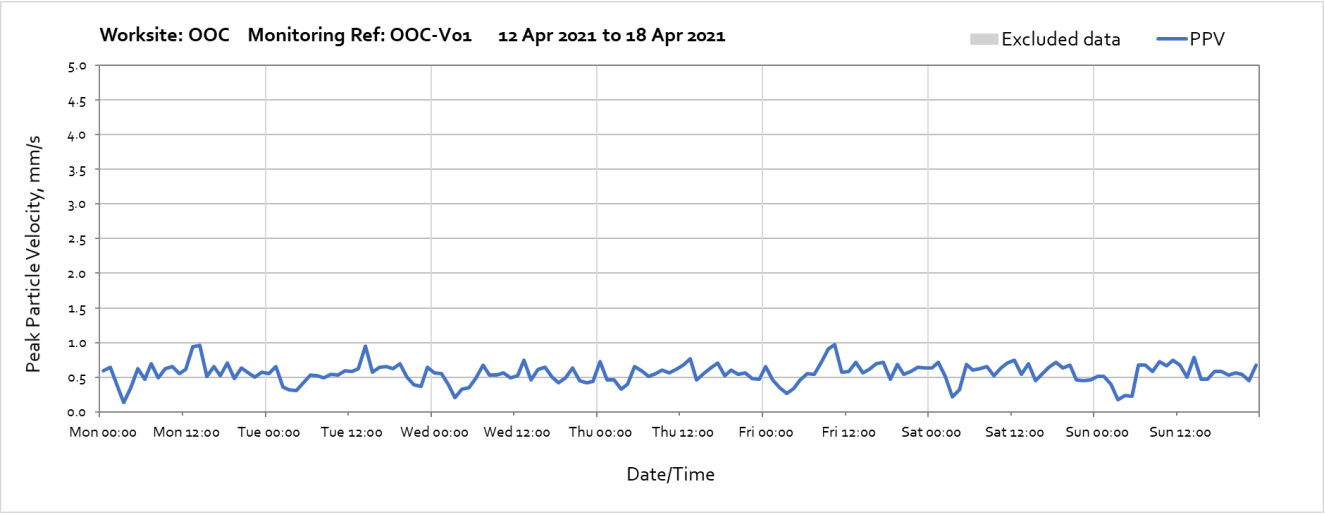
Worksite: Old Oak Common (OOC) – Monitoring Ref: OOC-V01

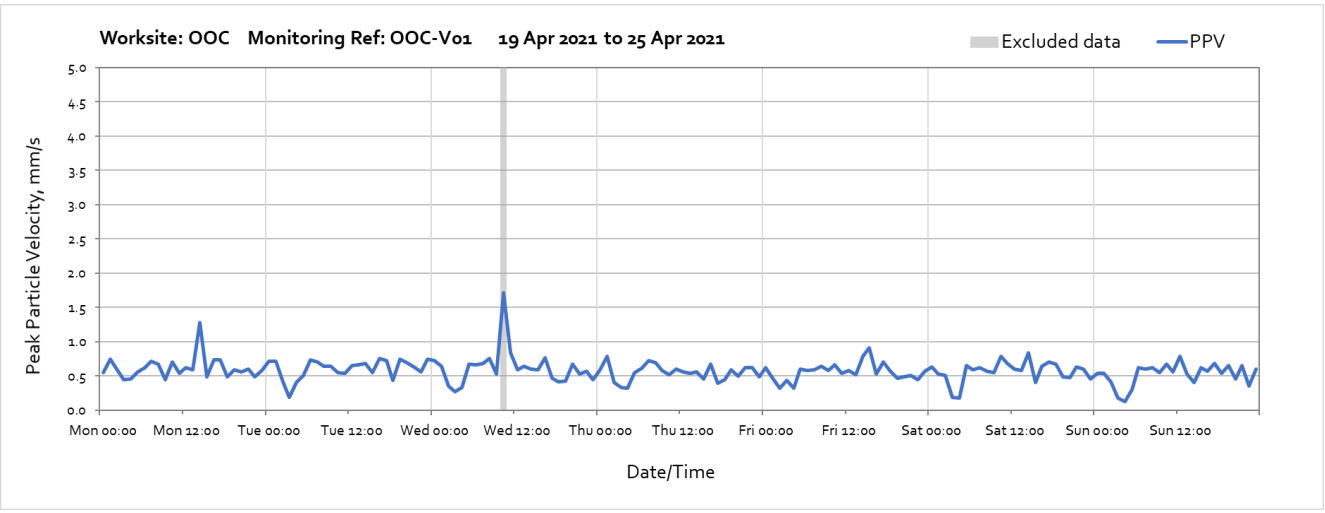


Note: High vibration levels measured on Sunday 4th April 2021 were due to resident activity nearby the vibration monitor and not related to HS2 construction vibration.

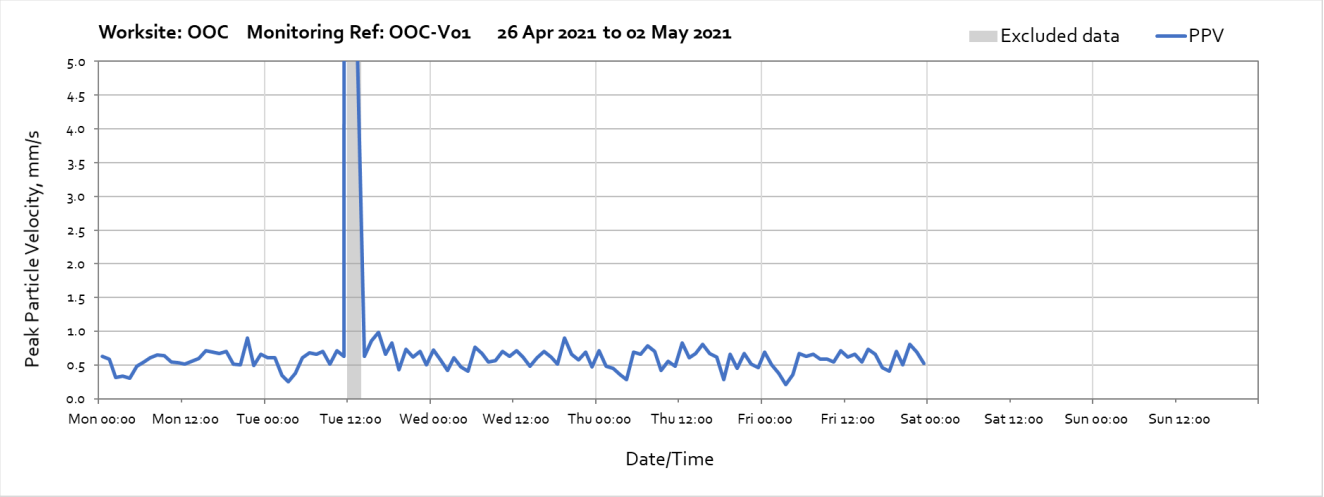


Note: High vibration levels measured at 21:00 on Thursday 8th April 2021 were not related to HS2 construction vibration.



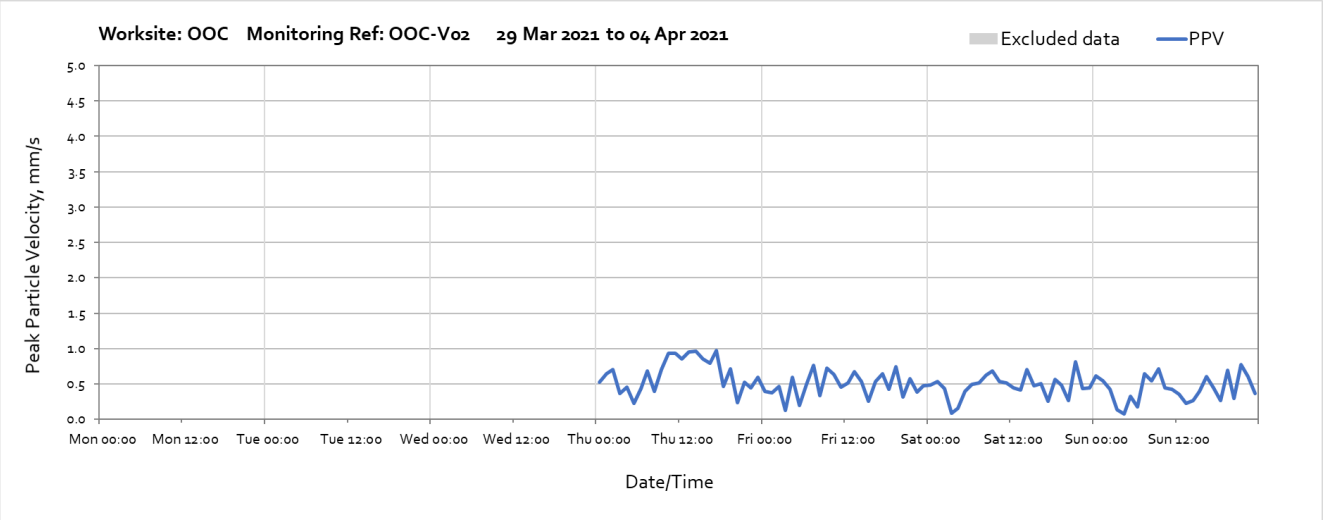


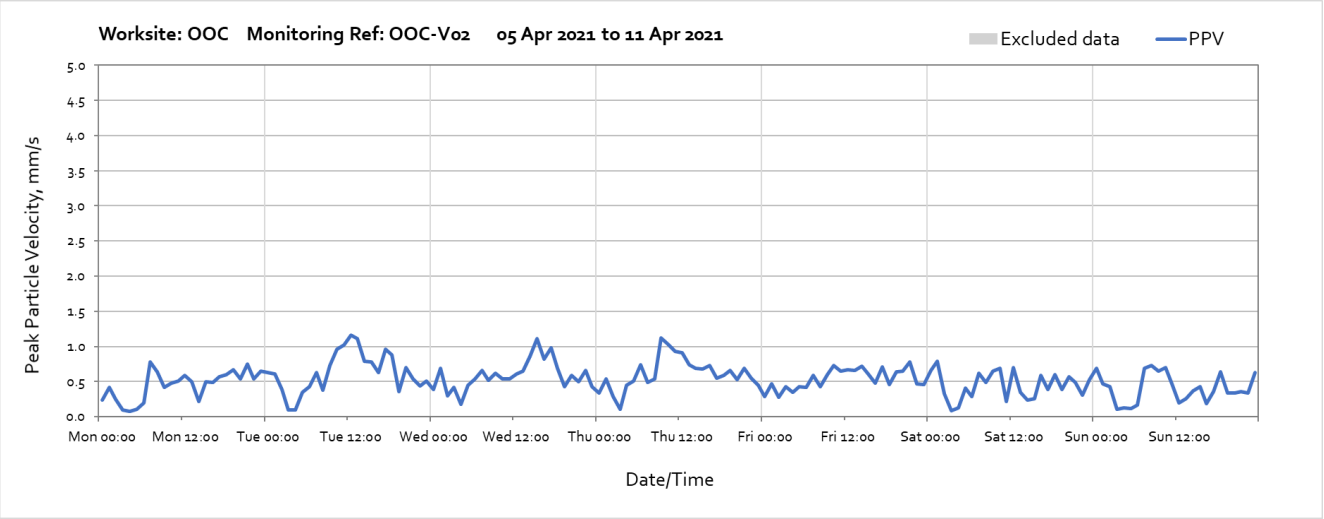
Note: High vibration levels measured at 10:00 on Wednesday 21st April 2021 were not related to HS2 construction vibration.

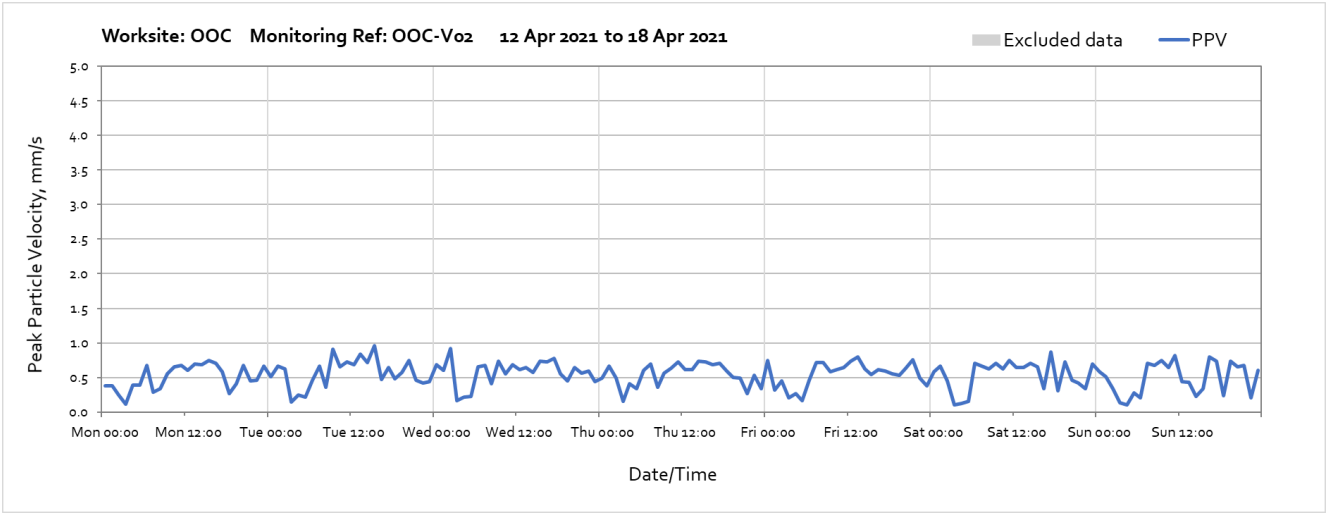


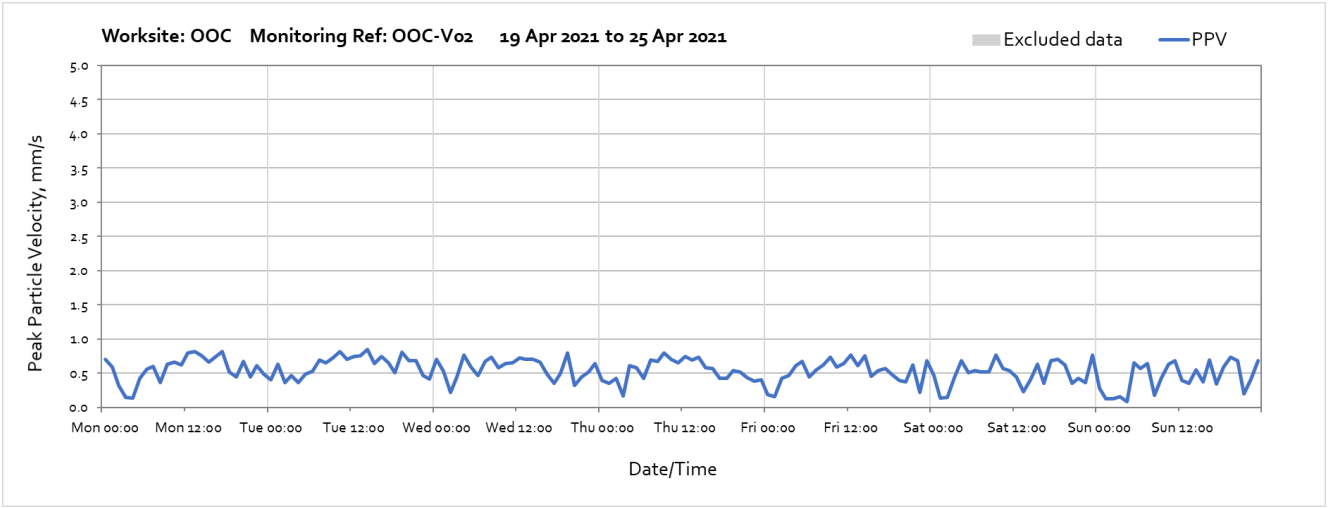
Note: High vibration levels measured at 12:00 on Tuesday 27th April 2021 were due to maintainance at the monitor.

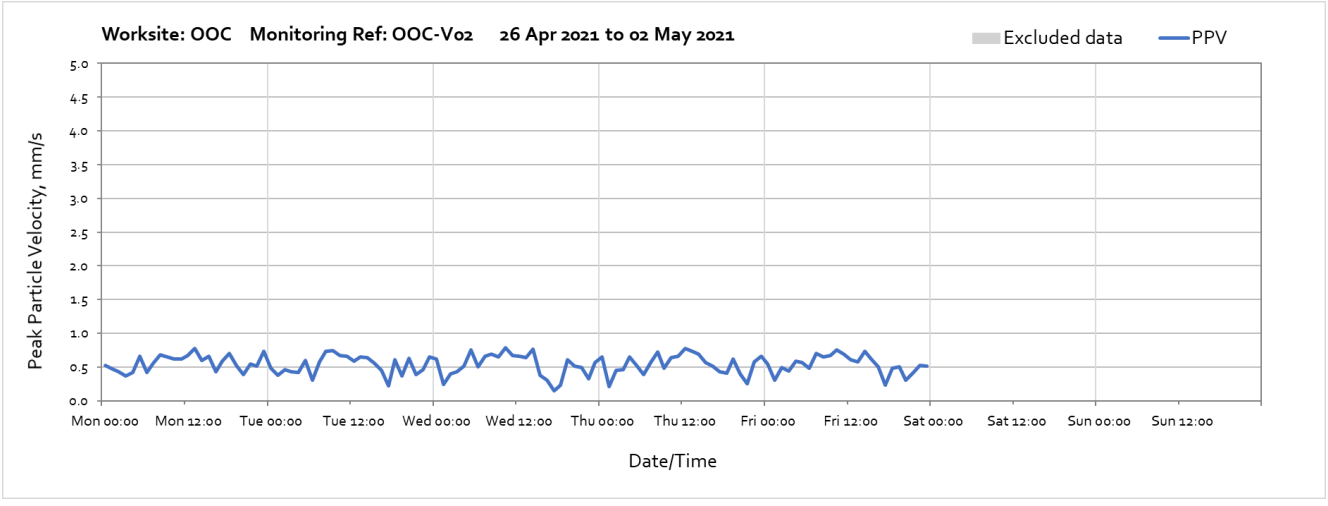
Worksite: Old Oak Common (OOC) – Monitoring Ref: OOC-V02



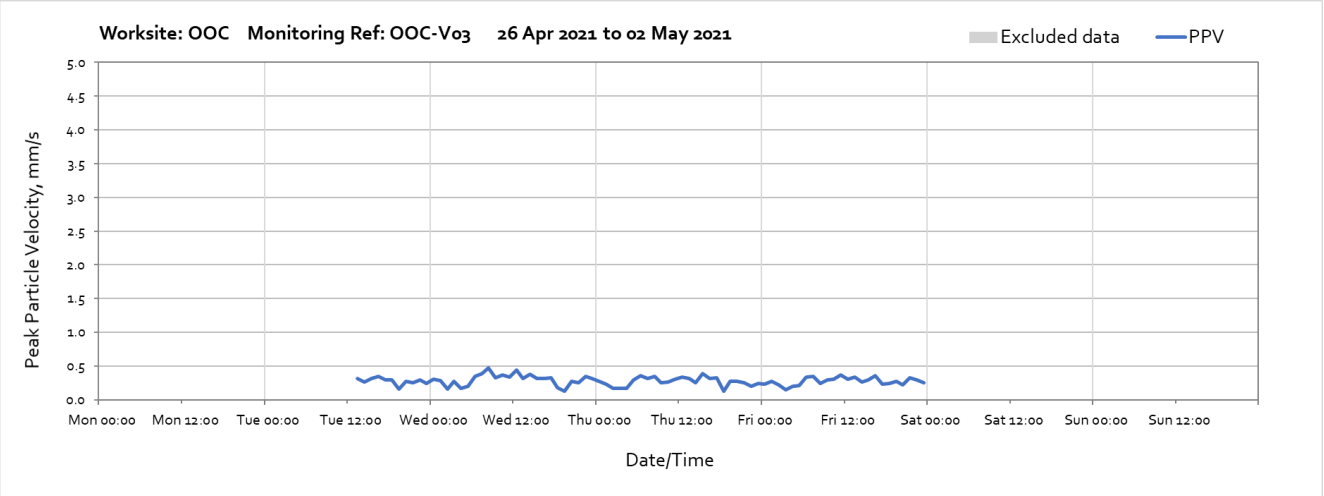



Worksite: OOC Monitoring Ref: OOC-V02 12 Apr 2021 to 18 Apr 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: OOC Monitoring Ref: OOC-V02 19 Apr 2021 to 25 Apr 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

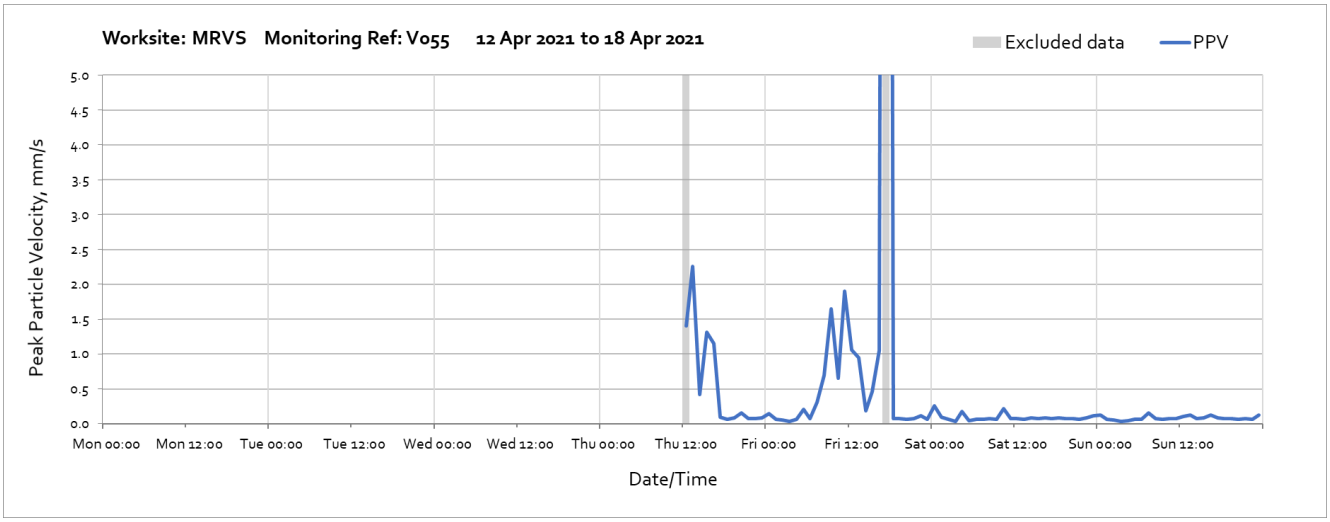

Worksite: OOC Monitoring Ref: OOC-V02 26 Apr 2021 to 02 May 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Worksite: Old Oak Common (OOC) – Monitoring Ref: OOC-V03

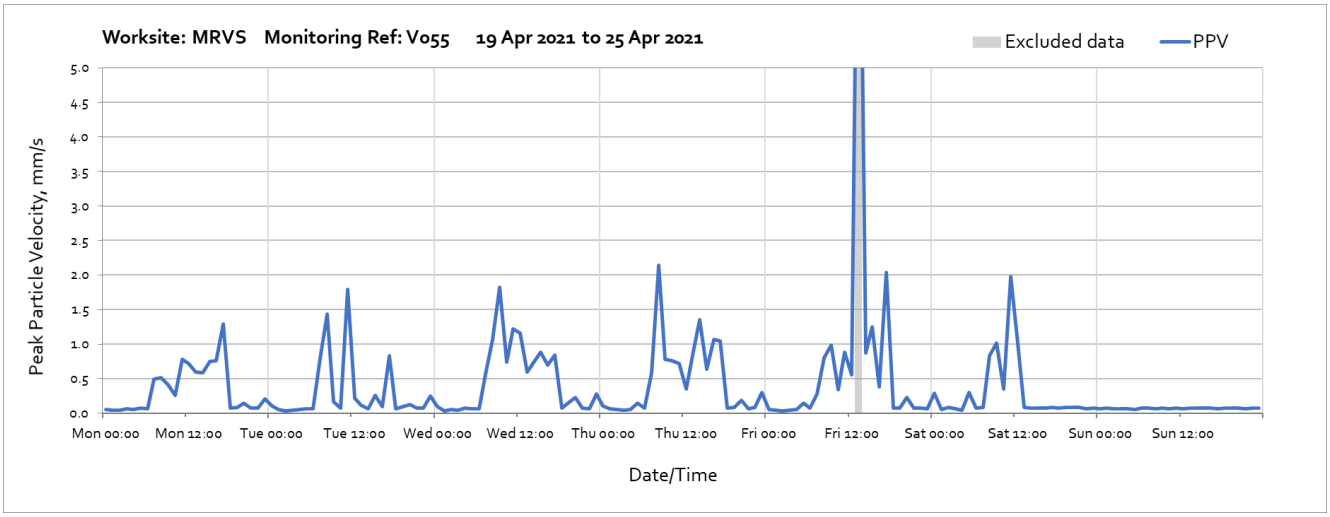


Note: The vibration monitor was installed at 13:00 on Tuesday 27th April 2021.

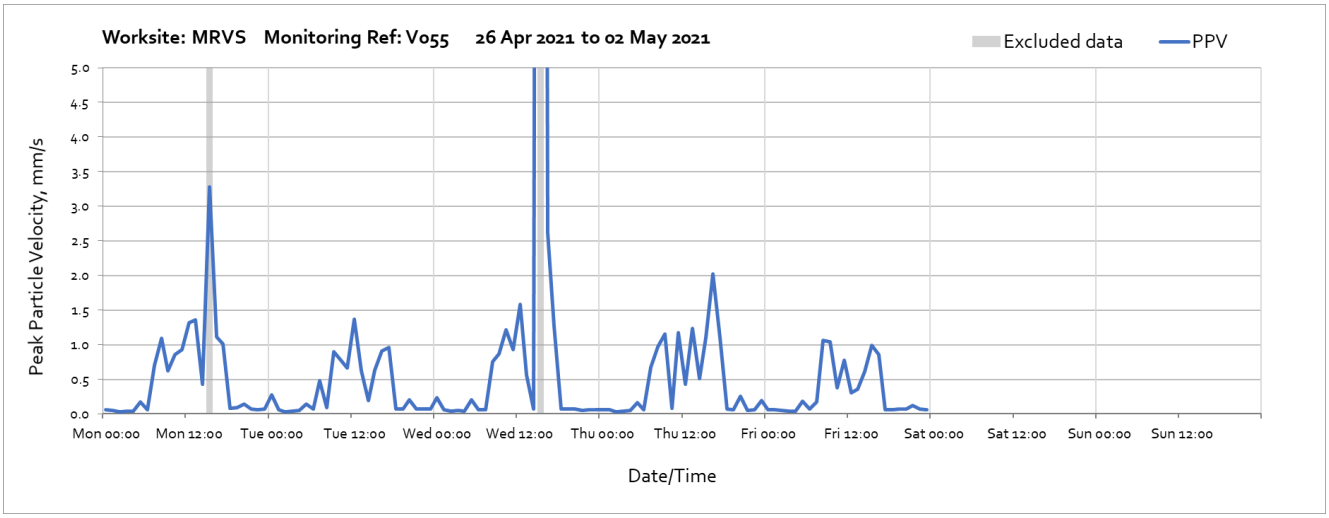
Worksite: Mandeville Road Vent Shaft (MRVS) – Monitoring Ref: V055



Note: The vibration monitor was installed at 23:00 on Thursday 15th April 2021. High vibration levels measured across the week were due to local disturbance of the monitor.

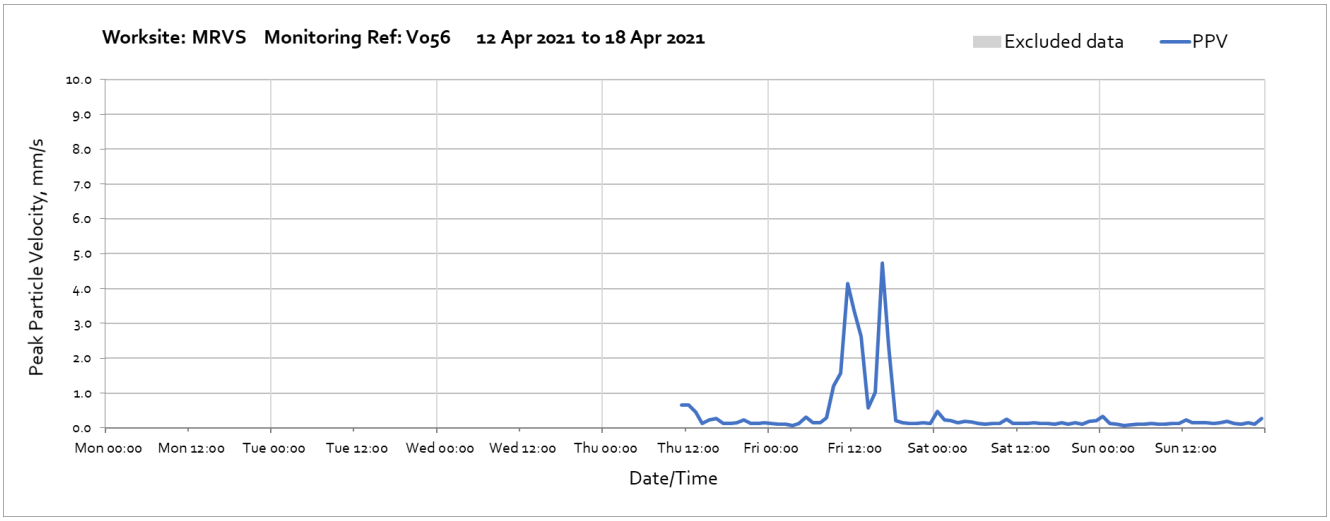


Note: High vibration levels measured at 13:00 on Friday 23rd April 2021 were due to local disturbance of the monitor.

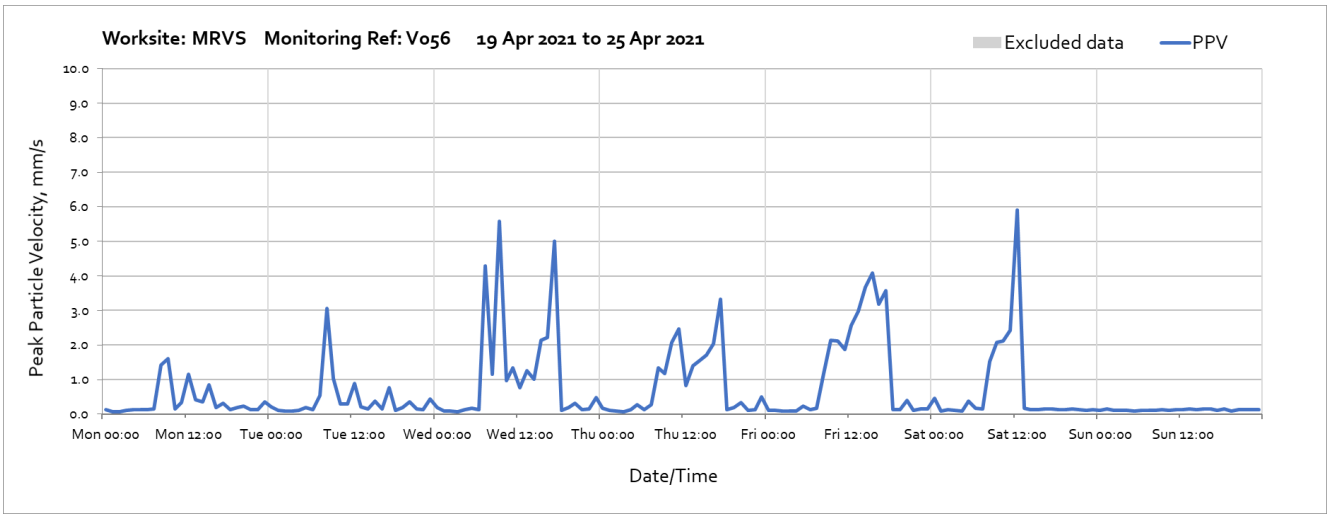


Note: High vibration levels measured at 15:00 on Monday 26th April 2021 were not related to HS2 construction vibration. High vibration levels measured at 15:00 on Wednesday 28th April 2021 were due to local disturbance of the monitor.

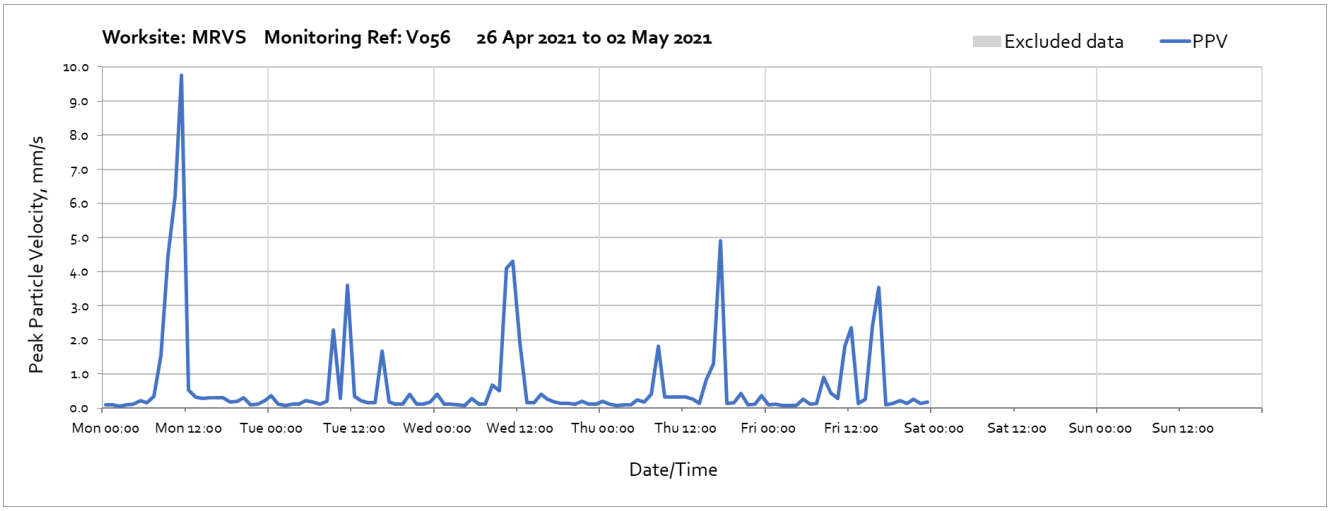
Worksite: Mandeville Road Vent Shaft (MRVS) – Monitoring Ref: V056



Note: The vibration monitor was installed at 11:00 on Thursday 15th April 2021. High vibration levels measured across the week were due excavations being undertaken in proximity to the monitor and are not representative of HS2 construction vibration levels at the location of nearby receptors.

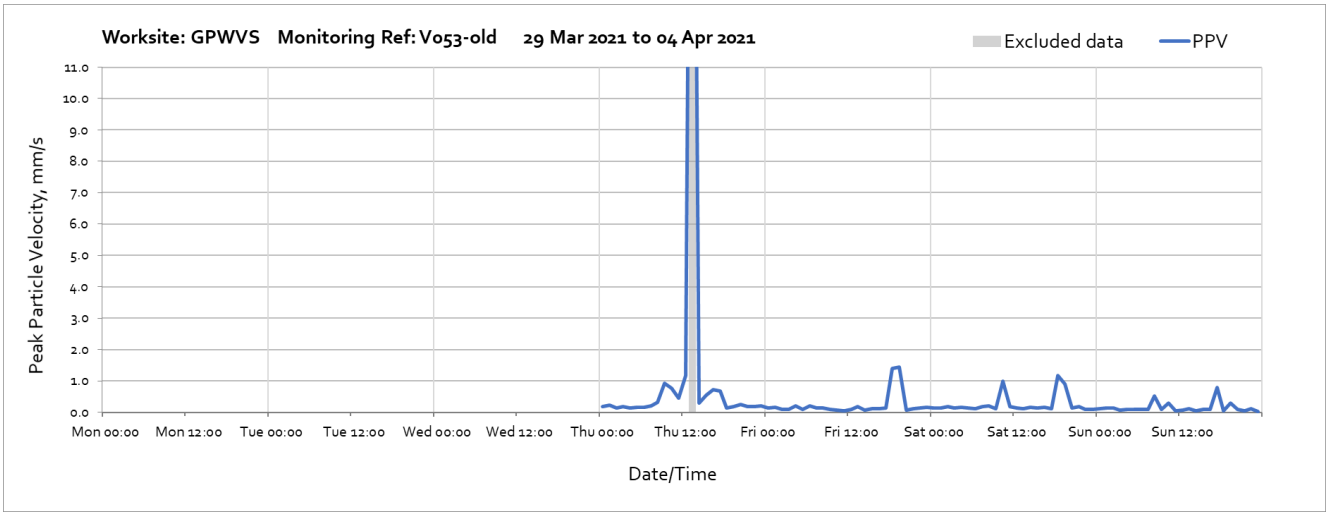


Note: High vibration levels measured across the week were due excavations being undertaken in proximity to the monitor and are not representative of HS2 construction vibration levels at the location of nearby receptors.

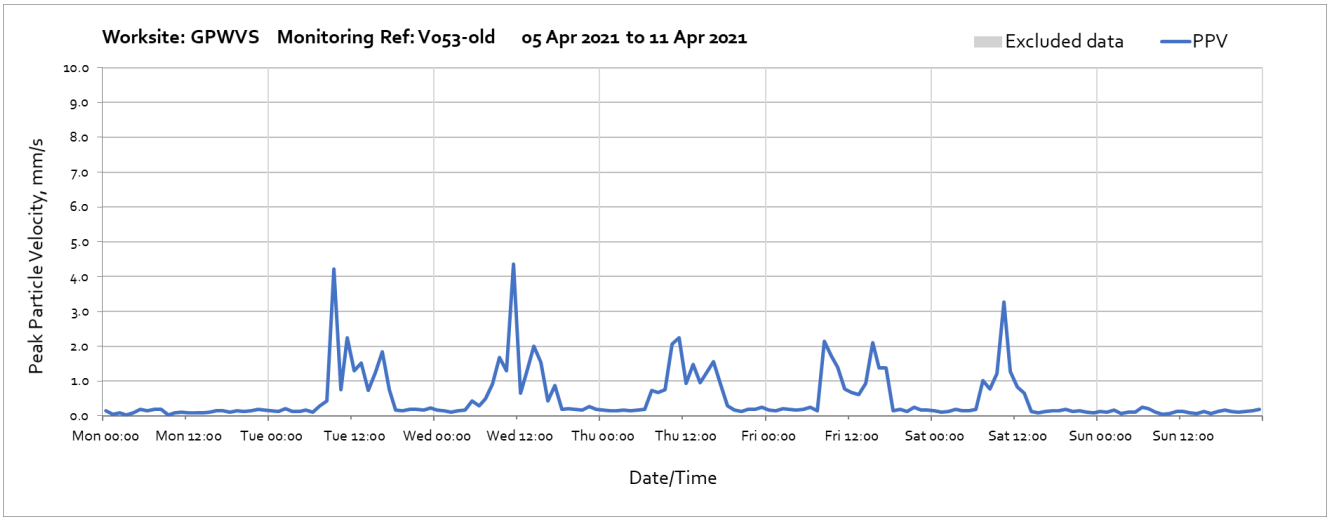


Note: High vibration levels measured across the week were due excavations being undertaken in proximity to the monitor and are not representative of HS2 construction vibration levels at the location of nearby receptors.

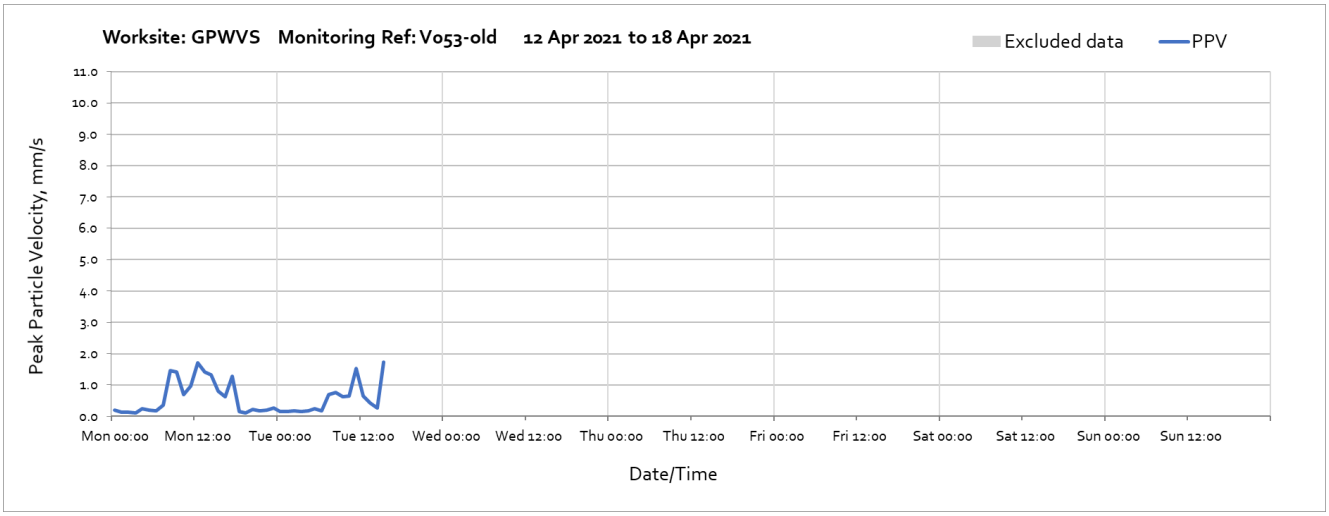
Worksite: Green Park Way Vent Shaft (GPWVS) – Monitoring Ref: V053-old



Note: High vibration levels measured at 13:00 on Thursday 1st April 2021 were due to local disturbance of the monitor.

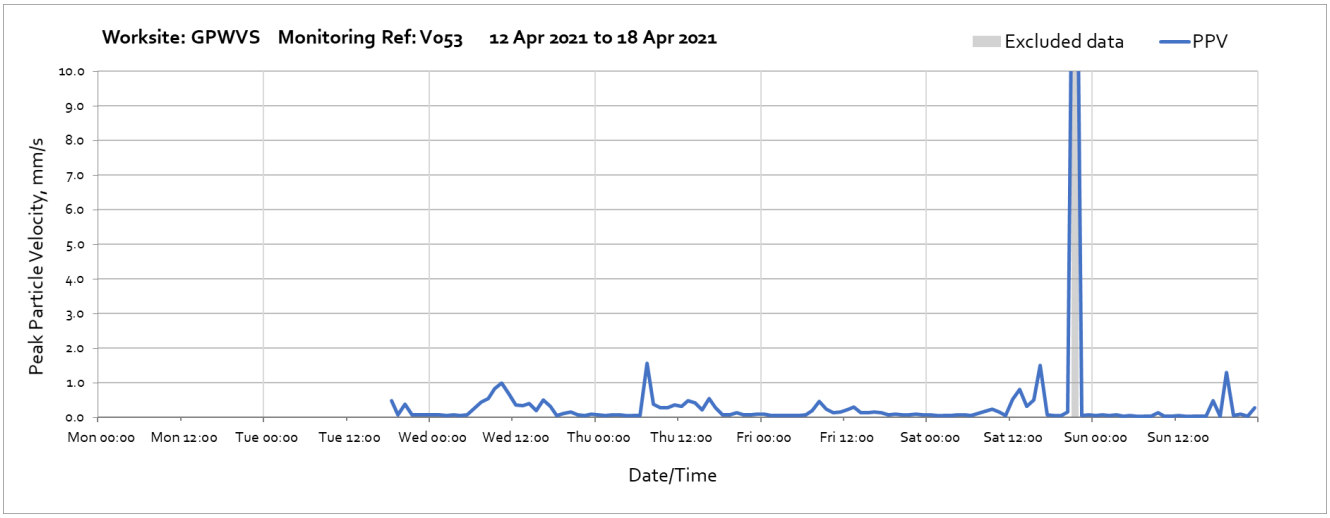


Note: High vibration levels measured across the week were due excavations being undertaken in proximity to the monitor and are not representative of HS2 construction vibration levels at the location of nearby receptors.

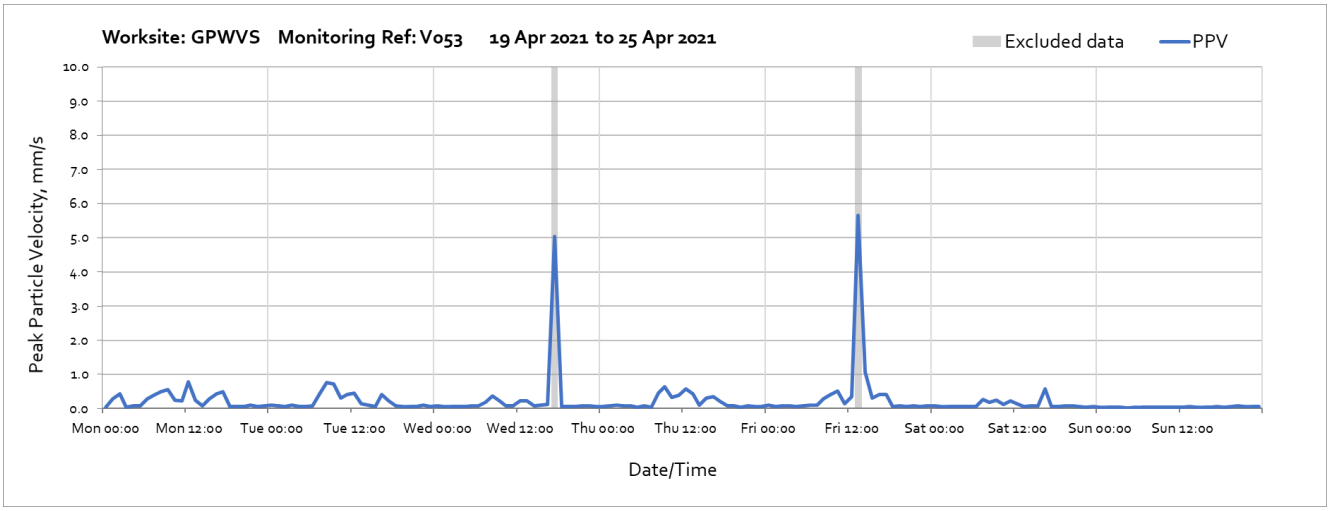


Note: Missing data from 16:00 on Tueasday 13th April 2021 was due to relocation of the monitor.

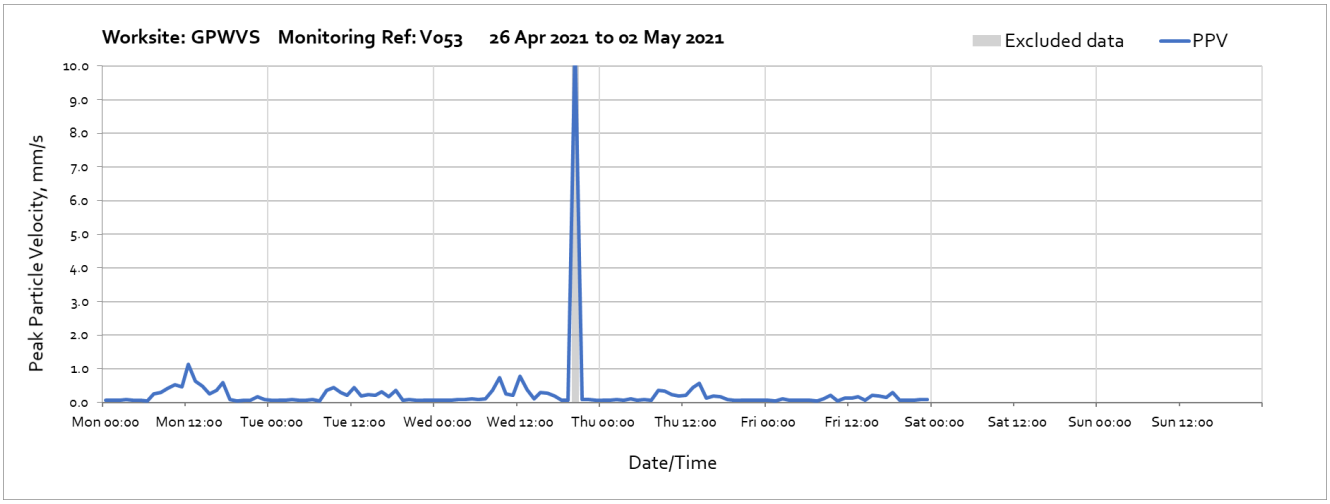
Worksite: Green Park Way Vent Shaft (GPWVS) – Monitoring Ref: V053



Note: Missing data before 16:00 on Tueasday 13th April 2021 was due to relocation of the monitor. High vibration levels measured at 16:00 and 21:00 on Saturday 17th April 2021 were not related to HS2 construction vibration.

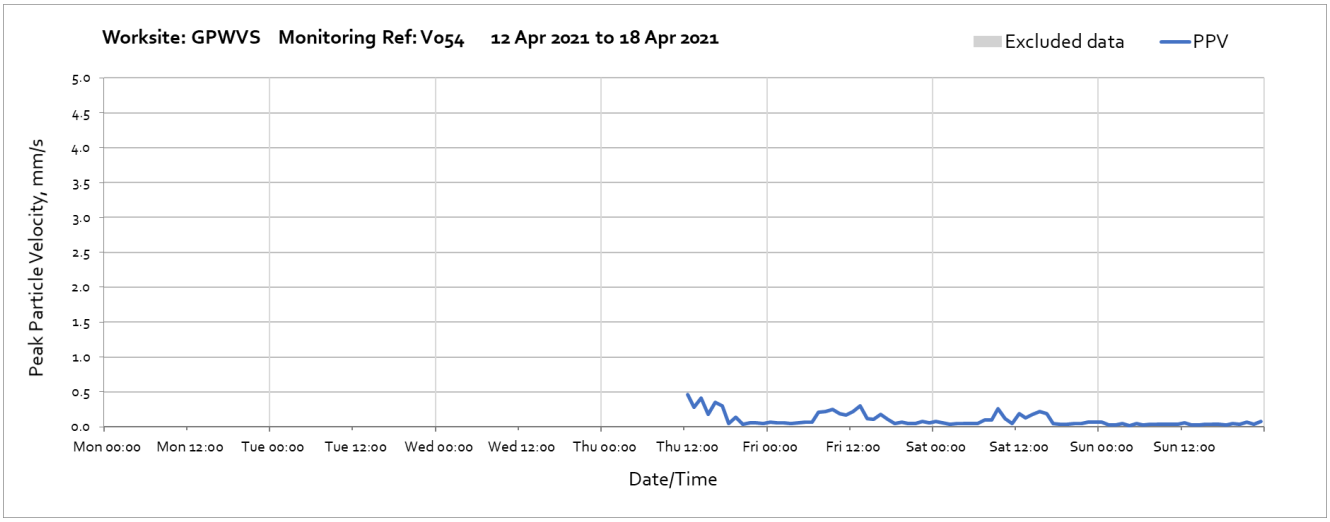


High vibration levels measured at 17:00 on Wednesday 21st April 2021 and 13:00 on Friday 23rd April 2021 were not related to HS2 construction vibration.

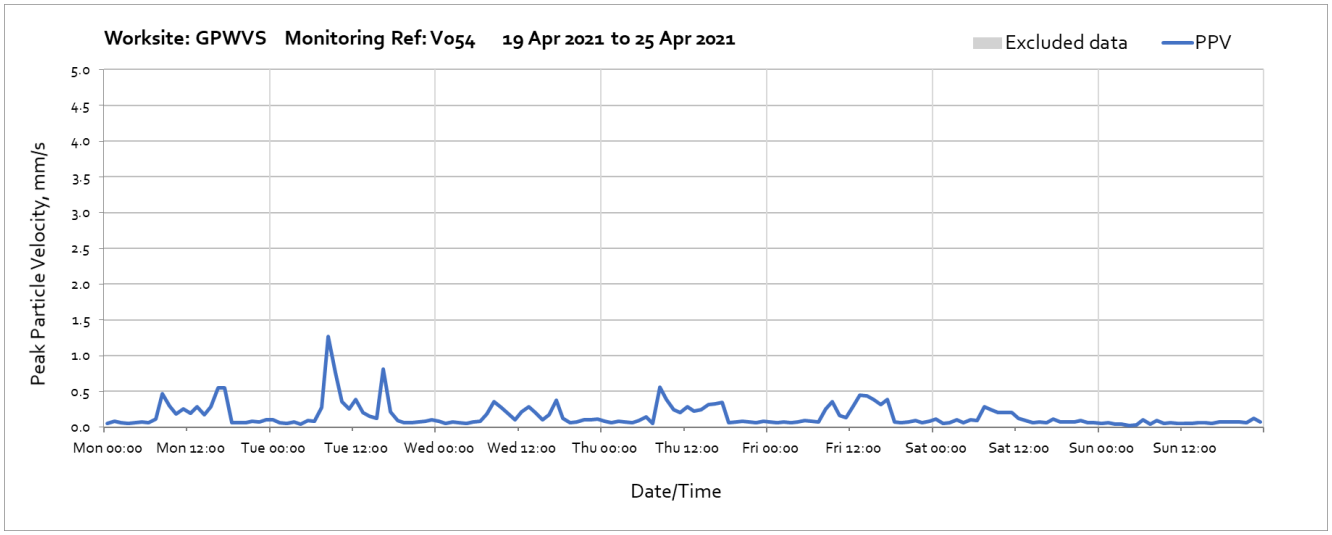


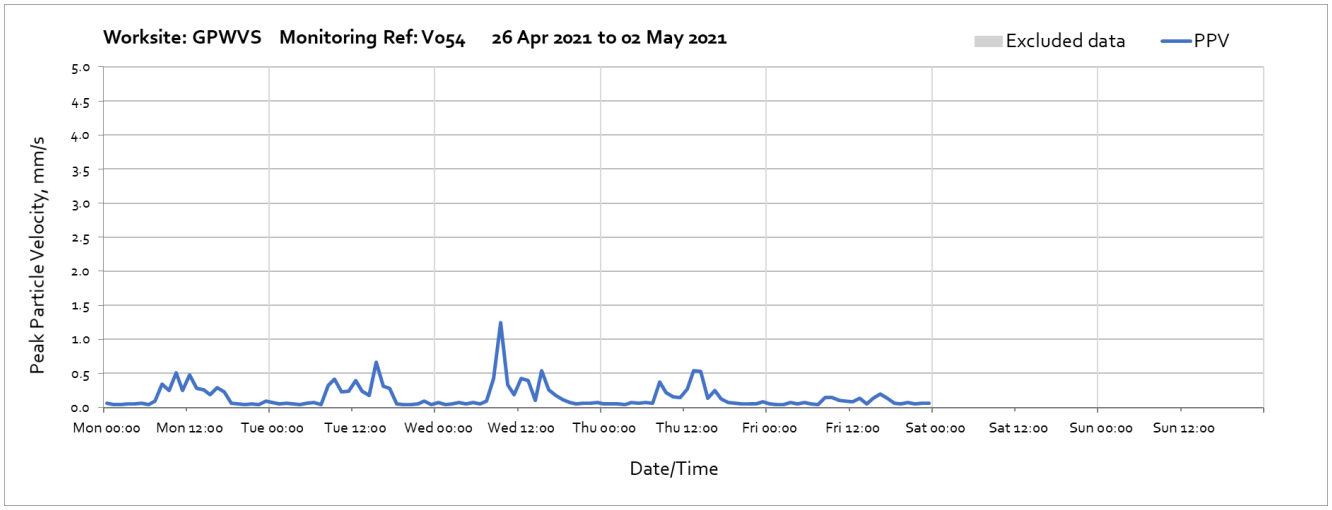
High vibration levels measured at 20:00 on Wednesday 28th April 2021 was not related to HS2 construction vibration.

Worksite: Green Park Way Vent Shaft (GPWVS) – Monitoring Ref: V054



Note: The vibration monitor was installed at 12:00 on Thursday 15th April 2021.


Worksite: GPWVS Monitoring Ref: V054 19 Apr 2021 to 25 Apr 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: GPWVS Monitoring Ref: V054 26 Apr 2021 to 02 May 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time