HS2

April 2022

Construction Noise and Vibration Monthly Report – February 2022

Buckinghamshire

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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 monitoring carried out within Buckinghamshire (BS) during the month of February 2022.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of School End worksite (ref.: SE) where compound setup and stone deliveries were undertaken.
- Noise monitoring was undertaken in the vicinity of Rosehill Farm worksite (ref.: RF) where construction of concrete slabs was undertaken.
- Noise monitoring was undertaking in the vicinity of Hermitage Chetwode worksite (ref.: HC), where no works were undertaken in the month of February.
- Noise monitoring was undertaken in the vicinity of West Street Overbridge worksite (ref.: WSO) where causeway piling, stone deliveries, and maintenance works were undertaken.
- Noise monitoring was undertaken in the vicinity of Addison Road worksite (ref.: AR) where piling works were underway.
- Noise monitoring was undertaken in the vicinity of School Hill Compound worksite (ref.: SHC) where batching plant operation was undertaken.
- Noise monitoring was undertaken in the vicinity of the School Hill UTX worksite (ref.: SHU) where excavation works, pulling of cable, installation of chamber, drainage works, pipe testing and site maintenance works were underway.
- Noise monitoring was suspended in the vicinity of the FCC Sidings worksite reference (ref: FCC) where no works were undertaken during the monitoring period.
- Noise monitoring was undertaken in the vicinity of Meadoway and Glebe House, Aylesbury worksite (ref: MW&GH) where road constructions, including road tie-in with highway, and earthworks were undertaken.
- Noise monitoring was undertaken in the vicinity of Oat Close Worksite (ref: OC) where earthworks, construction of piling platform, rail deliveries, maintenance works and stockpile management were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref: RLE) where construction of access road and plant slab, compound setup, internal haul road construction, sheet piling, ground investigation, enabling works, asphalting and earthworks were underway.

- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref: LL) where asphalting, earthworks and stabilising of haul road were undertaken.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref: SHCW) where earthworks and tunnelling works were undertaken.
- Noise monitoring was undertaken in the vicinity of North Portal Worksite (ref: NP) where construction of temporary and permanent access roads, piling works, construction of diaphragm walls, wheel wash, and installation of utilities were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road Worksite (ref: CR) where site maintenance and operation, stockpile management and shaft construction were undertaken.
- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site maintenance and operation, ground post treatment, including drilling and grouting works, dewatering works and piling works were underway.
- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site maintenance and operation, ground treatment works, dewatering works, temporary capping of beams, shaft excavation works and piling were underway.
- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where general site operations, stockpile management, collar construction works, dewatering works, piling, road maintenance, secondary lining, construction of reinforced structures, tunnel connections and construction of basement were underway.
- Noise monitoring was undertaken in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where site maintenance and operation, piling works, road maintenance, secondary lining for concrete walls and floors, tunnel connections and basement construction were underway.
- Noise monitoring was undertaken in the vicinity of Load Test Pile 1 worksite (ref.: LTP #1), where piling for the construction of the jetty, cofferdam and main structure, fencing and finishing works, construction and maintenance of haul roads, ground investigation works, compound operation, de-sanding, realignment of River Colne, installation of satellite welfare, pile wall construction, integrity testing of piles, pile trimming; stockpiling, water management construction, diversion and installation of utilities, environmental maintenance, and maintenance for generator farms were underway.

Further works, where monitoring did not take place, were also undertaken at the following locations:

- Amersham where water diversion works were underway;
- Culvert North where tarmacking, construction of site access roads and utilisation of mass haul road were undertaken;
- East West Rail Overbridge where pouring of concrete for abutments, installation of formworks and reinforcement cage were undertaken;
- Charndon Lodge Underbridge where installation of abutment wall rebar and excavation works were undertaken;
- Perry Hill Overbridge where piling, excavation and pile cropping works were underway;
- Oxford Line where earthworks and temporary drainage works were underway;
- Calvert cutting where levelling of existing ballast were undertaken;
- Calvert South where excavations and temporary drainage network installations were underway;
- Station Road where construction of piling platform, laydown areas, culvert crossing, stone access road, and fit out of cabins were undertaken;
- Hills Farm where topsoil stripping, pond excavation works, delivery and management of aggregate stones were underway;
- MCJ Line where vegetation clearance and removal of ballast were undertaken;
- EWR Culvert where installations of temporary watercourse diversion were undertaken;
- A422 North where stone deliveries, construction of access road, drainage, compound development and topsoil stripping were undertaken.
- A422 Turweston cutting where stone deliveries, compound maintenance and excavation works were undertaken.
- A421 where stone deliveries, topsoil stripping, compound development and piling works were undertaken.
- Vegetation clearance and grass cutting were undertaken throughout the HS2 route.

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), were exceeded four (4) times 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.

Five (5) complaints were received within the Buckinghamshire area during the monitoring period. A description of complaints, the results of investigations and any action taken are detailed in Table 8 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 +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 Buckinghamshire (BS) Local Authority area for the period 1st to 28th February 2022.

1.1.3 Construction sites in the local authority area where monitoring was undertaken during this period include:

- School End worksite reference SE (see Plan 1 in Appendix A), where works activities included:
  - compound setup; and
  - stone deliveries;
- Rosehill Farm worksite reference RF (see Plan 1 in Appendix A), where works activities included:
  - construction of concrete slabs;
- Hermitage Chetwode Worksite reference – HC (see plan 1 in Appendix A), where no works were undertaken in the month of February.
- West Street Overbridge worksite reference WSO (see Plan 1 in Appendix A), where works activities included:
  - causeway piling;
  - stone deliveries; and

- maintenance of access road, drainage and ponds.

- Addison Road worksite reference AR (see Plan 2 in Appendix A), where works activities included:
  - piling for abutments.
- School Hill Compound worksite reference SHC (see Plan 2 in Appendix A), where works activities included:
  - batching plant operation.
- School Hill UTX worksite reference - SHU (see Plan 2 in Appendix A), where works activities included:
  - excavation works;
  - pulling of cable and installation of chamber;
  - drainage works;
  - pipe testing; and
  - site maintenance works.
- FCC Sidings worksite, reference – FCC (see Plan 2 in Appendix A) where noise monitoring was suspended and where no works were undertaken in the month of February.
- Meadoway and Glebe House, Aylesbury Worksite, reference – MW&GH (see Plan 3 in Appendix A), where works activities included:
  - construction of the A418 Oxford Road Main Compound and A418 security plaza access road;
  - road tie-in with highway; and
  - earthworks.
- Oat Close Worksite, reference – OC (see Plan 3 in Appendix A), where works activities included:
  - earthworks;
  - construction of piling platform;
  - rail deliveries;
  - maintenance of access road; and
  - stockpile management.
- Ellesborough Road Worksite, reference – ER (see Plan 4 in Appendix A), where works activities included:
  - topsoil stripping;

- Rocky Lane Embankment Worksite, reference – RLE (see Plan 5 in Appendix A), where works activities included:
  - construction of bentonite access road and plant slab;
  - compound setup and internal haul road construction;
  - sheet piling;
  - ground investigation;
  - enabling works for Rocky Lane Compound; and
  - asphalting and earthworks.
- Leather Lane Worksite, reference – LL (see Plan 6 in Appendix A), where works activities included:
  - asphalting;
  - earthworks; and
  - stabilising of the haul road.
- South Heath Cutting Worksite, reference – SHCW (see Plan 6 in Appendix A), where works activities included:
  - earthworks; and
  - tunnelling works.
- North Portal Worksite, reference – NP (see Plan 6 in Appendix A), where works activities included:
  - construction of temporary and permanent access roads;
  - piling works;
  - construction of diaphragm walls;
  - wheel wash; and
  - installation of utilities.
- Chesham Road Worksite reference – CR (see Plan 6 in Appendix A), where works activities included:
  - site maintenance and operation
  - stockpile management; and
  - shaft construction, which included setting up of cutting shoe, concrete pour of shaft walls and sinking of shaft to formation levels.
- Little Missenden Vent Shaft worksite reference LM (see Plan 7 in Appendix A), where works activities included:
  - site maintenance and operation

- ground post treatment, including drilling and grouting works;
- dewatering works; and
- secant piling works.

- Amersham Vent Shaft Worksite, reference – AM (see Plan 8 in Appendix A), where works activities included:
  - site maintenance and operation
  - ground post treatment, including drilling and grouting works;
  - dewatering works;
  - temporary capping of beams including ground monitoring;
  - shaft excavation works; and
  - secant piling works.
- Chalfont St Giles Vent Shaft Worksite, reference - CSG (see Plan 9 in Appendix A), where works activities included:
  - site maintenance and operation
  - tower crane erection;
  - stockpile management;
  - collar construction works;
  - dewatering works;
  - secant piling works;
  - road maintenance works;
  - secondary lining to the concrete;
  - construction of reinforced concrete structures;
  - connection to tunnel; and
  - construction of basement;
- Chalfont St Peter Vent Shaft Worksite, reference – CSP (see Plan 10 in Appendix A), where works activities included:
  - site maintenance and operation
  - basement secant piling works (including excavation and cutting of piles);
  - road maintenance works;
  - secondary lining for concrete walls and floors;

- connections to tunnel (including demolition and reinforced concrete works); and
- basement construction works (including reinforced concrete capping beam, ground beams, excavation of capping beam and basement, and waterproofing works).

- Colne Valley Viaduct - Load Test Pile 1 Worksite, reference – CVV-LTP #1 (see Plan 11 in Appendix A), where works activities included:
  - piling for the construction of the jetty;
  - construction of a cofferdam (including piling, operation of support plant and excavation);
  - main piling works including bored piling, de-sanding, installation of reinforcement cage and concrete piling, break-out of bored pile to prepare pile cap and installation of grout curtain around viaduct pile;
  - fencing and finishing works;
  - construction and maintenance of haul roads;
  - ground investigation works;
  - Denham Water Ski Club and North Embankment compound operations and de-sanding;
  - realignment of River Colne;
  - installation of satellite welfares;
  - construction of north abutment pile wall;
  - core drilling for integrity test of concrete piles;
  - pile trimming;
  - stockpiling;
  - pumping water management construction;
  - diversion and installation of utilities;
  - environmental maintenance; and
  - operation and maintenance for generator farms.

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

- Amersham where water diversion works were underway;
- Culvert North where tarmacking, construction of site access roads and utilisation of mass haul road were undertaken;

- East West Rail Overbridge where pouring of concrete for abutments, and the installation of formwork and reinforcement cage were undertaken;
- Charndon Lodge Underbridge where installation of abutment wall rebar and excavation works were undertaken;
- Perry Hill Overbridge where piling, excavation and pile cropping works were underway;
- Oxford Line where earthworks and temporary drainage works were underway;
- Calvert cutting where levelling of existing ballast were undertaken;
- Calvert South where excavations and temporary drainage network installations were underway;
- Station Road where construction of piling platform, laydown areas, culvert crossing, stone access road, and fit out of cabins were undertaken;
- Hills Farm where topsoil stripping, pond excavation works, and delivery and management of aggregate stones were underway;
- MCJ Line where vegetation clearance and removal of ballast were undertaken;
- EWR Culvert where installation of temporary watercourse diversion were undertaken;
- A422 North where stone deliveries, construction of access road, drainage, compound development and topsoil stripping were undertaken.
- A422 Turweston cutting where stone deliveries, compound maintenance and excavation works were undertaken.
- A421 where stone deliveries, topsoil stripping, compound development and piling works were undertaken.
- Vegetation clearance and grass cutting were undertaken throughout the HS2 route.

1.1.5 The applicable standards, guidance, and monitoring methodology are 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 Thirty-Five (35) noise and three (3) vibration monitoring installations were active in February in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in February 2022.

1.2.2 An existing noise monitor (ref.: A422N-NMP1) was removed from worksite, ref.: TN, pending relocation to a more representative location.

1.2.3 An additional noise monitor (ref.: BLH-NMP1) was installed on 6th of February in the proximity of the North Portal Worksite, ref.: NP.

1.2.4 An additional vibration monitor (ref.: ER-Vib1) was installed on 16th of February in the proximity of the Ellesborough Rd Worksite, ref.: ER.

1.2.5 Noise monitoring at monitor PIC-NMP1, installed in proximity of Chalfont St Giles Vent Shaft worksite (ref.: CSG), was suspended during the monitoring period due to power supply issues.

1.2.6 Noise monitoring at monitor FCC-NMP1, installed in proximity of FCC Siding worksite (ref.: FCC), continued to be on hold during the monitoring period due to power supply issues. However, no works were being undertaken at this worksite in January 2022.

1.2.7 Maps showing the positions of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
SE	SE-NMP1	School End, Chetwode
	SE-Vib1	School End, Chetwode
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode
	RF-Vib1	Old Stable Cottage, Rosehill Farm, Chetwode
HC	HC-NMP1	Hermitage, Chetwode
WSO	WSO-NMP1	West Street, Twyford
	WSO-NMP2	Twyford
AR	AR-NMP1	Addison Road, Rosehill Farm
SHC	SHC-NMP1	School Hill Compound, Calvert
SHU	SHU-NMP1	70 Cotswold Way, Calvert
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury

Worksite Reference	Measurement Reference	Address
	MW-NMP1	Aylesbury, Buckinghamshire
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville
ER	ER-Vib1	Ellesborough Rd, Wendover
RLE	SDVC-NMP1	Rocky Lane, Wendover
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath
	GD-NMP1	Grimms Ditch, The Lee, South Heath
SHCW	PR-NMP1	Potters Row, South Heath
	SH-NMP1	Bury Farm, South Heath
NP	NP-NMP1	North Portal worksite, Great Missenden
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath
AM	AM-NMP1	Amersham Vent Shaft Worksite, Whielden Lane, Amersham
LM	LM-NMP1	Little Missenden, A413, Amersham
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite, Denham Water Ski Club
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham, Denham Garden Village
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge
CVV-MR*	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire

* This worksite is within the London Borough of Hillingdon, for more details on the works taking place please refer to the London Borough of Hillingdon Noise and Vibration Report available at: https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2

2 Summary of Results

2.1 Summary of Measured Noise 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
SE	SE-NMP1	School End, Chetwode	Free-field	50.4	58.8	43.7	41.0	40.8	46.4	50.0	50.4	48.4	45.9	51.6	40.6
				(63.0)	(63.3)	(53.6)	(50.1)	(47.8)	(47.9)	(51.7)	(52.0)	(58.0)	(55.1)	(62.7)	(47.9)
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Free-field	50.6	50.4	46.6	45.2	45.2	49.3	51.7	53.1	50.3	48.3	51.1	46.1
				(54.0)	(57.0)	(54.2)	(48.7)	(52.2)	(51.0)	(54.9)	(59.1)	(58.2)	(56.9)	(59.7)	(54.8)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	46.9	51.0	41.6	40.2	40.7	45.1	48.6	50.2	48.2	45.7	49.2	38.7
				(52.2)	(55.3)	(53.4)	(45.6)	(52.1)	(48.3)	(51.2)	(54.2)	(56.1)	(54.4)	(58.2)	(45.8)
WSO	WSO-NMP1	West Street, Twyford	Free-field	52.2	53.0	47.5	44.4	41.7	49.2	51.7	52.1	50.1	45.9	51.9	43.2
				(54.3)	(58.7)	(51.3)	(54.3)	(51.8)	(51.4)	(53.2)	(52.5)	(55.9)	(54.0)	(59.3)	(54.6)
	WSO-NMP2	Twyford	Free-field	47.2	52.1	44.2	42.8	40.9	44.8	47.6	49.0	47.7	45.7	52.2	43.7
				(59.0)	(58.7)	(50.4)	(57.1)	(50.2)	(46.3)	(48.8)	(49.8)	(56.5)	(53.0)	(67.0)	(60.9)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	51.1	52.8	41.7	39.4	39.7	51.1	51.3	50.4	48.1	44.7	52.0	45.3
				(58.1)	(75.6)	(46.9)	(50.0)	(54.9)	(52.9)	(55.4)	(52.6)	(57.3)	(53.5)	(65.0)	(60.0)
SHC	SHC-NMP1	School Hill Compound, Calvert	Free-field	54.6	62.0	48.6	47.0	45.6	47.6	61.3	64.4	60.3	59.1	62.9	51.5
				(64.5)	(74.1)	(60.8)	(60.1)	(63.4)	(55.9)	(65.2)	(68.5)	(70.3)	(69.6)	(72.5)	(65.8)

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
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Free-field	54.0 (56.8)	64.2 (69.9)	47.6 (50.8)	43.6 (49.9)	43.3 (55.1)	52.9 (57.1)	59.2 (66.9)	55.4 (62.2)	48.9 (53.8)	44.1 (51.2)	54.8 (70.8)	43.4 (53.0)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	56.3 (60.0)	56.2 (61.4)	55.7 (58.1)	53.2 (56.5)	49.8 (55.7)	53.7 (54.9)	55.0 (56.8)	56.9 (60.6)	55.5 (60.1)	51.4 (55.4)	56.0 (61.4)	50.5 (59.3)
	MW-NMP1	Aylesbury, Buckinghamshire	Free-field	64.2 (65.1)	63.1 (65.0)	62.9 (64.0)	60.5 (62.6)	56.7 (63.2)	61.6 (62.0)	62.4 (63.9)	63.8 (65.8)	62.2 (65.7)	55.6 (58.9)	62.3 (64.9)	56.8 (63.4)
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	Free-field	49.3 (56.2)	50.5 (56.9)	47.1 (54.6)	46.1 (53.9)	46.2 (56.5)	48.0 (53.6)	54.8 (56.7)	57.4 (61.8)	53.2 (56.3)	53.0 (56.0)	55.0 (63.1)	49.0 (56.9)
MF	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville	Free-field	47.2 (56.8)	49.3 (55.8)	42.5 (45.1)	41.3 (48.0)	44.4 (58.3)	43.6 (43.9)	47.9 (51.8)	52.0 (59.5)	47.5 (55.5)	46.4 (54.6)	51.9 (65.0)	49.4 (58.5)
RLE	SDVC-NMP1	Rocky Lane, Wendover	Free-field	65.2 (67.9)	64.3 (66.8)	61.7 (62.9)	58.4 (61.5)	58.4 (66.8)	62.7 (62.7)	63.6 (65.3)	63.7 (66.4)	61.6 (65.0)	56.6 (61.6)	62.1 (66.1)	59.5 (65.7)
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	52.9 (56.7)	55.3 (59.0)	51.1 (53.5)	48.8 (52.8)	47.3 (53.4)	49.9 (51.6)	52.3 (54.5)	53.6 (57.7)	51.8 (55.9)	50.3 (56.7)	52.9 (62.1)	48.1 (56.7)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	59.7 (61.2)	60.5 (65.4)	57.7 (59.7)	54.8 (57.7)	51.8 (59.2)	56.9 (57.5)	58.9 (59.7)	60.7 (62.1)	57.6 (61.0)	53.0 (57.1)	57.9 (62.1)	52.1 (59.5)
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee	Free-field	50.9 (59.1)	51.9 (58.9)	48.6 (59.0)	47.1 (59.0)	45.9 (58.8)	48.9 (51.9)	53.4 (56.8)	54.9 (60.6)	52.5 (57.4)	52.9 (58.2)	55.0 (62.5)	48.6 (58.7)

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
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	51.7	59.1	49.2	47.2	48.5	51.3	55.1	57.5	58.4	58.5	60.3	53.8
				(76.0)	(70.9)	(64.8)	(68.5)	(74.1)	(63.0)	(64.2)	(72.5)	(74.0)	(74.1)	(74.2)	(77.5)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	53.2	56.9	51.2	51.1	51.6	50.5	55.6	56.6	53.5	53.7	54.5	52.6
				(59.7)	(63.3)	(54.8)	(56.6)	(57.2)	(52.9)	(57.6)	(58.2)	(57.6)	(58.3)	(61.6)	(61.5)
	SH-NMP1	Bury Farm, South Heath	Free-field	49.6	55.8	48.9	47.5	43.3	48.2	51.0	52.3	49.1	47.6	50.1	43.2
				(51.9)	(65.2)	(53.8)	(53.1)	(51.9)	(50.4)	(51.2)	(54.1)	(52.8)	(55.5)	(57.1)	(47.8)
NP	NP-NMP1	North Portal worksite, Great Missenden	Free-field	56.4	61.7	54.6	53.3	45.1	49.9	56.5	54.4	50.9	47.4	52.9	45.9
				(60.0)	(65.9)	(63.5)	(62.3)	(57.5)	(55.4)	(60.3)	(56.0)	(55.5)	(54.9)	(63.7)	(59.2)
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Free-field	52.2	53.9	49.8	47.6	43.1	48.5	50.6	50.7	48.1	43.1	50.1	43.7
				(59.9)	(61.1)	(61.5)	(56.1)	(60.5)	(49.4)	(52.5)	(53.9)	(53.7)	(50.0)	(60.4)	(57.6)
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	60.0	60.1	57.0	53.9	49.4	56.1	57.2	58.0	56.0	51.1	57.2	50.9
				(64.1)	(68.9)	(67.0)	(62.2)	(61.7)	(56.6)	(58.5)	(60.8)	(61.6)	(57.8)	(62.8)	(64.9)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	64.1	68.8	65.6	60.8	54.1	62.5	63.5	61.8	59.2	53.4	59.5	53.9
				(69.3)	(70.7)	(72.5)	(72.5)	(66.8)	(71.3)	(67.5)	(63.3)	(61.9)	(57.0)	(62.4)	(60.9)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	61.4	61.0	60.3	57.1	52.4	57.5	60.2	61.7	59.0	51.9	59.4	52.4
				(63.0)	(63.8)	(63.4)	(60.4)	(60.4)	(58.3)	(61.3)	(64.0)	(62.8)	(56.0)	(62.6)	(60.8)
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Free-field	62.2	61.4	60.4	57.0	52.9	58.7	60.6	62.1	59.6	53.0	59.7	53.2
				(63.7)	(66.4)	(64.4)	(60.6)	(61.1)	(59.3)	(61.6)	(64.2)	(62.8)	(56.7)	(63.0)	(62.2)

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
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	51.4 (56.6)	54.3 (61.1)	45.3 (56.1)	41.7 (52.1)	44.2 (59.6)	46.5 (47.9)	49.1 (49.4)	49.3 (51.1)	44.4 (49.2)	45.3 (55.1)	49.4 (59.7)	46.3 (54.2)
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	54.8 (69.2)	57.4 (63.6)	48.8 (61.2)	44.4 (56.0)	46.2 (56.0)	47.8 (49.8)	49.1 (49.6)	49.3 (51.1)	46.3 (52.9)	46.0 (51.6)	50.8 (63.6)	47.7 (58.3)
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite	Free-field	57.9 (63.4)	59.1 (69.5)	55.8 (68.4)	52.6 (64.6)	49.1 (62.2)	54.5 (55.6)	56.4 (57.0)	57.6 (59.0)	55.0 (59.7)	50.5 (56.3)	56.6 (63.3)	51.0 (64.5)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	49.4 (53.6)	51.1 (60.4)	48.0 (57.6)	45.5 (53.6)	43.0 (52.5)	48.3 (50.5)	51.1 (52.0)	51.6 (53.0)	48.9 (52.4)	44.5 (48.1)	50.6 (57.8)	43.5 (53.3)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	60.1 (62.8)	60.0 (63.2)	58.5 (62.8)	56.0 (60.3)	51.8 (58.8)	56.1 (56.5)	59.3 (60.0)	60.1 (62.0)	58.0 (61.3)	51.1 (55.3)	58.3 (62.3)	51.9 (60.6)
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	63.6 (65.6)	62.8 (65.3)	61.3 (63.9)	57.7 (60.9)	56.3 (65.0)	59.2 (59.7)	62.0 (62.8)	62.0 (65.3)	59.5 (63.2)	53.9 (59.3)	60.2 (65.2)	56.2 (64.1)
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham	Free-field	59.4 (62.1)	59.6 (67.6)	57.2 (62.4)	53.8 (61.1)	52.1 (60.9)	56.3 (57.3)	58.6 (59.2)	59.3 (61.5)	56.2 (59.5)	51.0 (56.5)	57.1 (61.9)	52.7 (61.0)
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	50.3 (52.2)	51.2 (57.4)	56.8 (61.7)	48.5 (56.2)	43.2 (50.1)	50.4 (51.9)	51.2 (51.6)	49.6 (49.7)	51.2 (54.5)	46.4 (52.5)	52.6 (56.7)	45.4 (50.5)
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	52.7 (55.3)	52.2 (61.1)	48.9 (56.2)	47.1 (54.7)	45.7 (55.6)	52.8 (54.6)	52.2 (53.0)	50.1 (53.2)	48.9 (54.0)	45.4 (51.3)	50.5 (55.3)	46.6 (55.4)

2.1.2 Table 4 presents a summary of the measured vibration levels at the 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
SE	SE-Vib 1	School End, Chetwode	0.86 (X-axis)
RF	RF-Vib 1	Old Stable Cottage, Rosehill Farm, Chetwode	5.96* (X-axis)
ER	ER-Vib1	Ellesborough Rd, Wendover	2.43 (Z-axis)

* High vibration levels at this receptor were due to vibration monitor installed at a close distance of 5 m from the Site Access Road. The nearest residential receptors are further away from the works and vibration levels at the receptors 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 LOAEL and SOAEL

2.2.1 The lowest observed adverse effect level (LOAEL) is defined in the Planning Practice Guidance – Noise (PPG) as the level above which "noise starts to cause small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life".

2.2.2 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."

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

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

2.2.5 Table 5 presents a summary of recorded exceedances of the LOAEL and SOAEL over the reporting period, including the number of exceedances during each time period.

Table 5: Summary of Exceedances of LOAEL and SOAEL

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
SE	SE-NMP1	School End, Chetwode	Weekday	08:00-18:00	3	No exceedance
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	All days	All periods	No exceedance	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	All days	All periods	No exceedance	No exceedance
WSO	WSO-NMP1	West Street, Twyford	All days	All periods	No exceedance	No exceedance
	WSO-NMP2	Twyford	All days	All periods	No exceedance	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	Weekday	08:00-18:00	1	1
SHC	SHC-NMP1*	School Hill Compound, Calvert	Weekday	08:00-18:00	1	No exceedance
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Weekday Saturday Saturday Sunday	08:00-18:00 08:00-13:00 13:00-14:00 07:00-22:00	14 2 1 3	No exceedance No exceedance No exceedance 2
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance
	MW-NMP1	Aylesbury, Buckinghamshire	Weekday Saturday	08:00-18:00 08:00-13:00	10 3	No exceedance
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	All days	All periods	No exceedance	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	MF-NMP1*	Moat Farm, Marsh Lane, Stoke Mandeville	All days	Night	46	4
RLE	SDVC-NMP1	Rocky Lane, Wendover	Weekday Saturday	08:00-18:00 08:00-13:00	15 3	No exceedance No exceedance
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Weekday	08:00-18:00	3	No exceedance
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	All days	All periods	No exceedance	No exceedance
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Weekday Saturday	08:00-18:00 08:00-13:00	6 1	No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	Weekday	08:00-18:00	2	No exceedance
	SH-NMP1	Bury Farm, South Heath	Weekday	08:00-18:00	1	No exceedance
NP	NP-NMP1*	North Portal worksite, Great Missenden	All days	All periods	No exceedance	No exceedance
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Weekday Weekday	18:00-19:00 19:00-22:00	1 3	No exceedance No exceedance
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekday	08:00-18:00	1	No exceedance
AM	AM-NMP1*	Whielden Lane, Amersham	All days	All periods	No exceedance	No exceedance
LM	LM-NMP1*	Little Missenden Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	PWC-NMP1#	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Weekday Weekday Weekday	08:00-18:00 18:00-19:00 19:00-22:00	1 11 36	No exceedance No exceedance No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
	CSG-NMP2*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
CSP	CSP-NMP1*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP2*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	Weekday	19:00-23:00	1	No exceedance
CVV-LTP #1	CVV-LTP #1-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance
	CVV-WYC-NMP1#	Wyatt's Covert, Tilehouse Lane, Denham	Weekday Weekday Weekday Weekday Saturday Saturday Sunday Night	07:00-08:00 08:00-18:00 18:00-19:00 19:00-22:00 13:00-14:00 14:00-22:00 07:00-22:00 22:00-07:00	19 1 5 7 2 21 45 136	No exceedance No exceedance No exceedance No exceedance No exceedance No exceedance No exceedance No exceedance
	CVV-DFS-NMP1#	Denham Film Studio, Uxbridge	Weekday Weekday Saturday Sunday Night	18:00-19:00 19:00-22:00 14:00-22:00 07:00-22:00 22:00-07:00	4 3 4 14 21	No exceedance No exceedance No exceedance No exceedance No exceedance
CVV-MR	CVV-SVF-NMP1#	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Weekday Saturday Sunday Night	19:00-22:00 14:00-22:00 07:00-22:00 22:00-07:00	4 2 6 74	No exceedance No exceedance No exceedance No exceedance

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

The ambient noise level is close to the LOAEL and measured LOAEL exceedances are mostly believed to be due to ambient noise levels exceeding the LOAEL and not due to HS2 construction noise.

2.2.6 Exceedances of the LOAEL were recorded at 18 monitoring locations during the month of February 2022.

2.2.7 For the purpose of assessing eligibility for noise insulation or temporary rehousing, multiple exceedances of the SOAEL in a 24-hour period would be counted as a single exceedance during that day. Over the reporting period, the overall number of SOAEL

exceedances at each measurement location is shown in Table 6 and may be lower than the total sum of individual exceedances reported in Table 5 for each location.

Table 6: Summary of Total Exceedances of SOAEL

Worksite Reference	Measurement Reference	Monitor Address	Total of SOAEL exceedances in the month
AR	AR-NMP1	Addison Road, Rosehill Farm	1
SHU	SHU-NMP1	70 Cotswold Way, Calvert	1
OC	MF-NMP1*	Moat Farm, Marsh Lane, Stoke Mandeville	2

2.2.8 One weekday core hour exceedance of SOAEL at AR-NMP1, one weekend daytime SOAEL exceedance at SHU-NMP1, and two night-time exceedances of SOAEL at MF-NMP1 was due to HS2 construction works during February 2022.

2.3 Exceedances of Trigger Level

2.3.1 Table 7 provides a summary of exceedances of the S61 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 7: 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 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

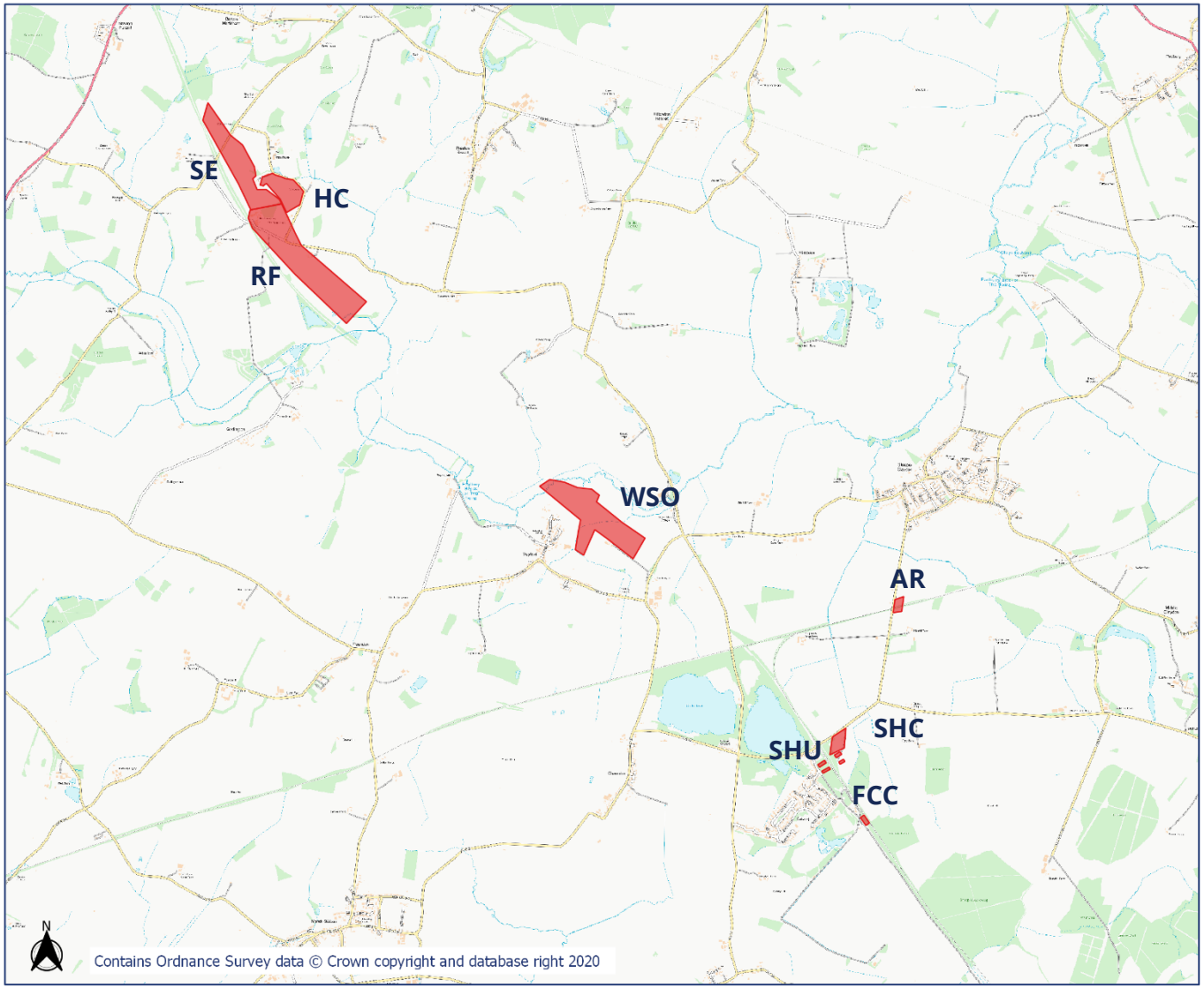
Table 8: Summary of Complaints

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-22-43278-C	MW&GH	Complaint due to noise disturbance coming from	Investigation revealed the noise disturbances were caused by stationary	Start/stop technology will be implemented to reduce stationary train noise.

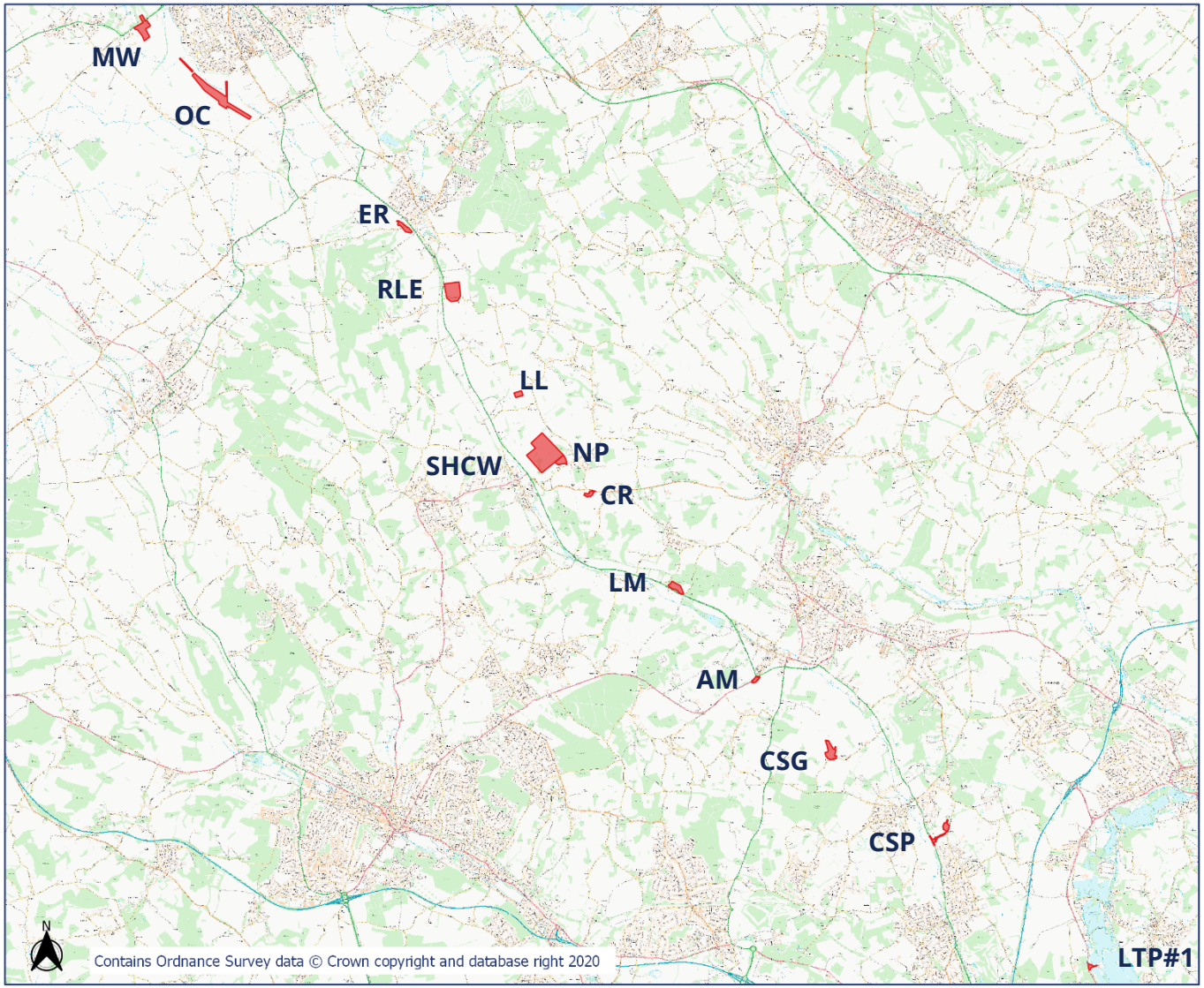
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
		engines of the trains carrying materials to HS2 site heavily impacting sleep and lifestyle.	trains due to National Rail timetable. Engines automatically start to prevent frost damage while standing.	
HS2-22-43294-C	CVV-MR	Complaint due to noise disturbance due to high pitched screech heard from site.	Investigation revealed the noise was not related to HS2 construction activity.	The stakeholder informed about the conclusions of the investigation.
HS2-22-43297-C	NP	Complaint regarding ongoing late-night works at 22:20 hrs.	Consents are in place for works to continue up to 10pm. The concrete pouring works on the day of complaint overran and could not be stopped until completed.	The stakeholder informed about the reasons for overran and apologies provided.
HS2-22-43298-C	NP	Complaint regarding late-night machinery noise and lorry beeping at 22:05 hrs	Consents are in place for works to continue up to 10pm. The concrete pouring works on the day of complaint overran and could not be stopped until completed.	The stakeholder informed about the reasons for overran and apologies provided and stakeholder informed about the improvements.
HS2-22-43312-C	NP	Complaint due to noise disturbance due to a constant loud humming noise at 22:00 hrs.	Likely source of noise to be a pump operated for HS2 construction works.	Existing pump replaced with a low noise emitting electric pump.

Appendix A Site Locations

Worksite Identification Plan - Overview 1



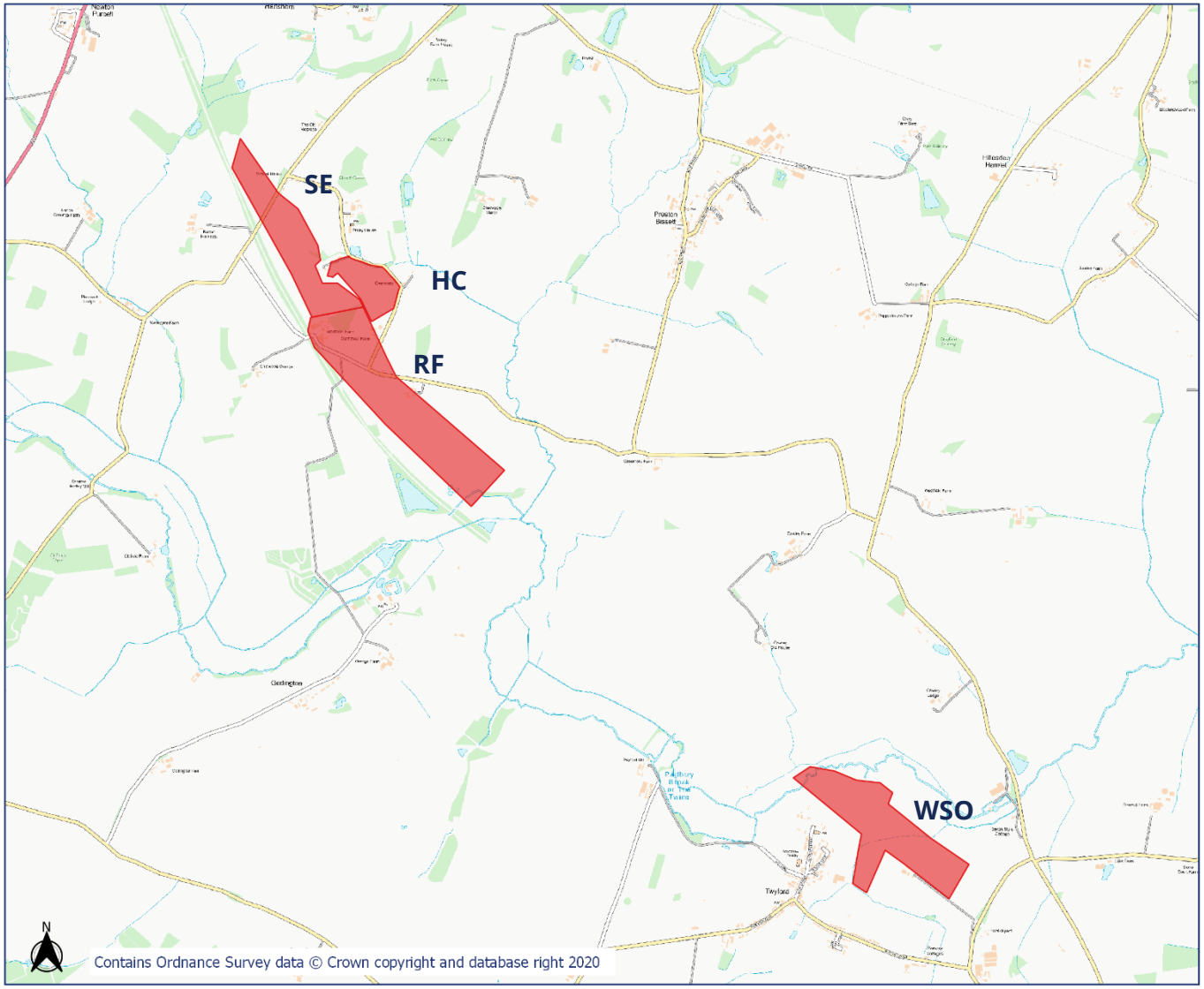
Worksite Identification Plan - Overview 2



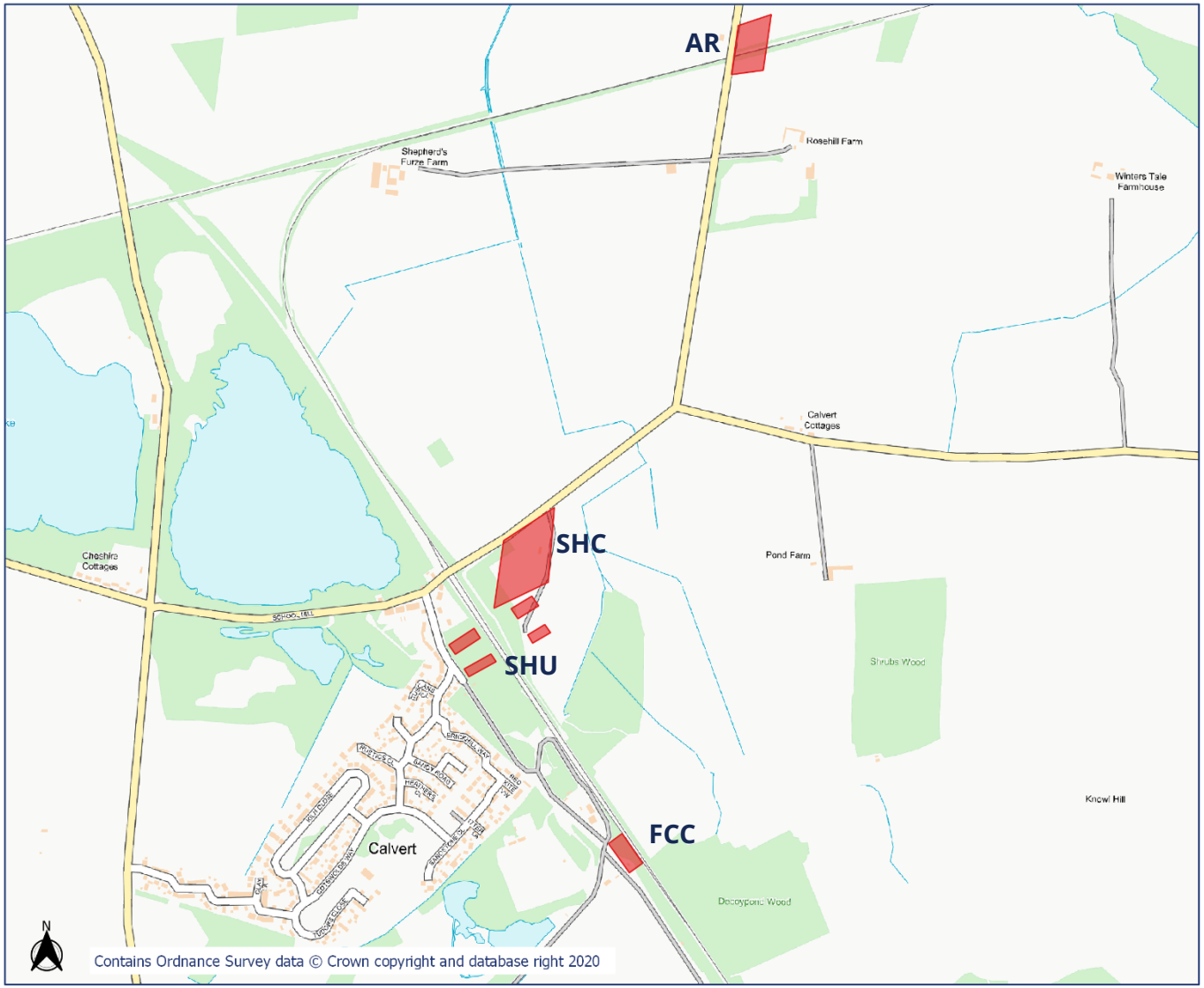
Legend

Active Worksites

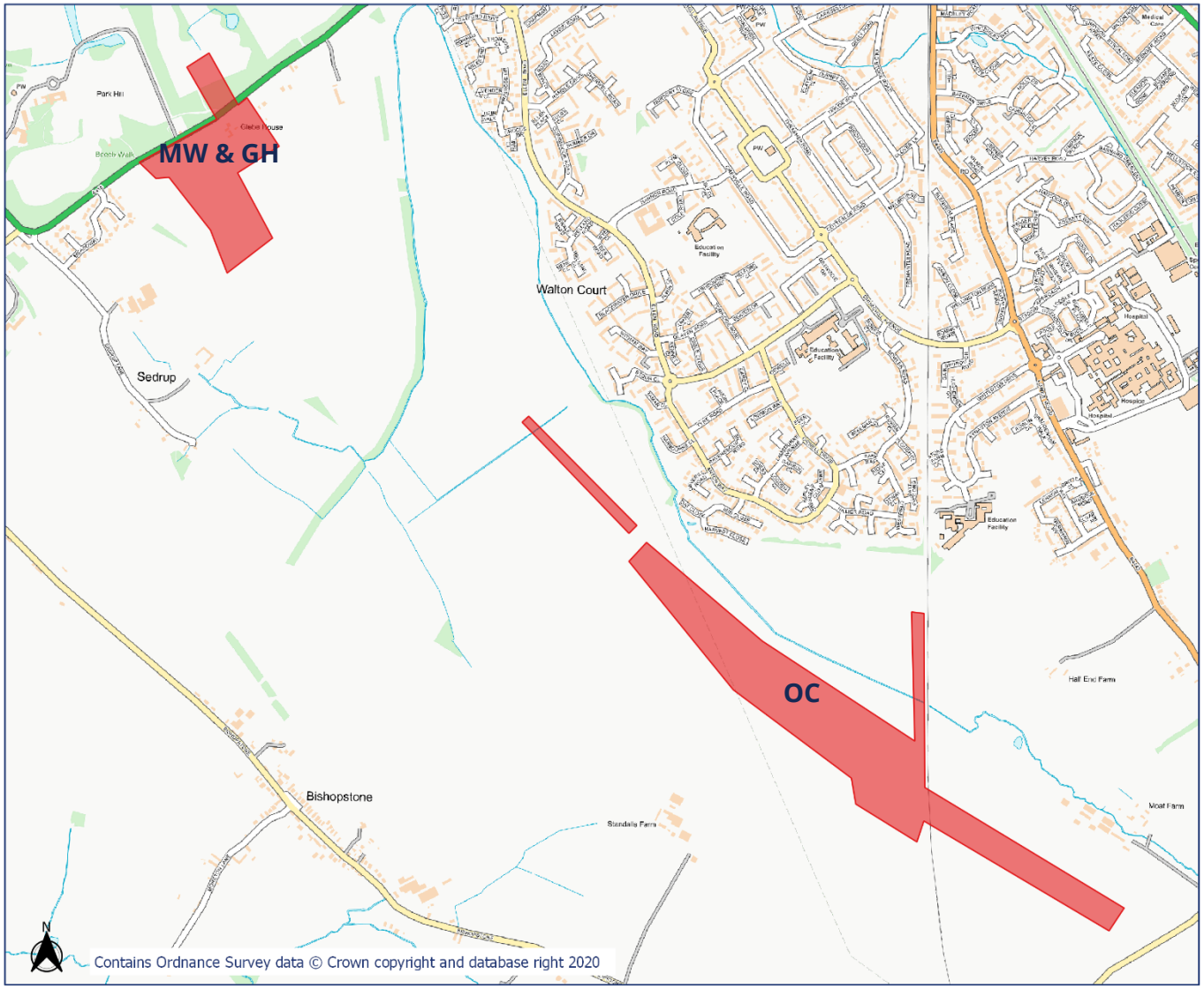
Worksite Identification Plan - 1



Worksite Identification Plan - 2



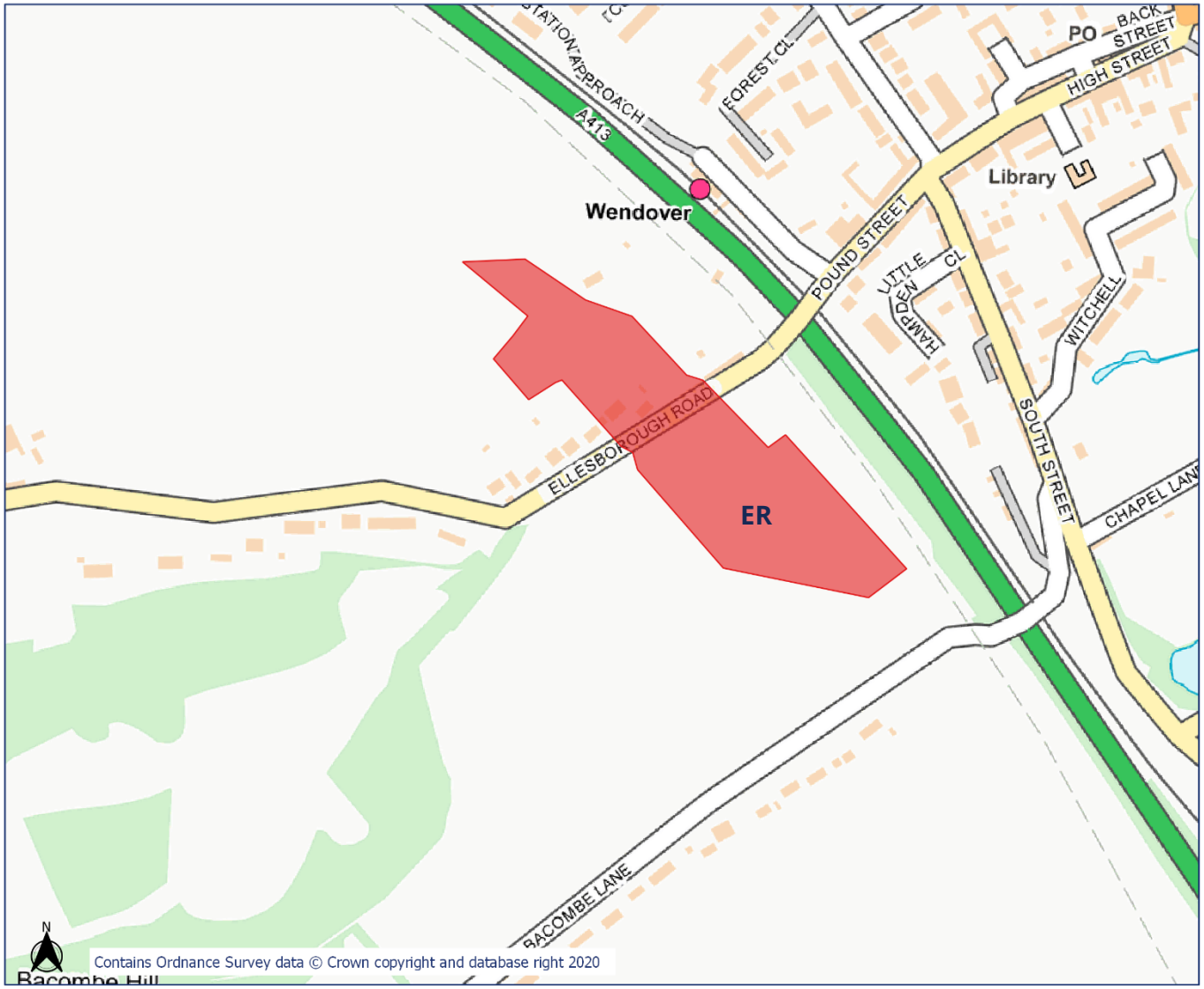
Worksite Identification Plan - 3



Legend

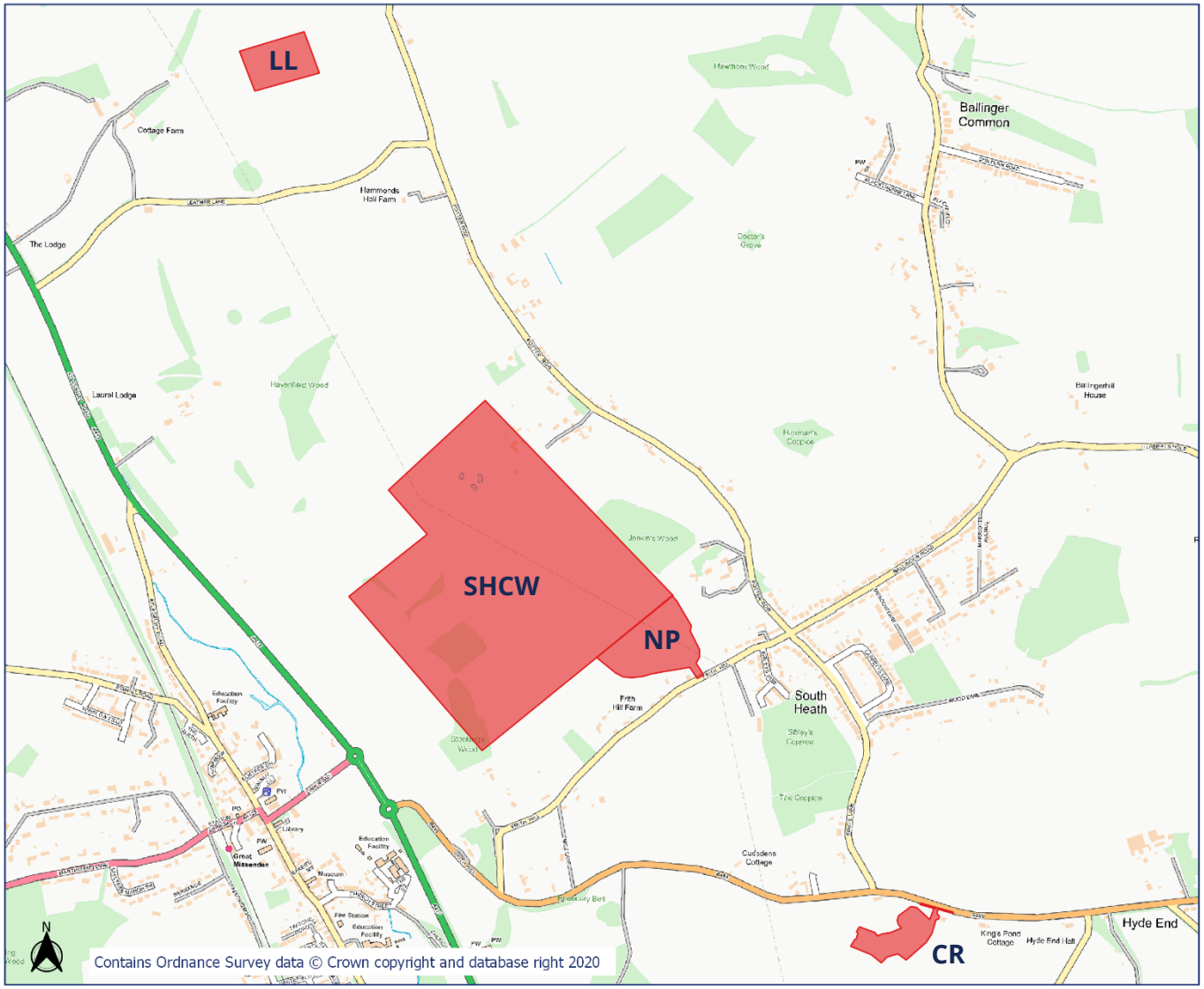
Active Worksites

Worksite Identification Plan - 4



Worksite Identification Plan - 5

Worksite Identification Plan - 6

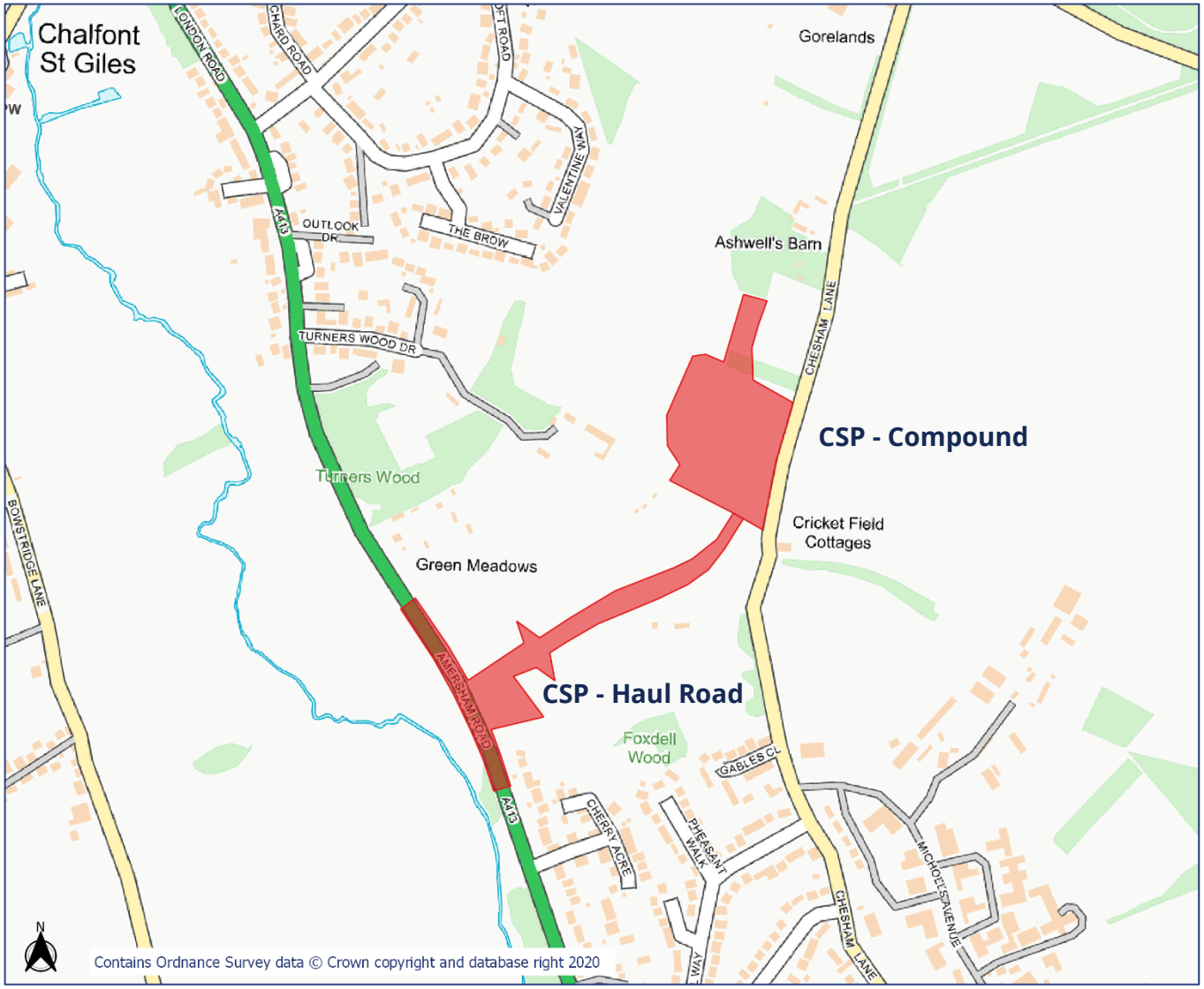


Worksite Identification Plan - 7

Worksite Identification Plan - 8

Worksite Identification Plan - 9

Worksite Identification Plan - 10



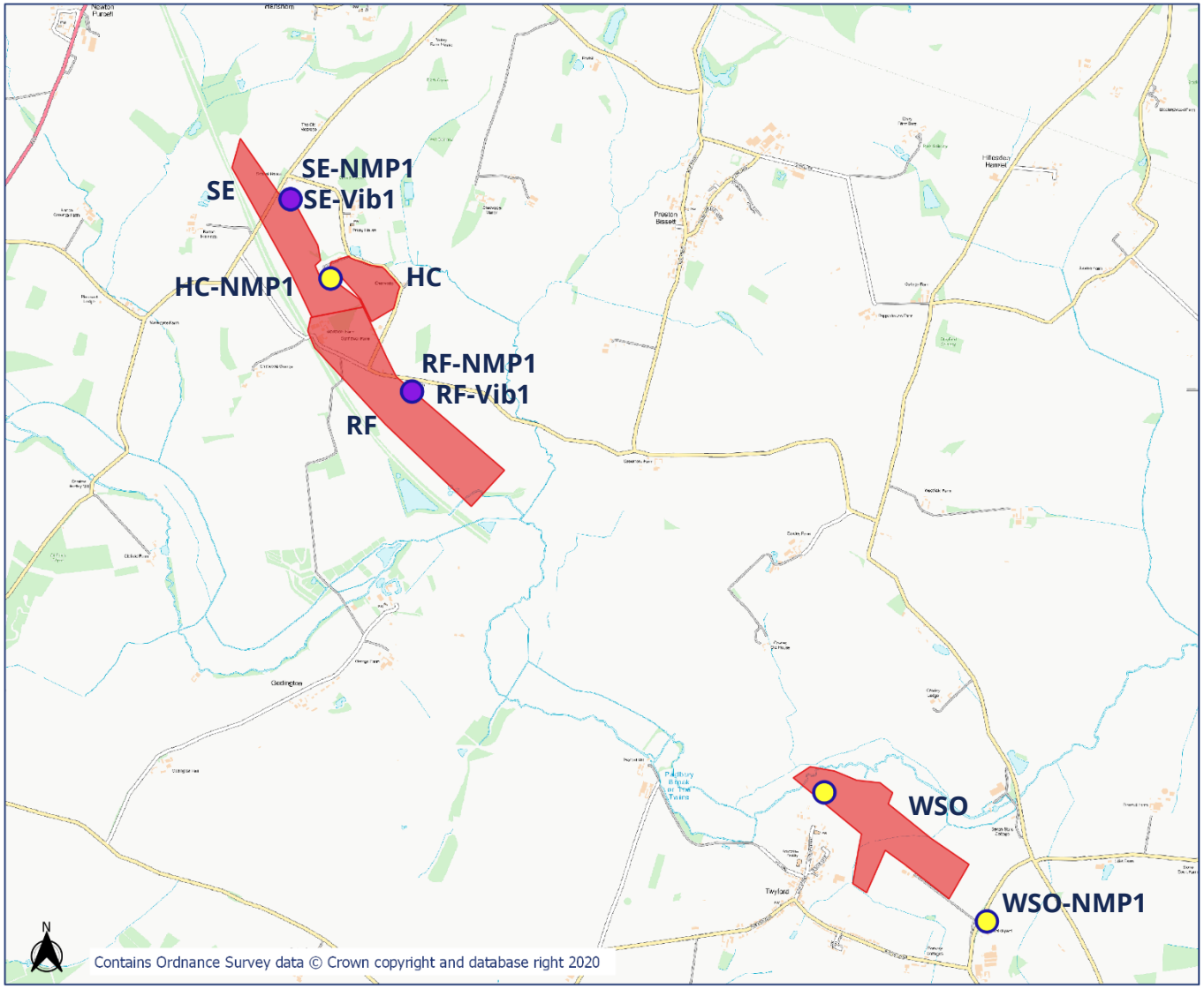
Worksite Identification Plan - 11

Legend

Active Worksites

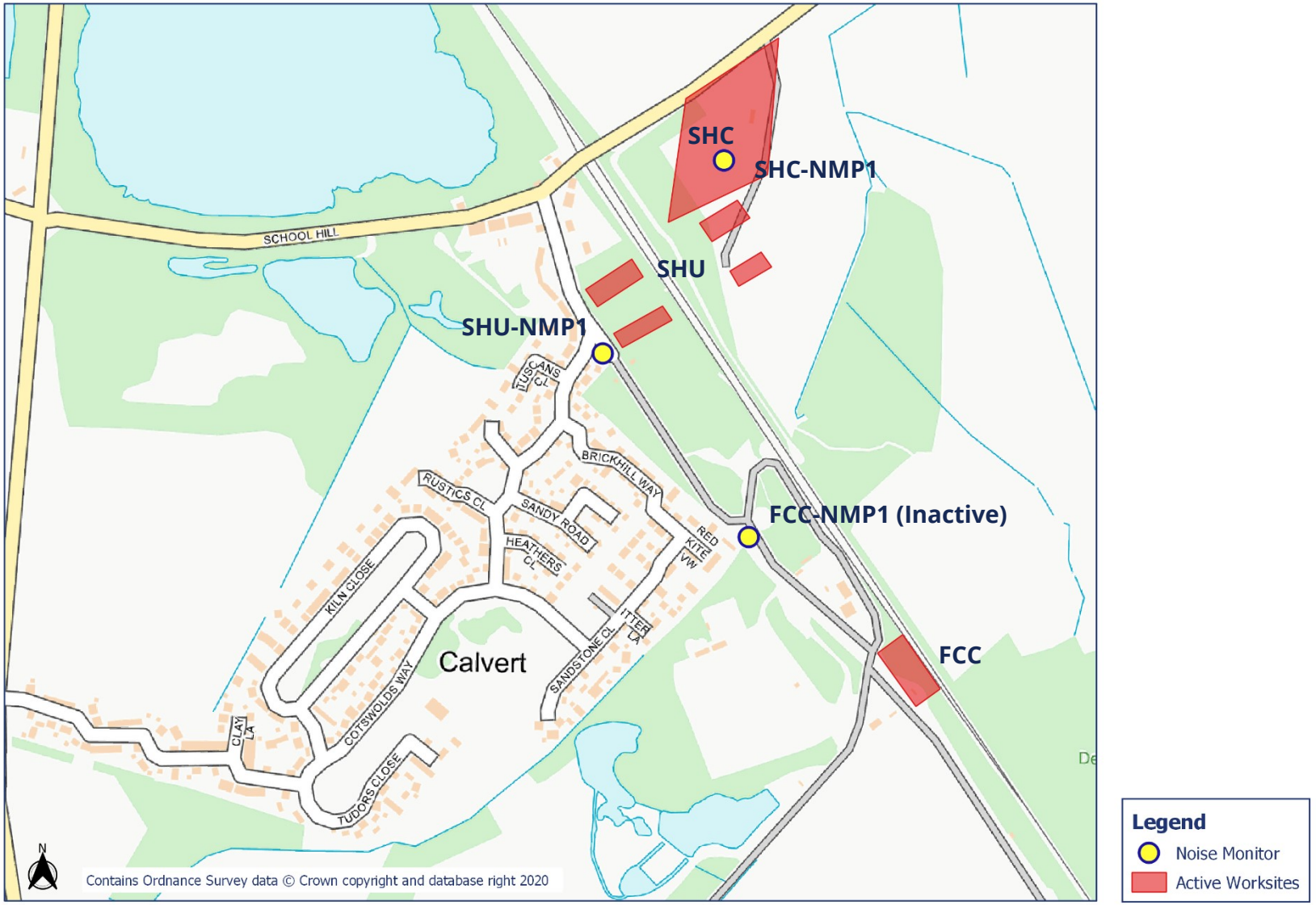
Appendix B Monitoring Locations

Noise and Vibration Monitoring Plan - 1

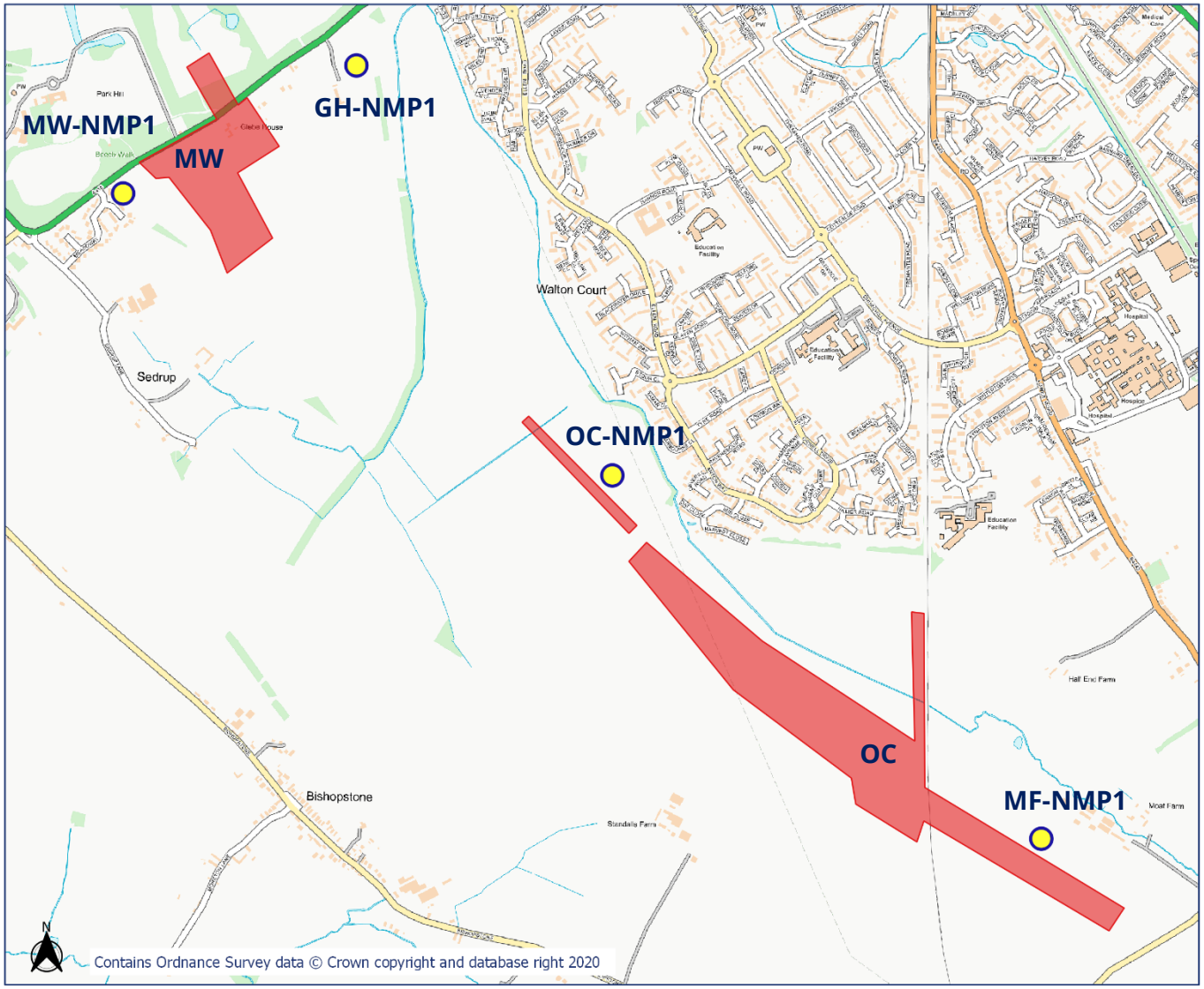


Noise and Vibration Monitoring Plan - 2

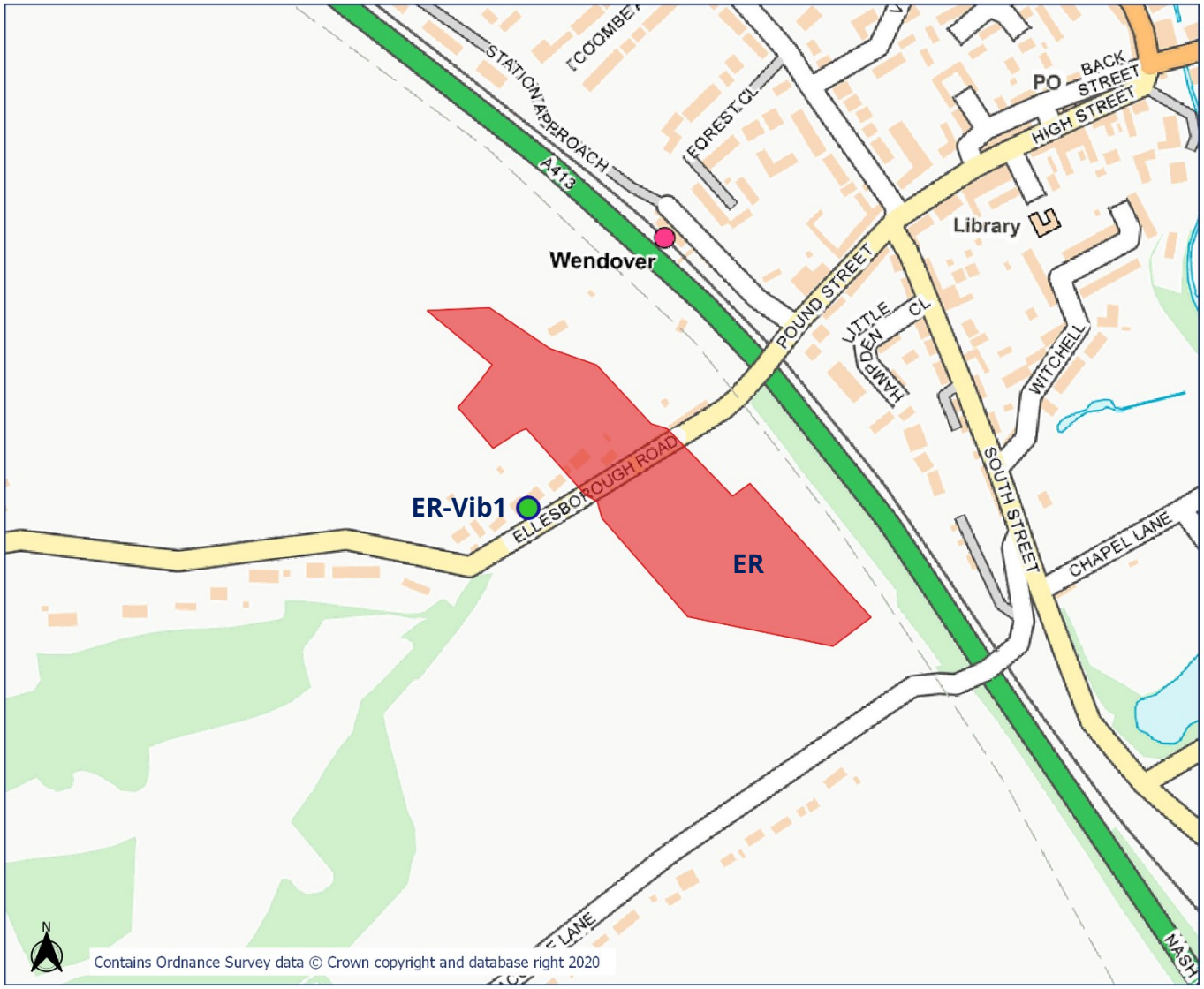
Noise and Vibration Monitoring Plan - 3



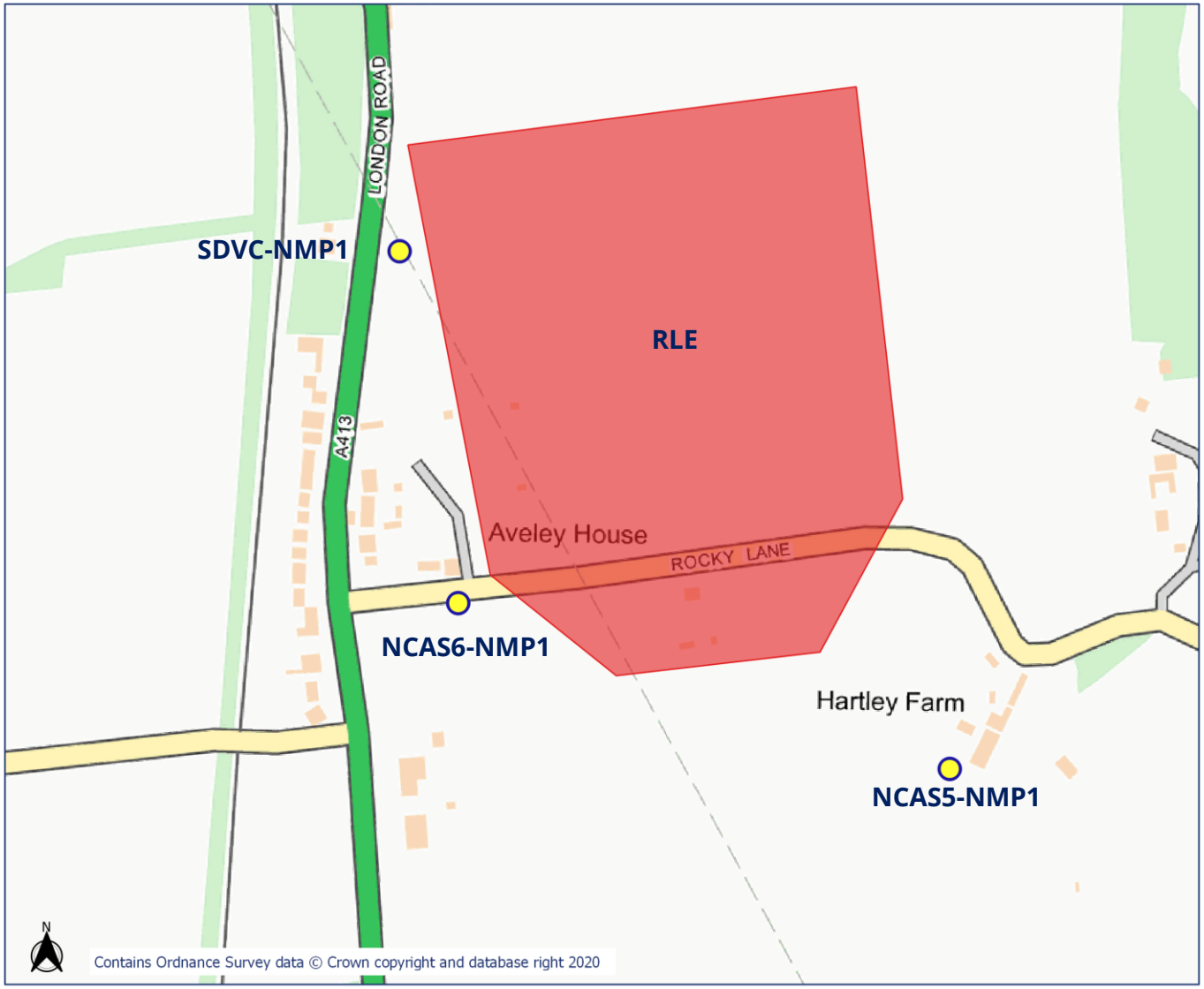
Noise and Vibration Monitoring Plan - 4



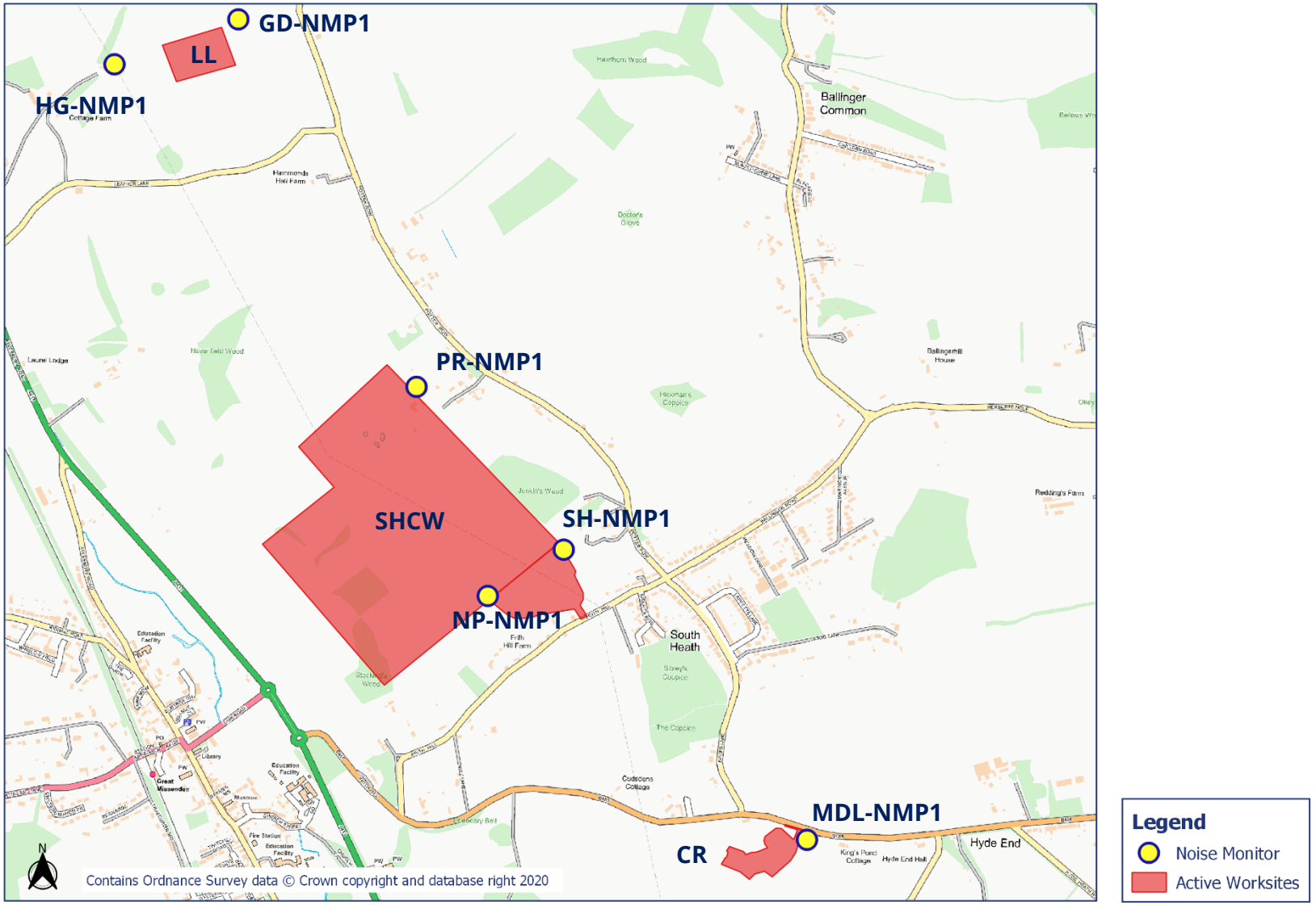
Noise and Vibration Monitoring Plan - 5



Noise and Vibration Monitoring Plan - 6

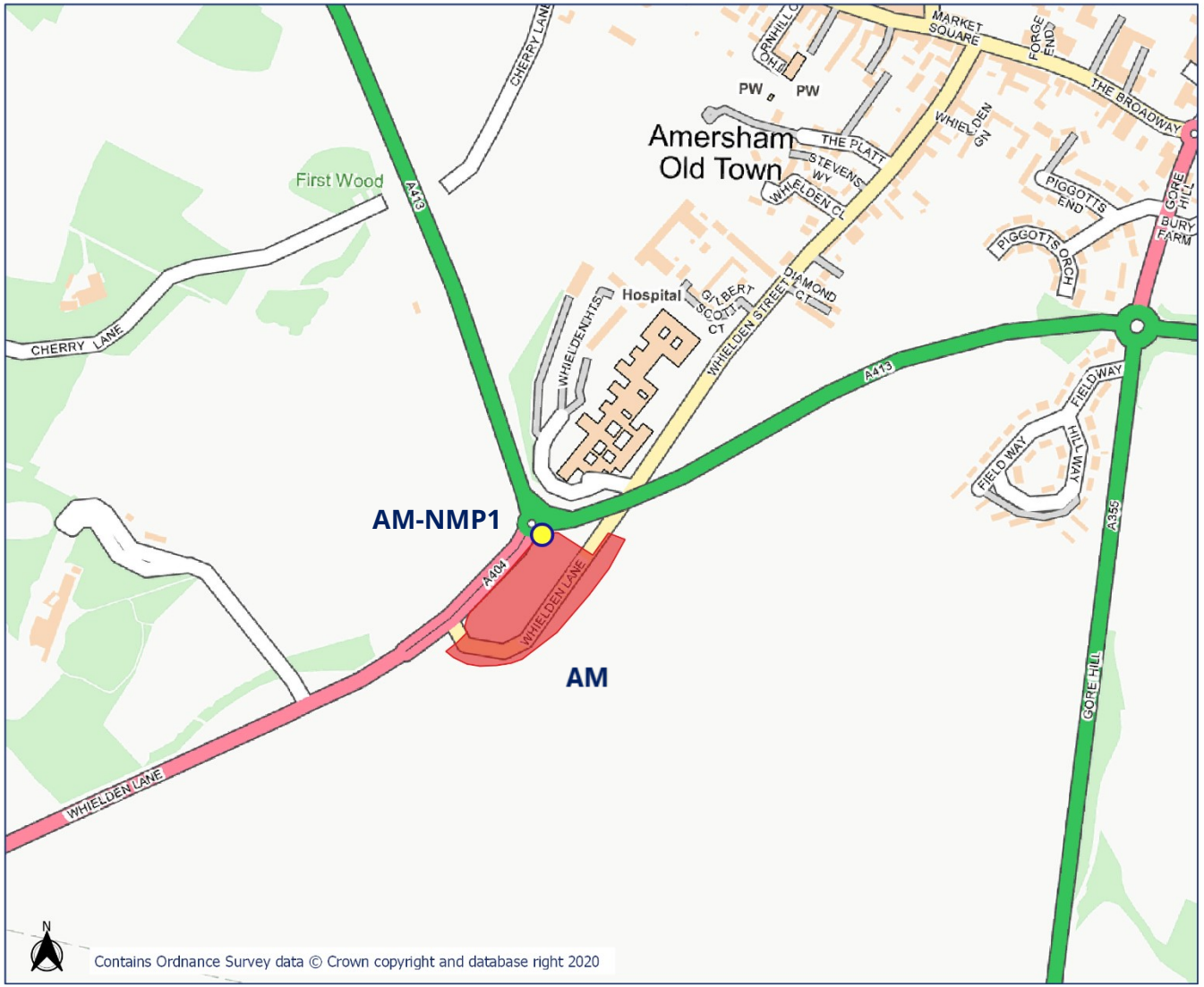


Noise and Vibration Monitoring Plan - 7

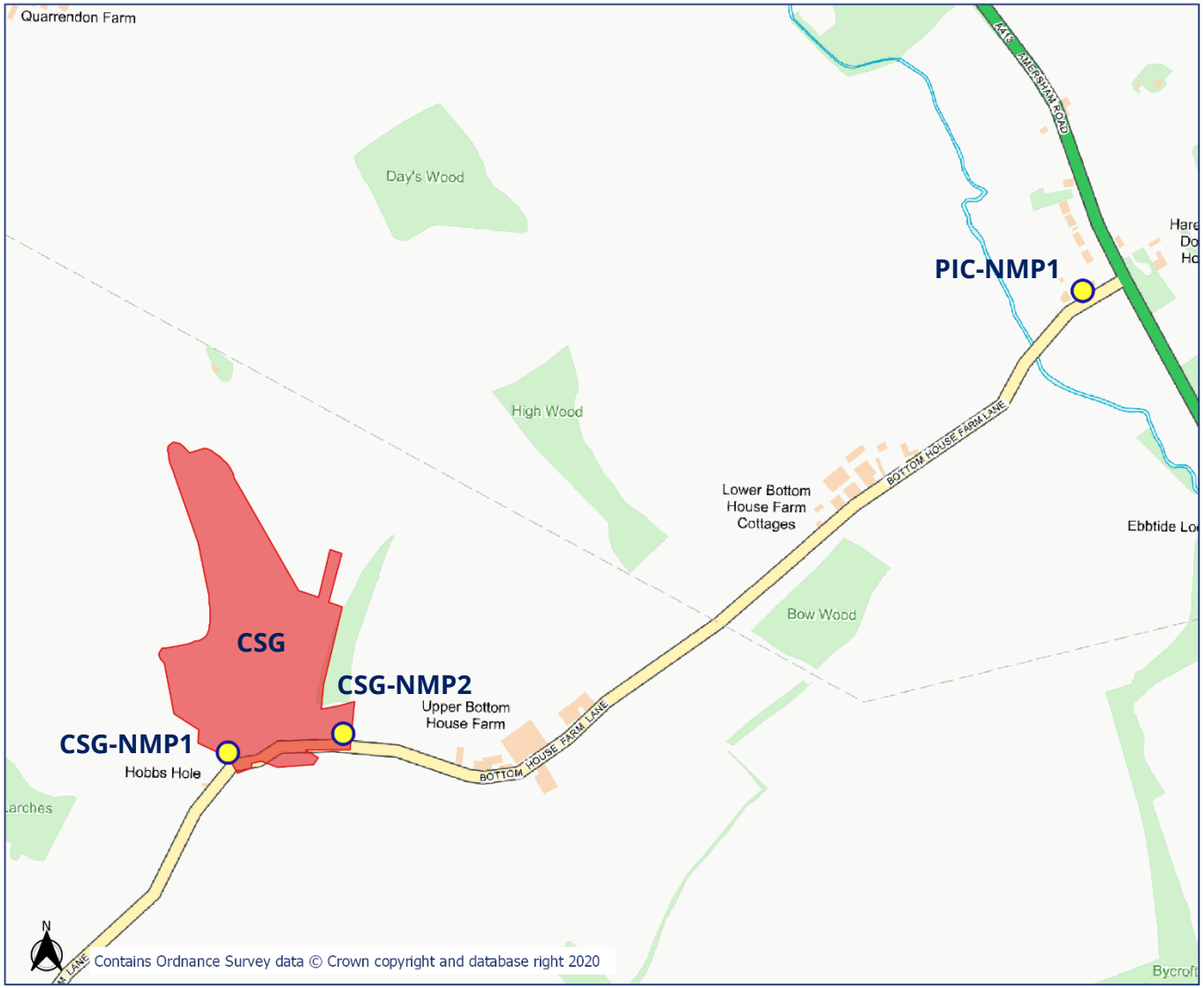


HS2 Noise and Vibration Monitoring Plan - 8

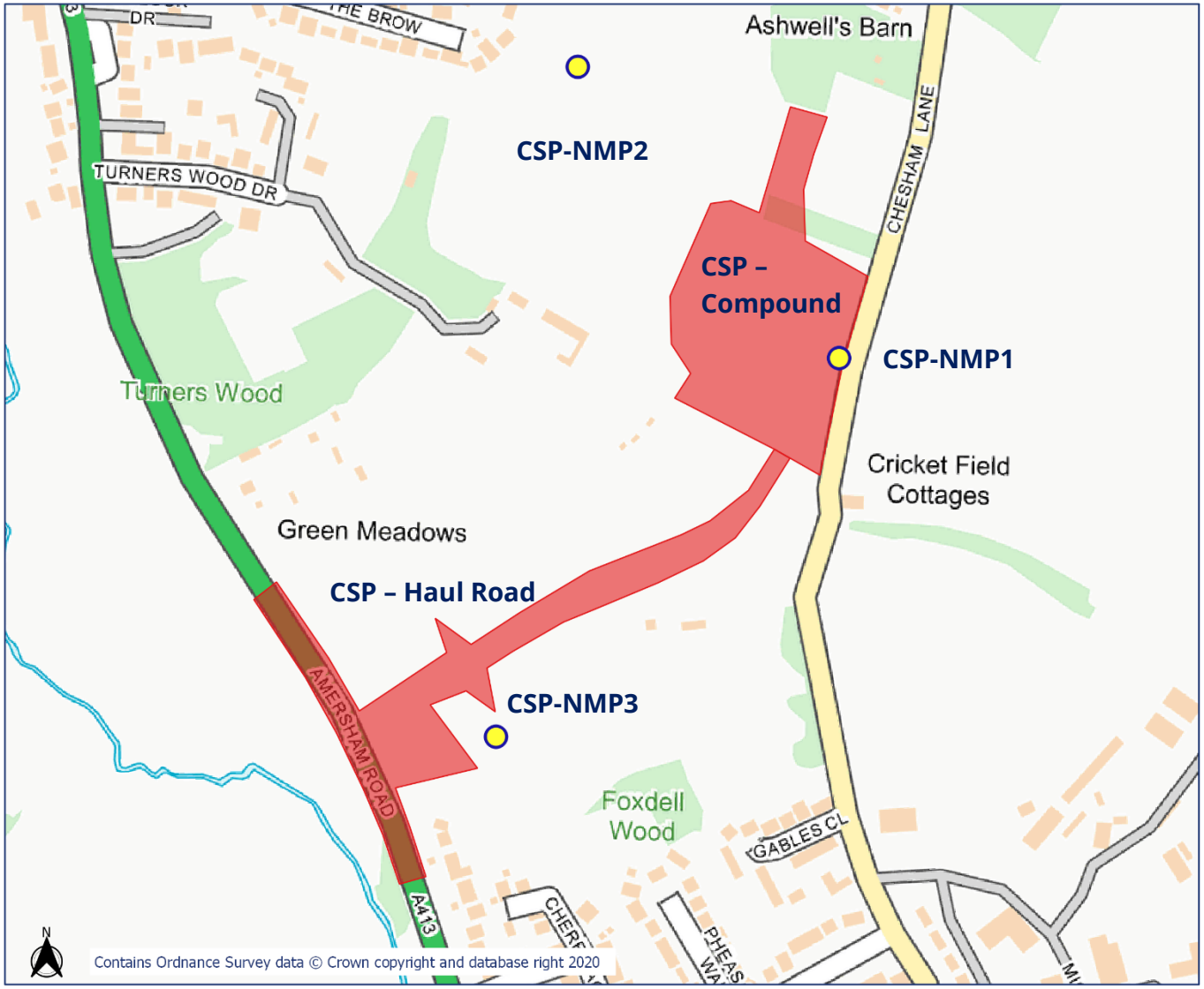
HS2 Noise and Vibration Monitoring Plan - 9



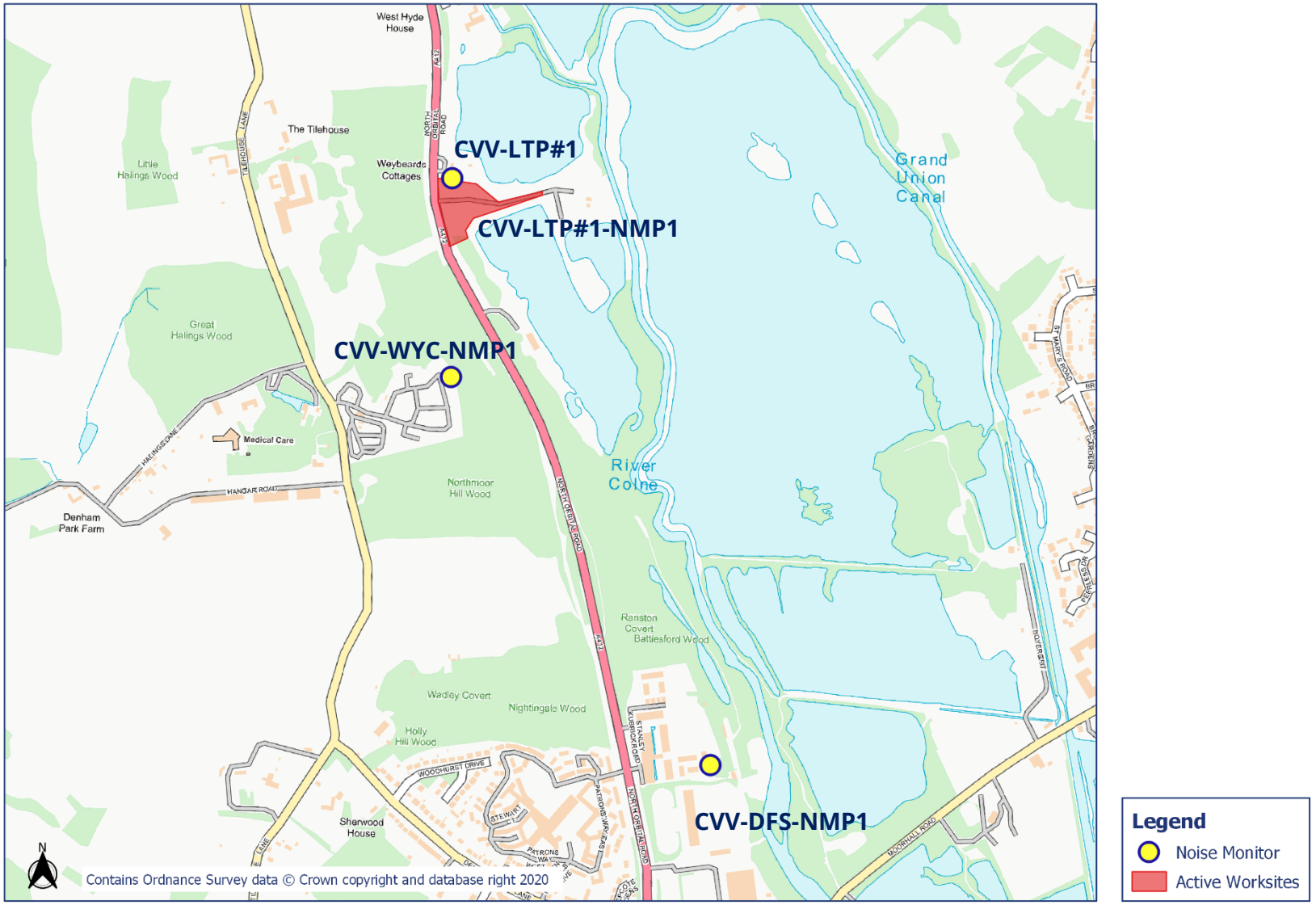
Noise and Vibration Monitoring Plan - 10



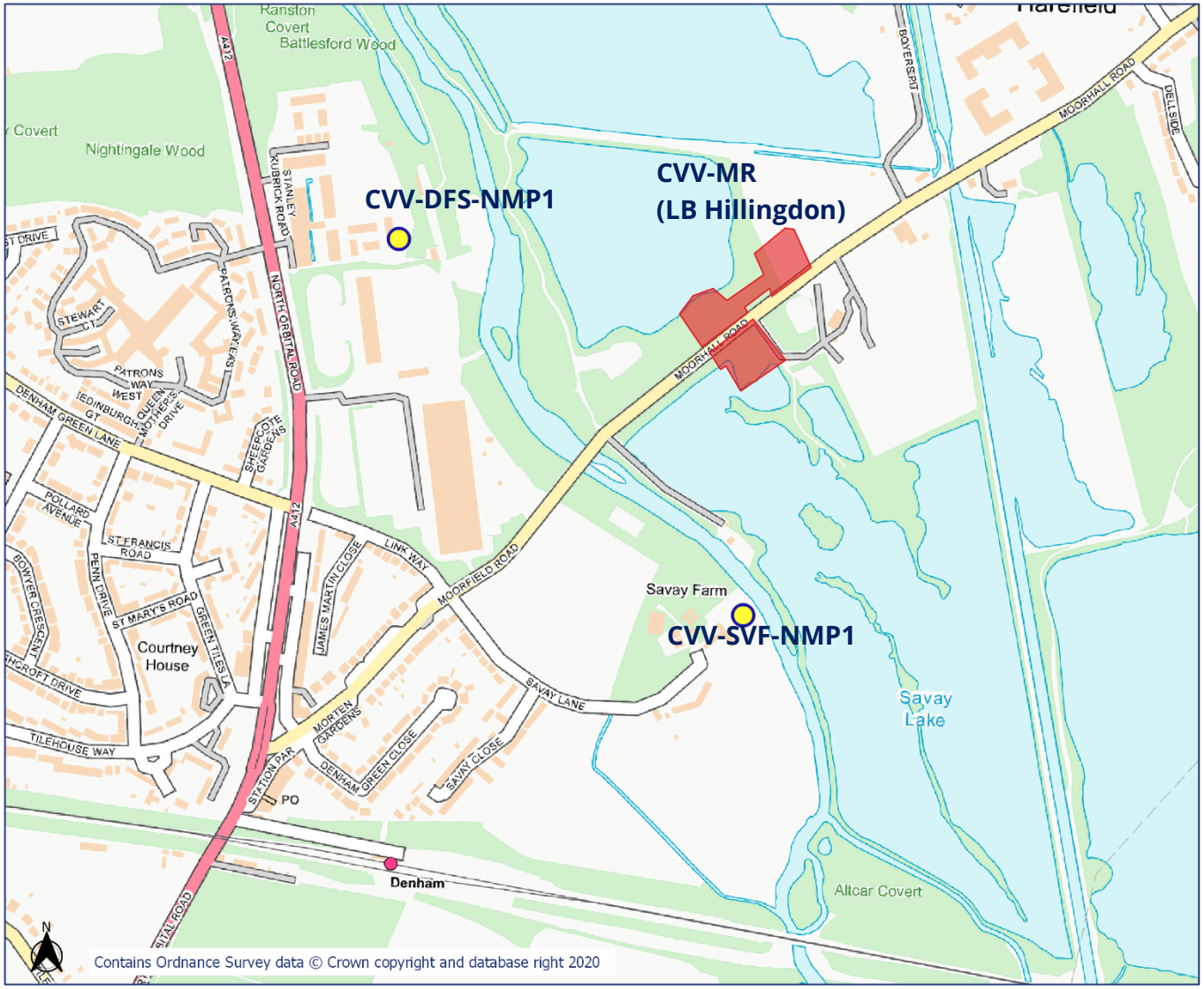
HS2 Noise and Vibration Monitoring Plan - 11



Noise and Vibration Monitoring Plan - 12



HS2 Noise and Vibration Monitoring Plan - 13

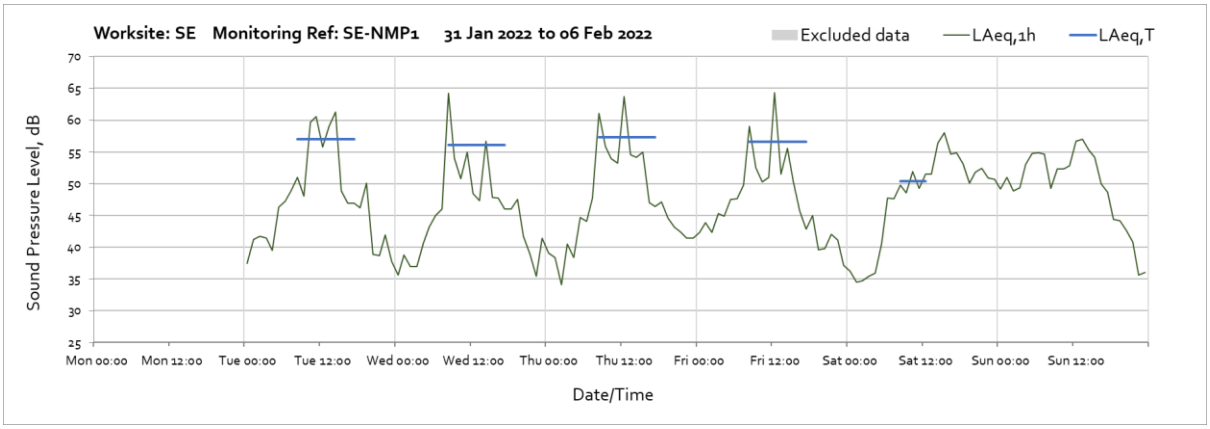


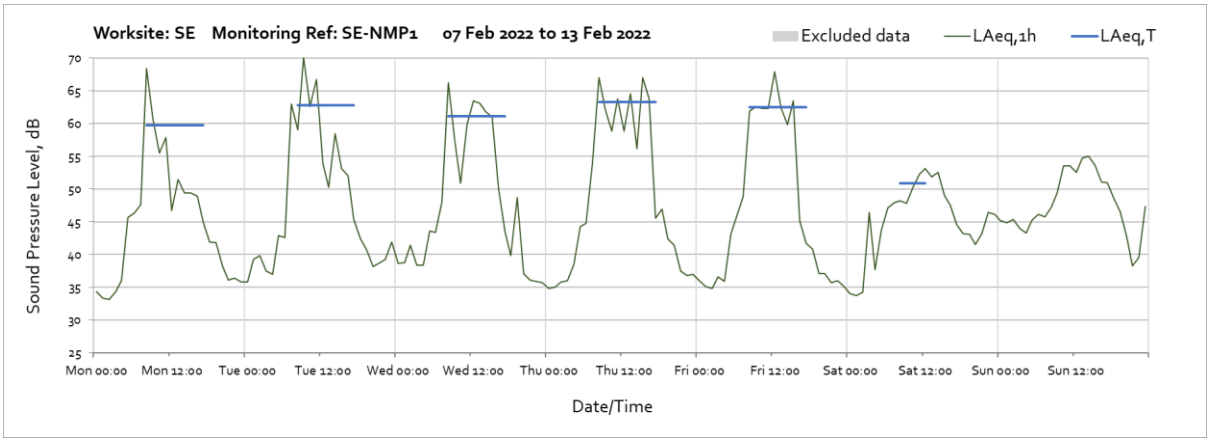
Appendix C Data

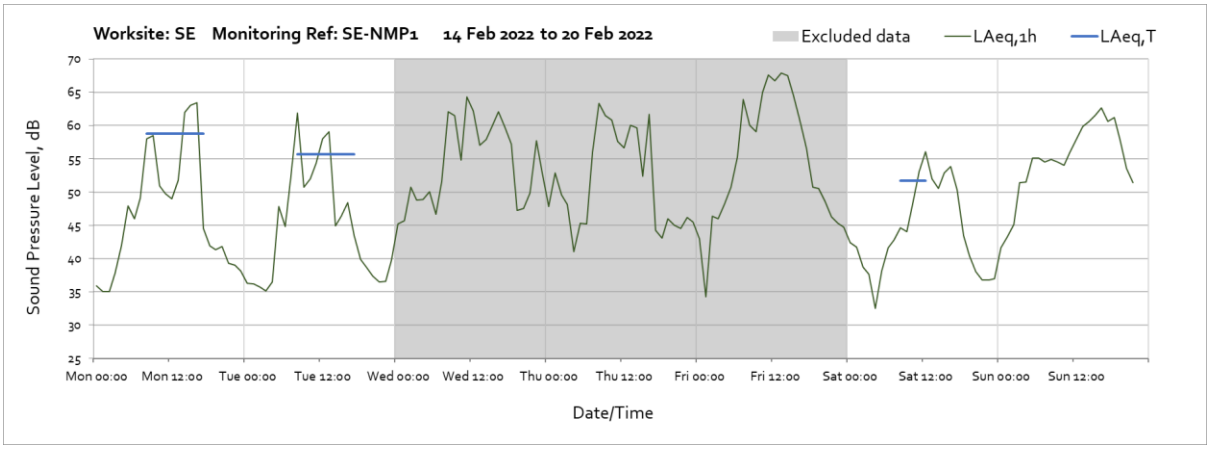
Noise

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.

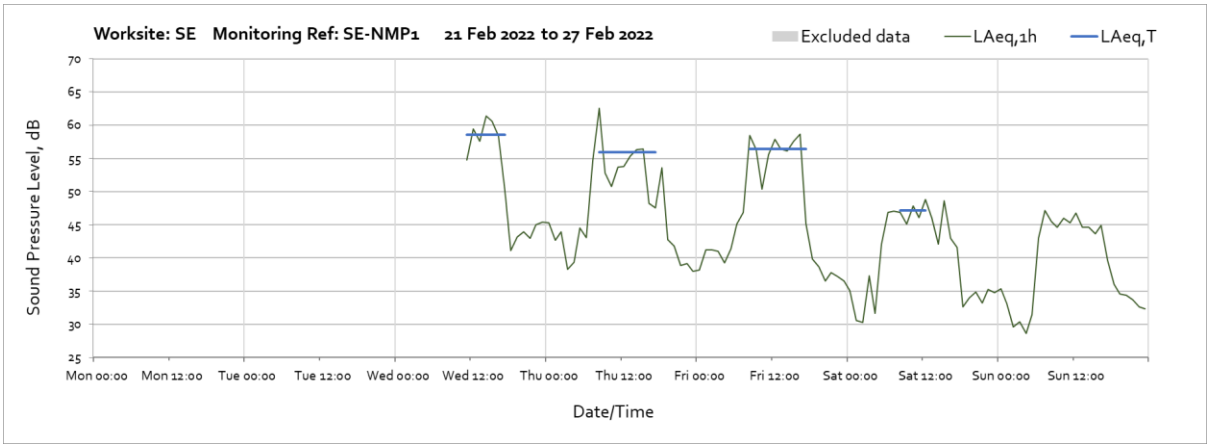
Worksite: SE – Monitoring Ref: SE-NMP1



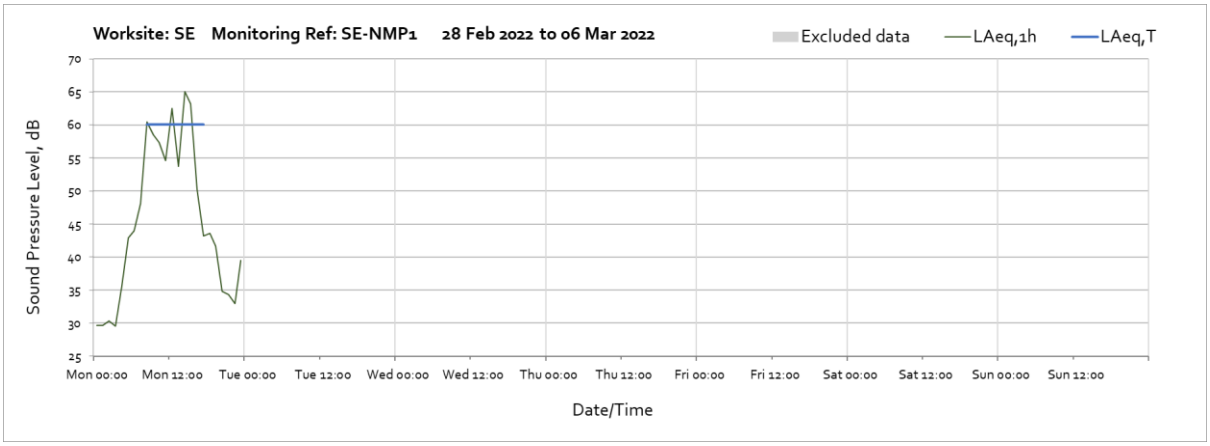




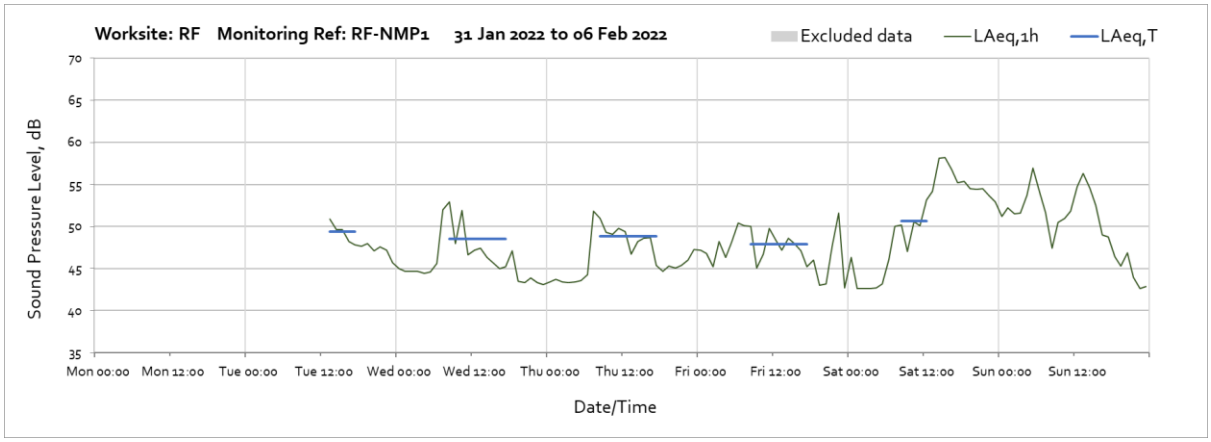
Note: Missing data between 22:00 on 20th February and 11:00 on 23rd February was due to loss of power to the equipment.

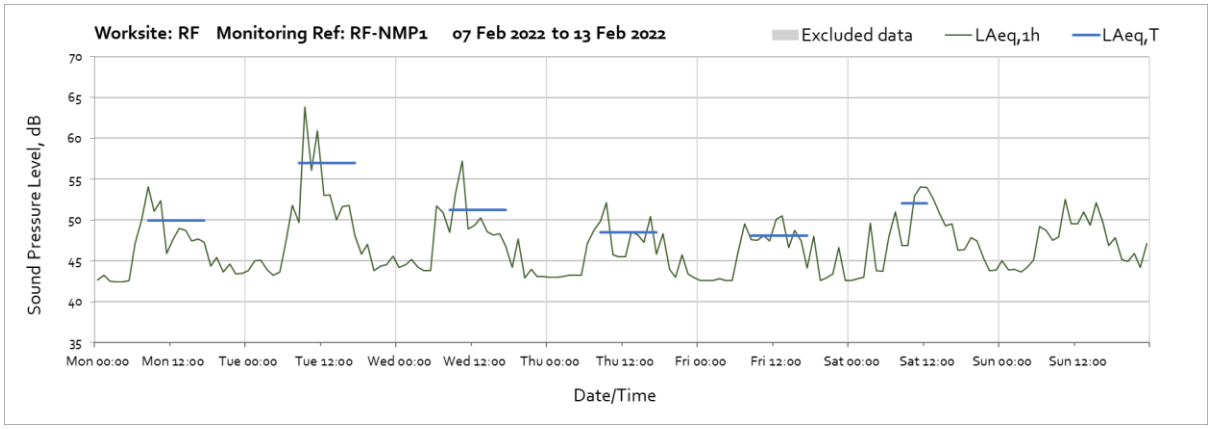


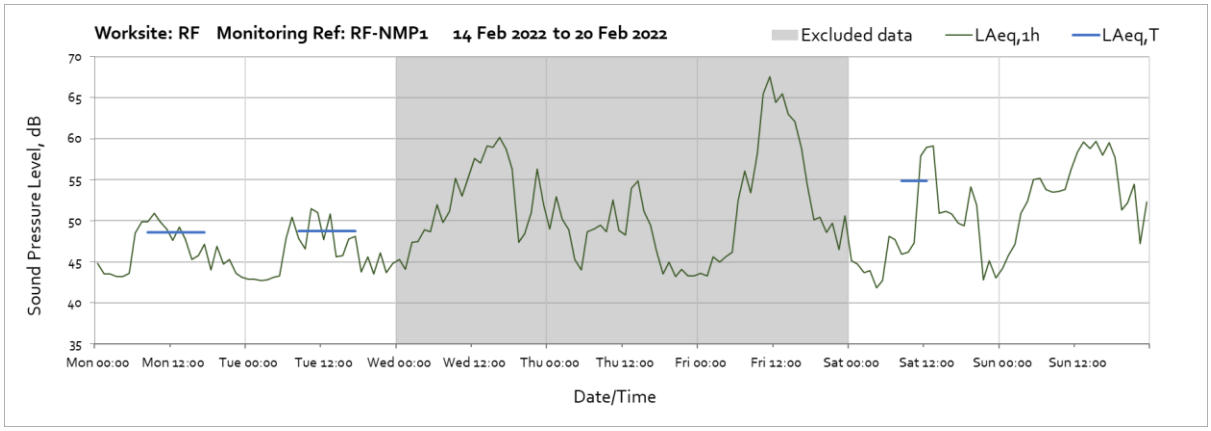
Note: Missing data between 22:00 on 20th February and 11:00 on 23rd February was due to loss of power to the equipment.

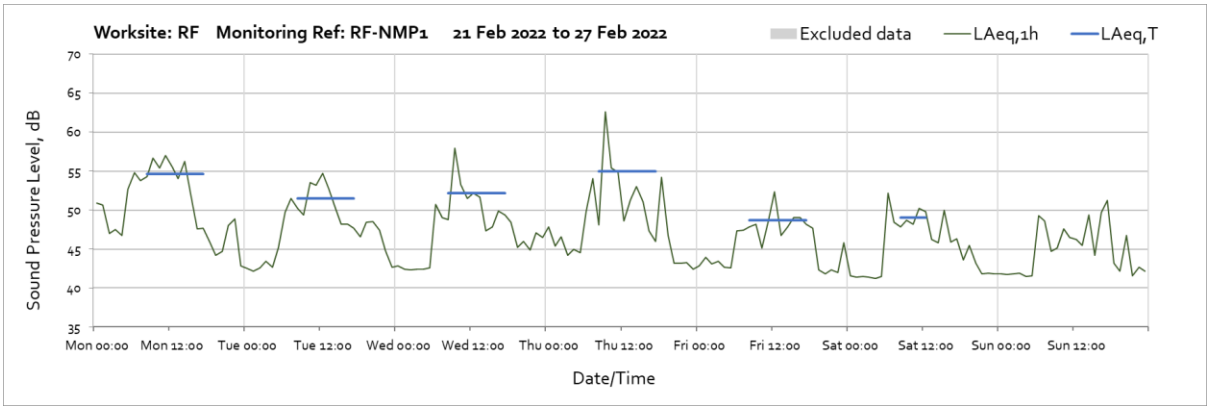


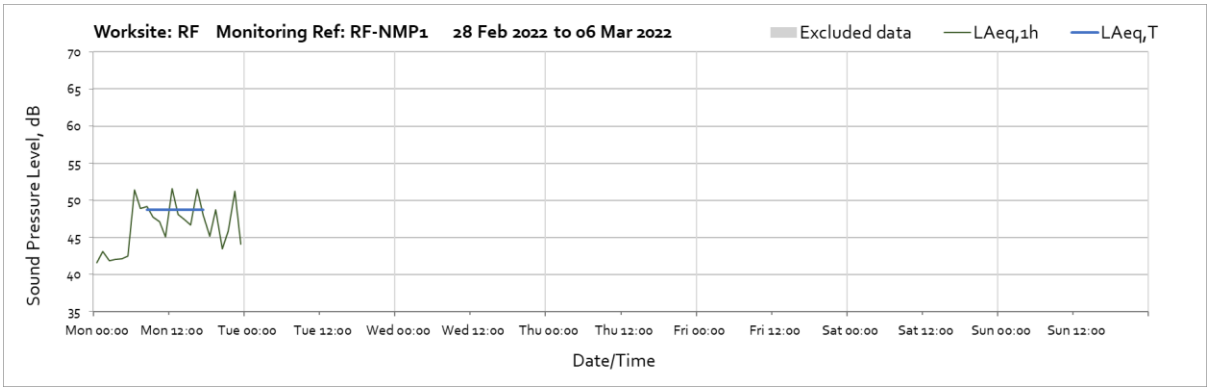
Worksite: RF – Monitoring Ref: RF-NMP1



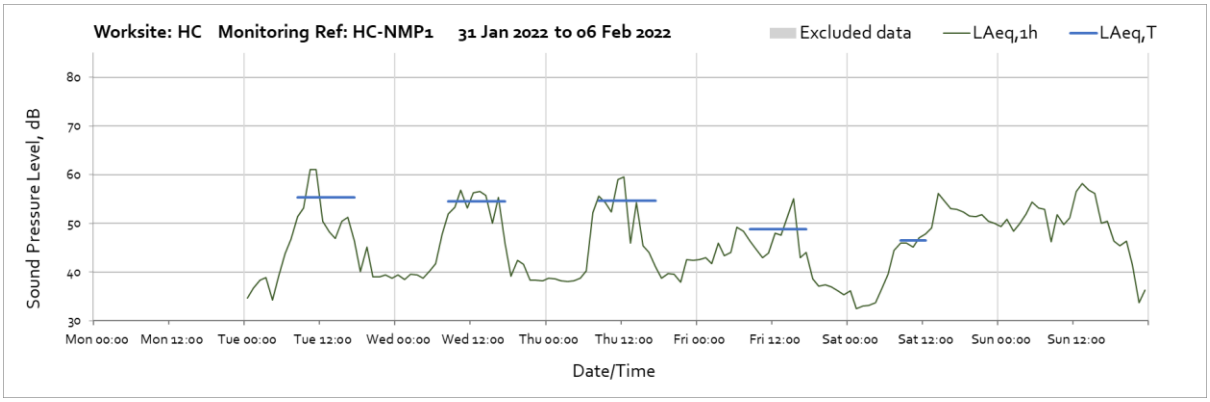


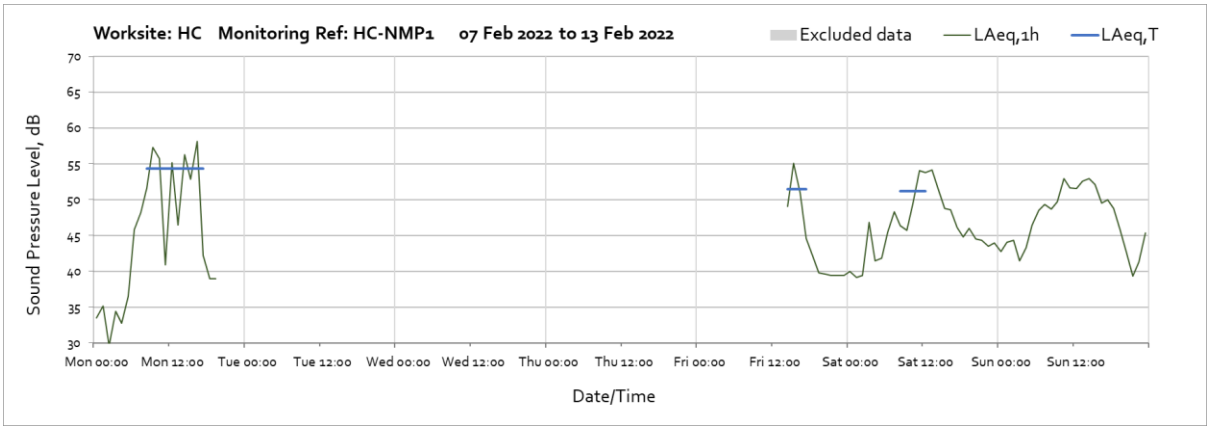




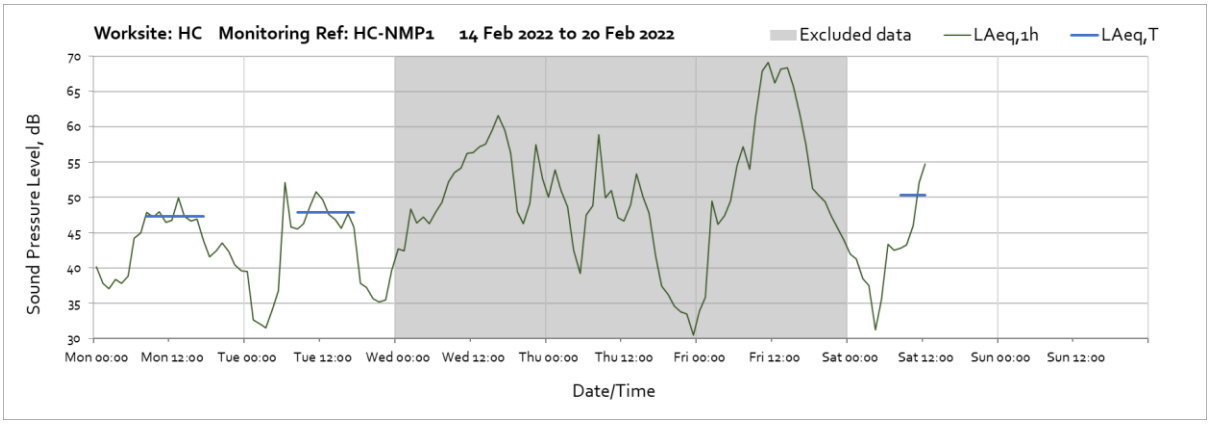


Worksite: HC – Monitoring Ref: HC-NMP1

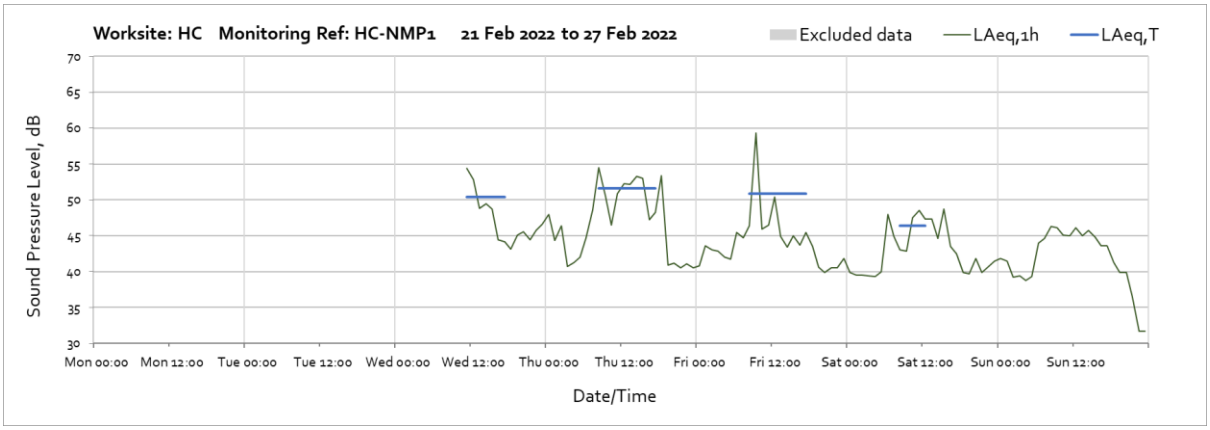




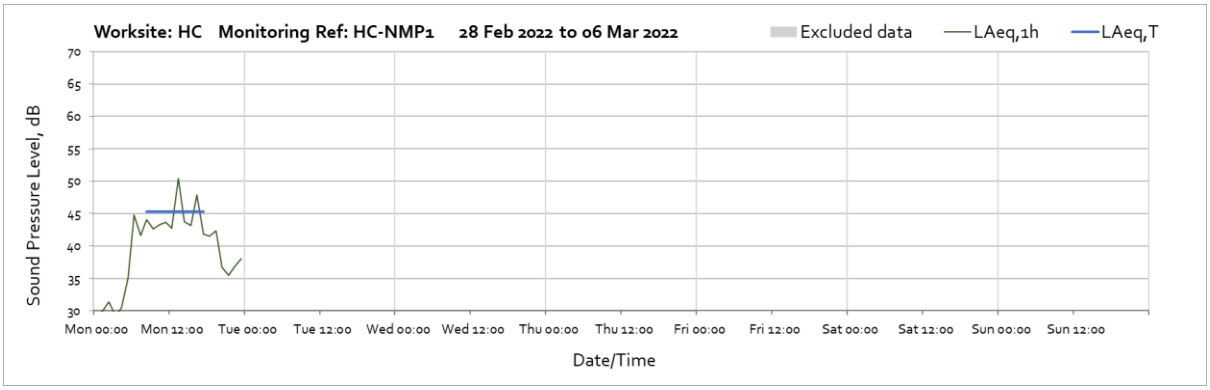
Note: Missing data between 20:00 on 7th February and 12:00 on 11th February was due to loss of power to the equipment.



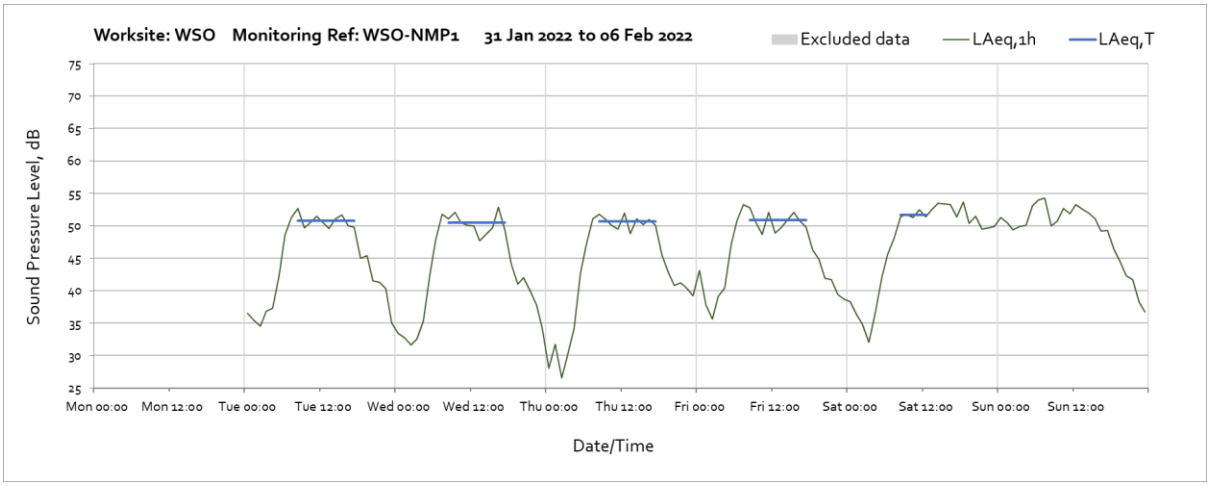
Note: Missing data from 13:00 on the 19th of February and 11:00 on 23rd February was due to loss of power to the equipment.

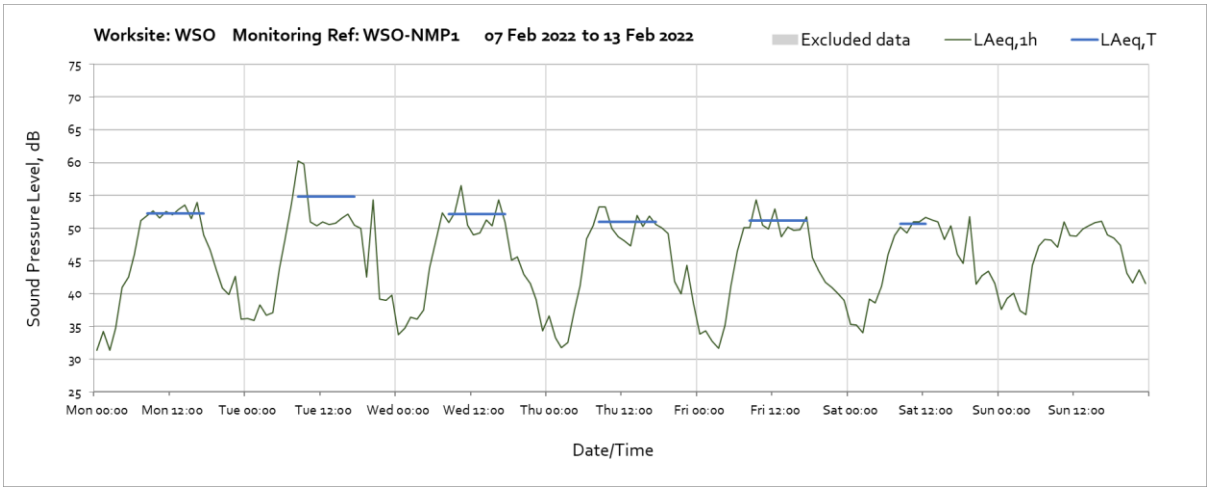


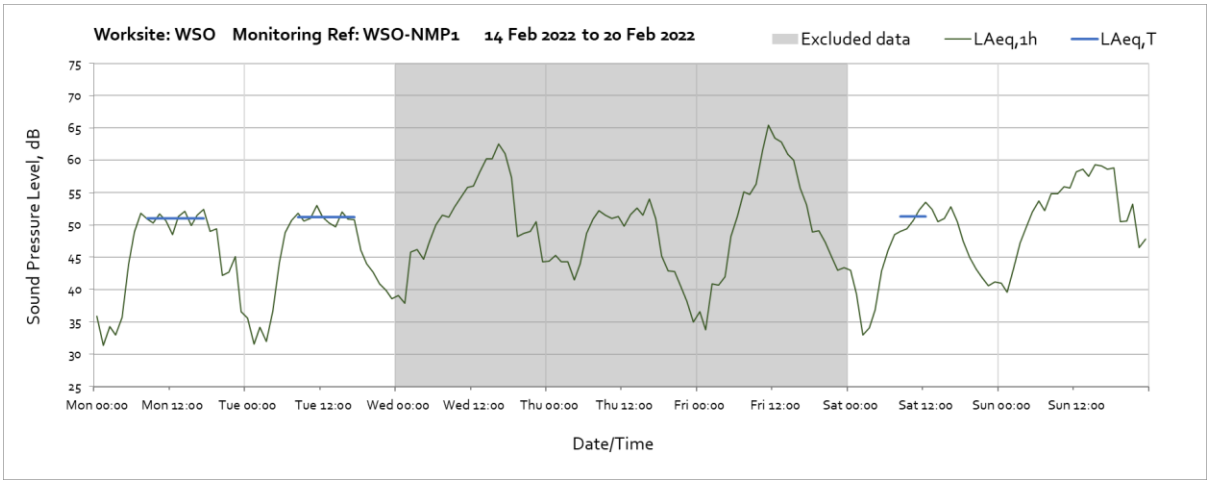
Note: Missing data from 13:00 on the 19th of February and 11:00 on 23rd February was due to loss of power to the equipment.



Worksite: WSO – Monitoring Ref: WSO-NMP1



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LAeq,T
Sound Pressure Level, dB
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70
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45
40
35
30
25
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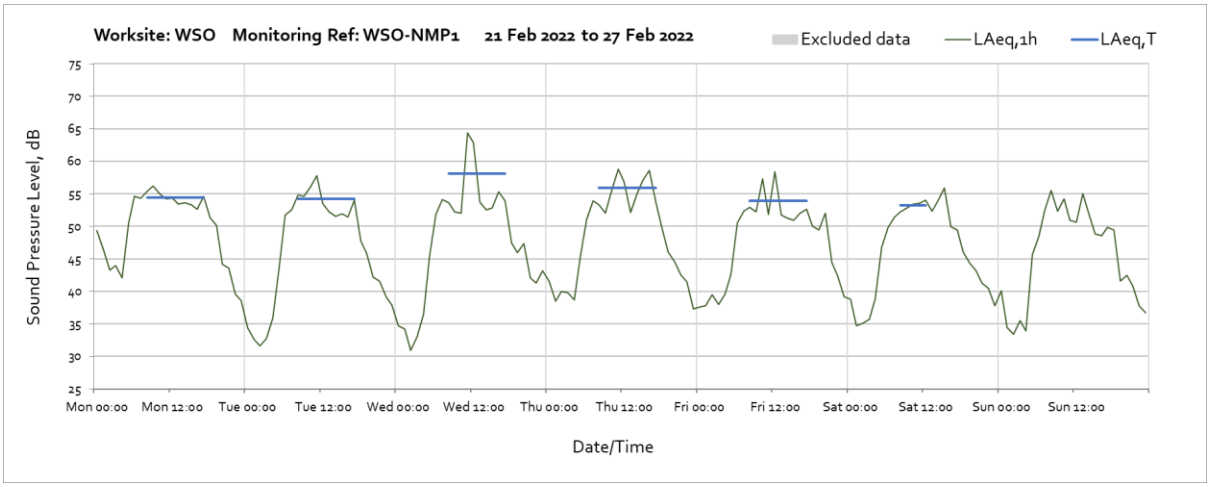
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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Tue 12:00
Wed 00:00
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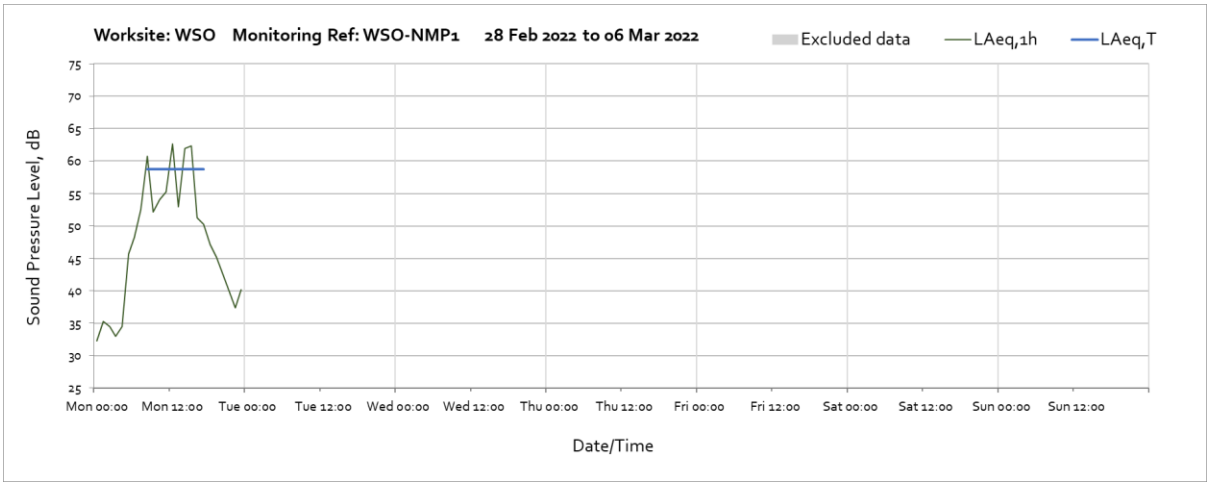
Date/Time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Excluded data
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LAeq,T
Sound Pressure Level, dB
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70
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Tue 12:00
Wed 00:00
Wed 12:00
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Sat 00:00
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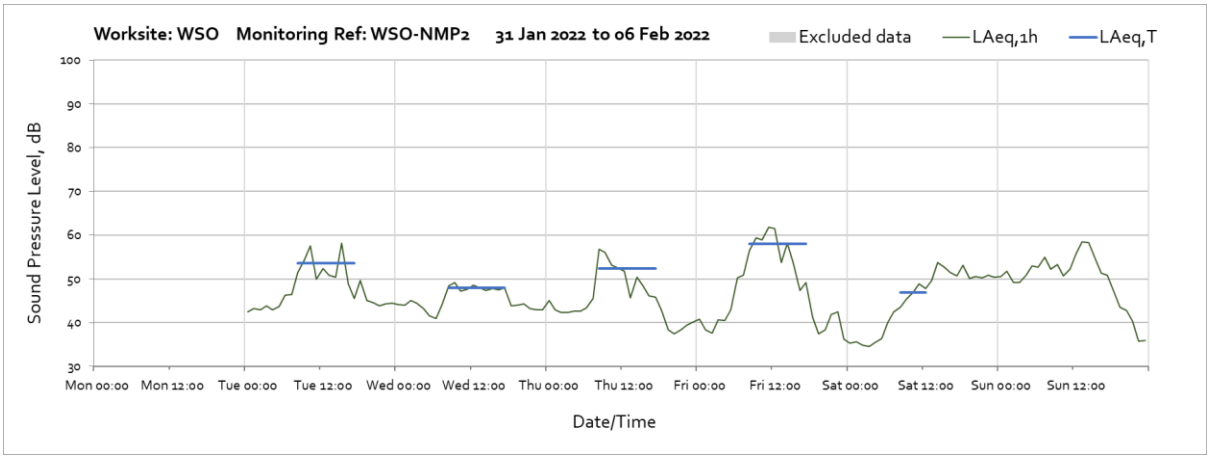
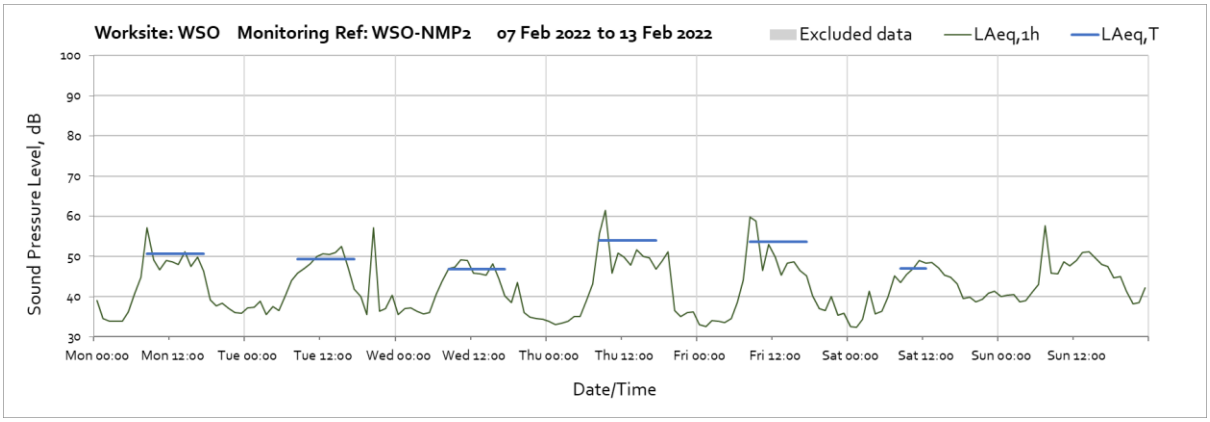
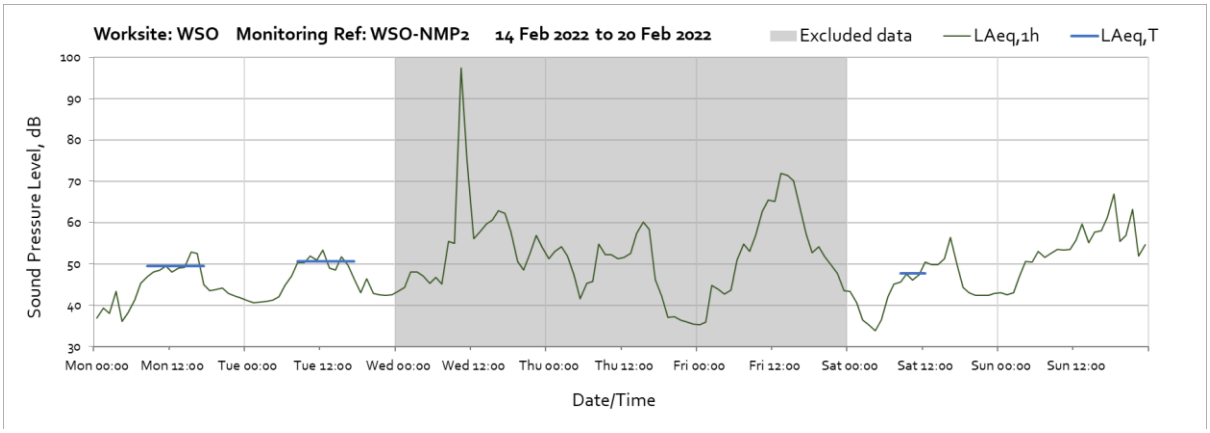
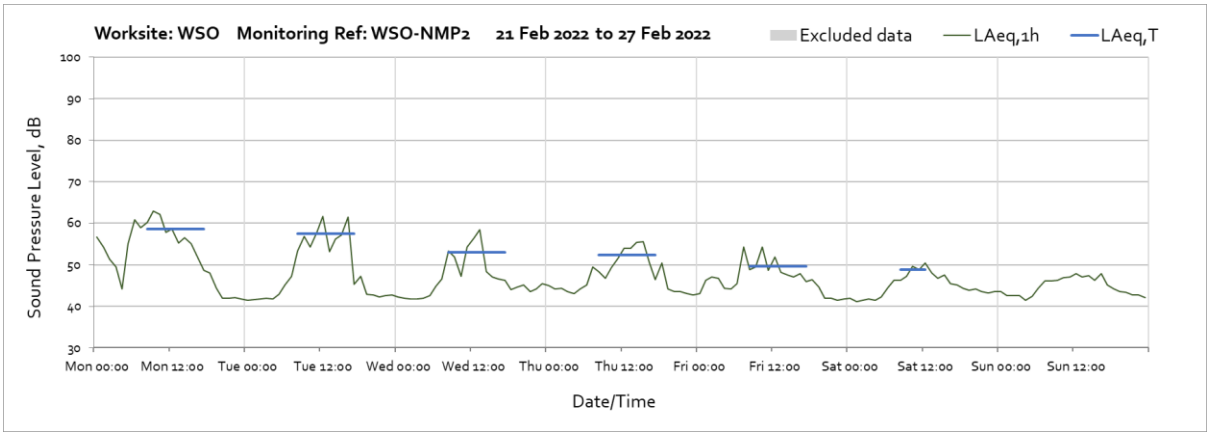
Sun 12:00
Date/Time

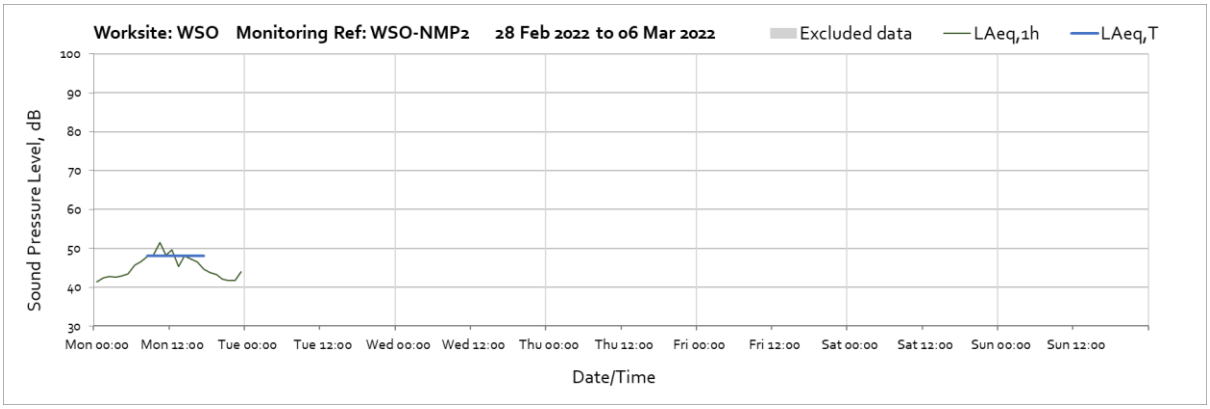
Worksite: WSO – Monitoring Ref: WSO-NMP2











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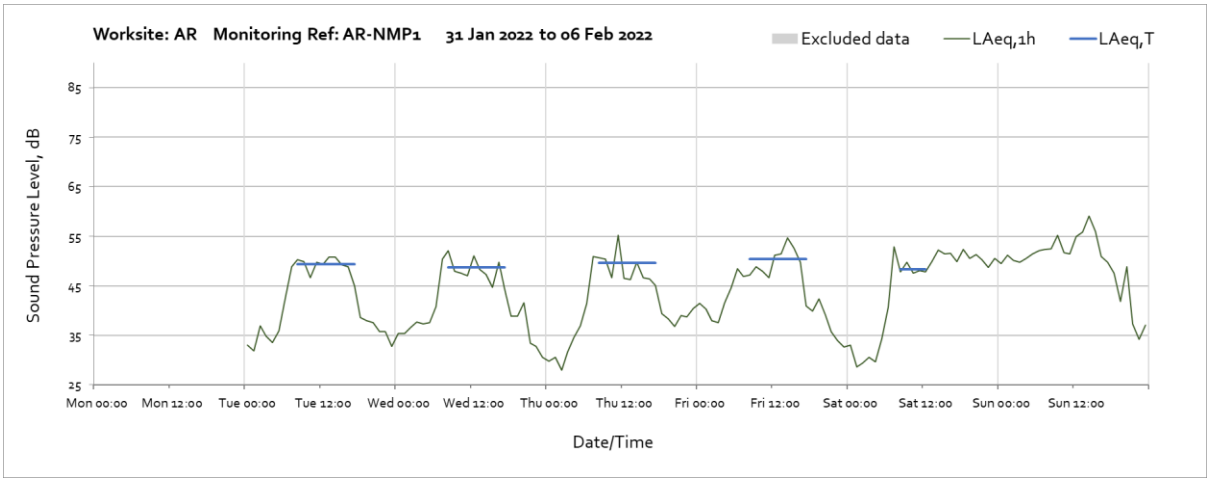

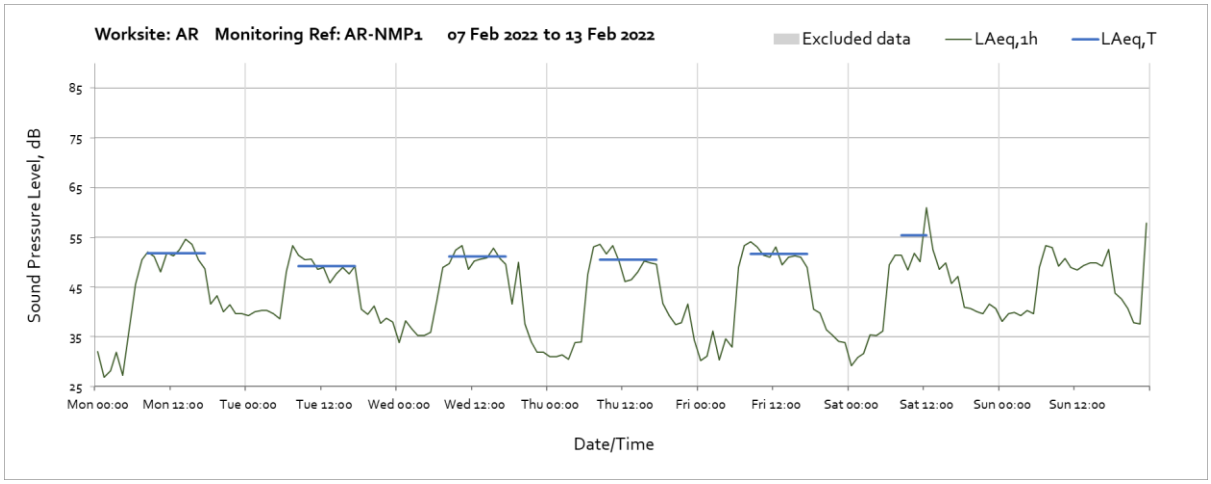
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LAeq,T
Sound Pressure Level, dB
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65
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Mon 12:00
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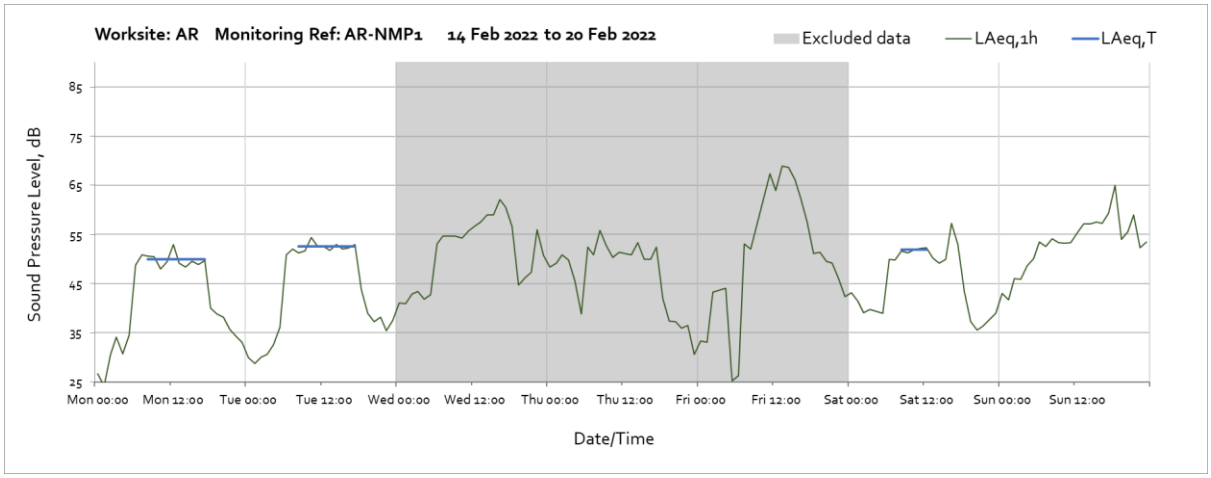
Sun 00:00
Sun 12:00
Date/Time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Excluded data
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LAeq,T
Sound Pressure Level, dB
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65
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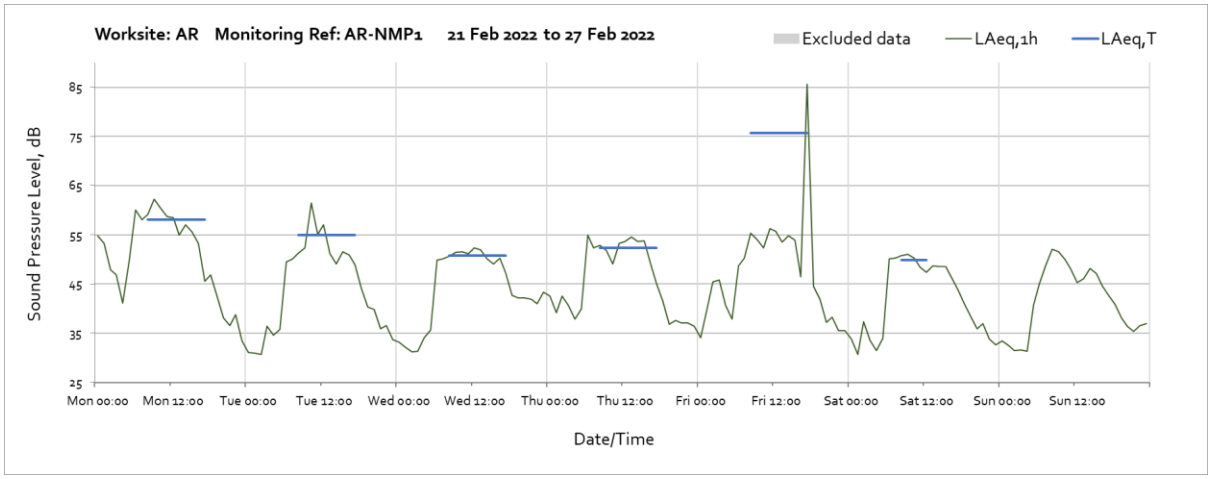
Sun 00:00
Sun 12:00
Date/Time


Worksite: AR Monitoring Ref: AR-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
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LAeq,T
Sound Pressure Level, dB
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75
65
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Tue 12:00
Wed 00:00
Wed 12:00
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Thu 12:00
Fri 00:00
Fri 12:00
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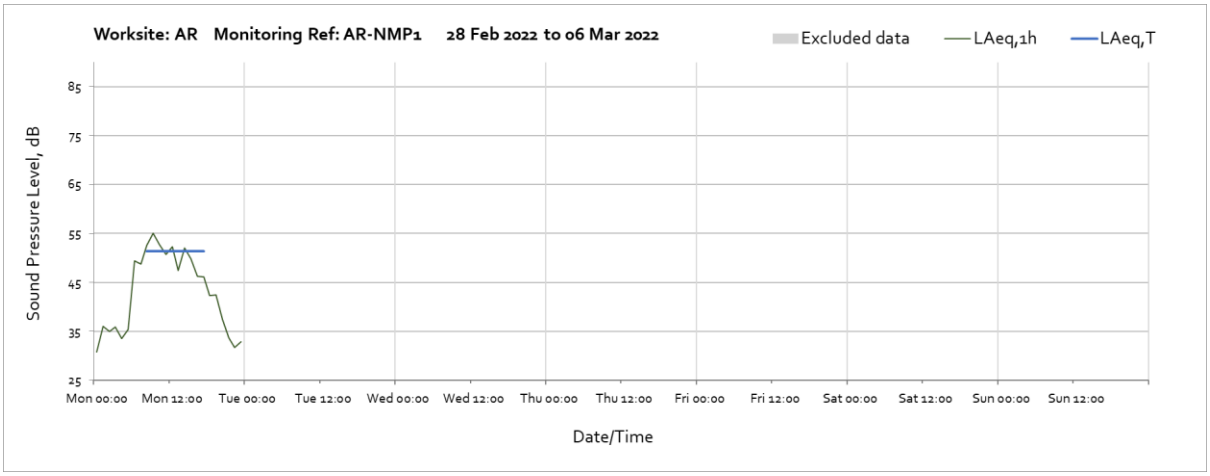
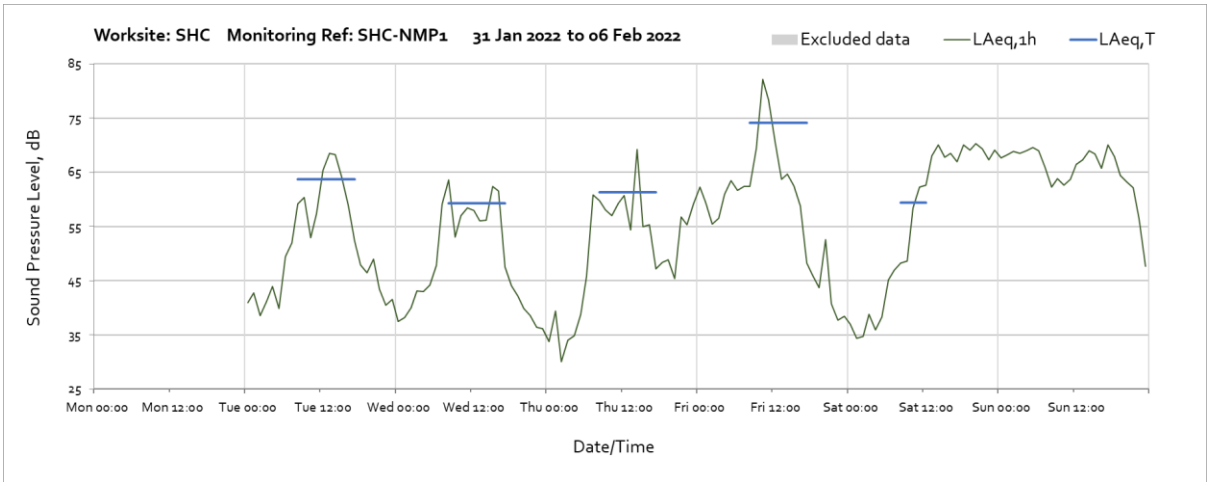
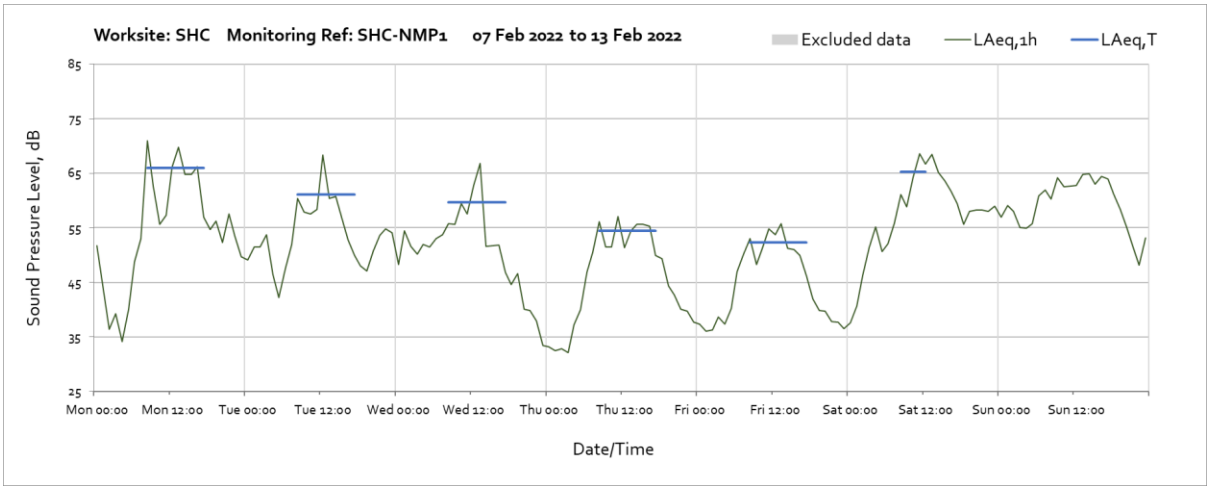
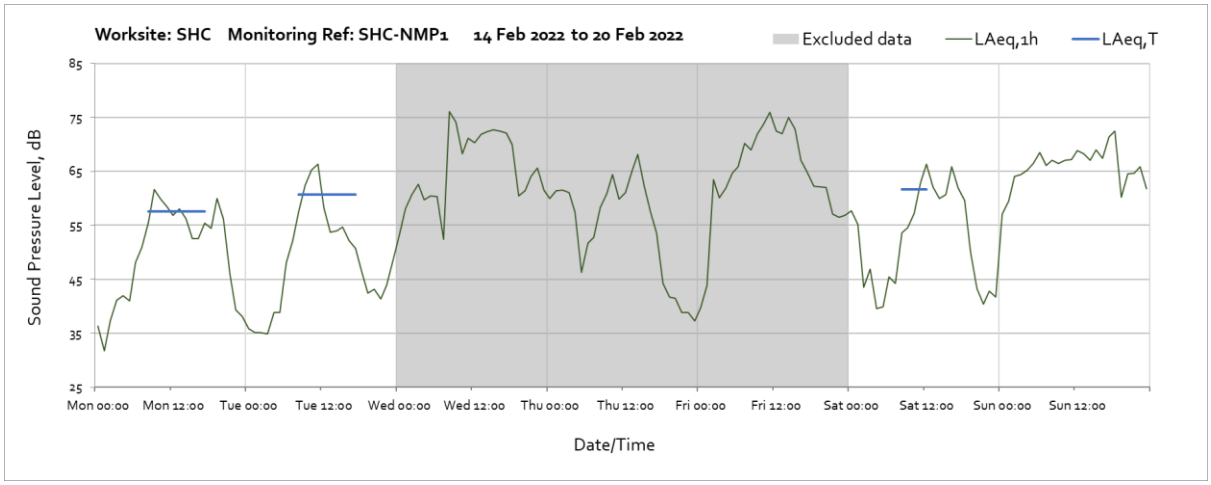
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



Worksite: SHC – Monitoring Ref: SHC-NMP1



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Excluded data
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LAeq,T
Sound Pressure Level, dB
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75
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Tue 12:00
Wed 00:00
Wed 12:00
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Thu 12:00
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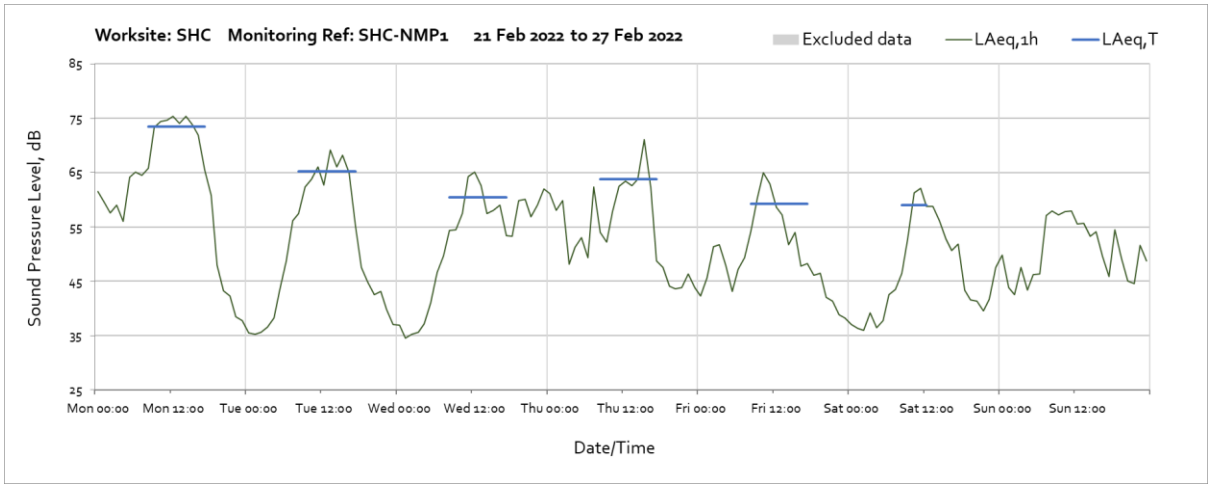
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Tue 12:00
Wed 00:00
Wed 12:00
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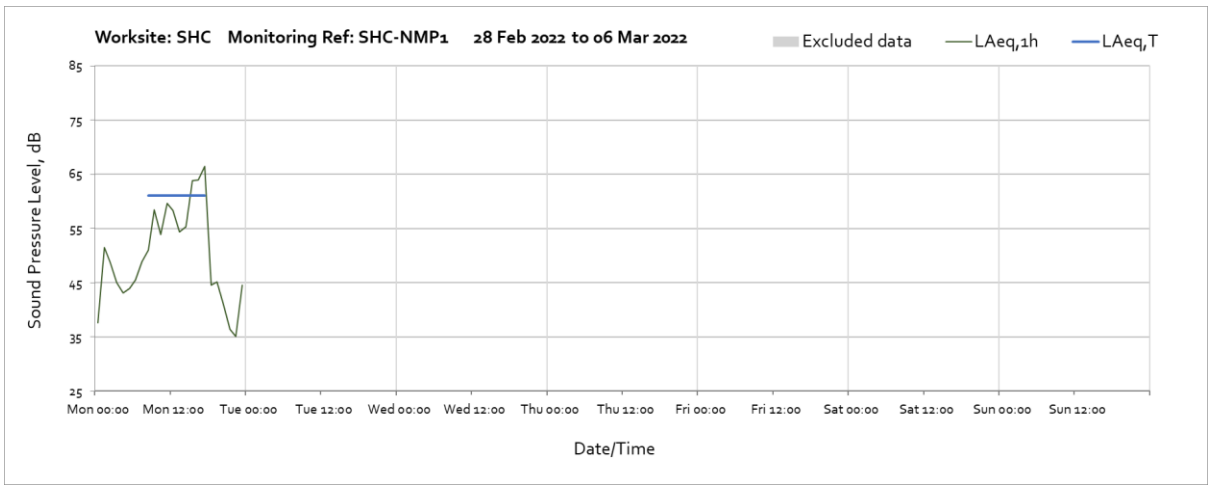
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: SHC Monitoring Ref: SHC-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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75
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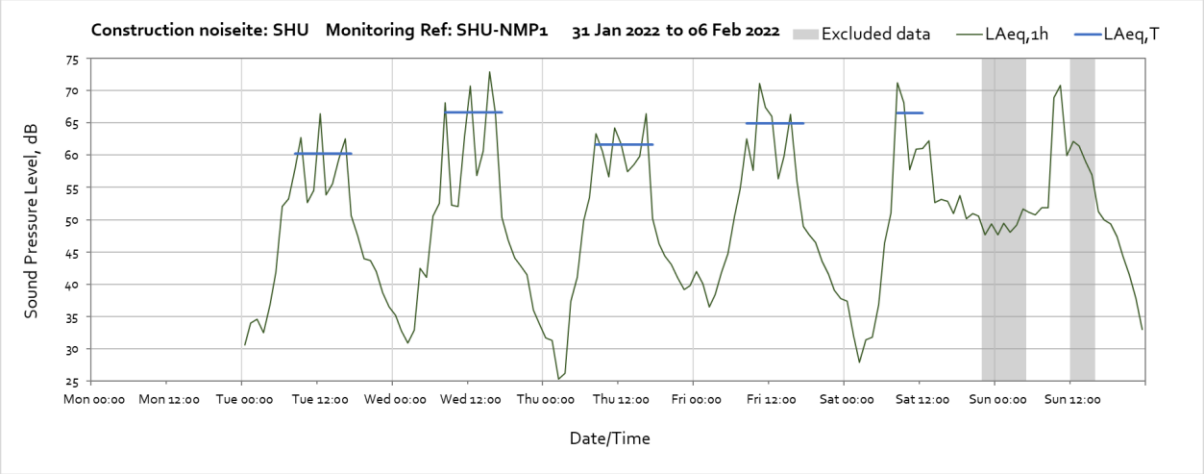
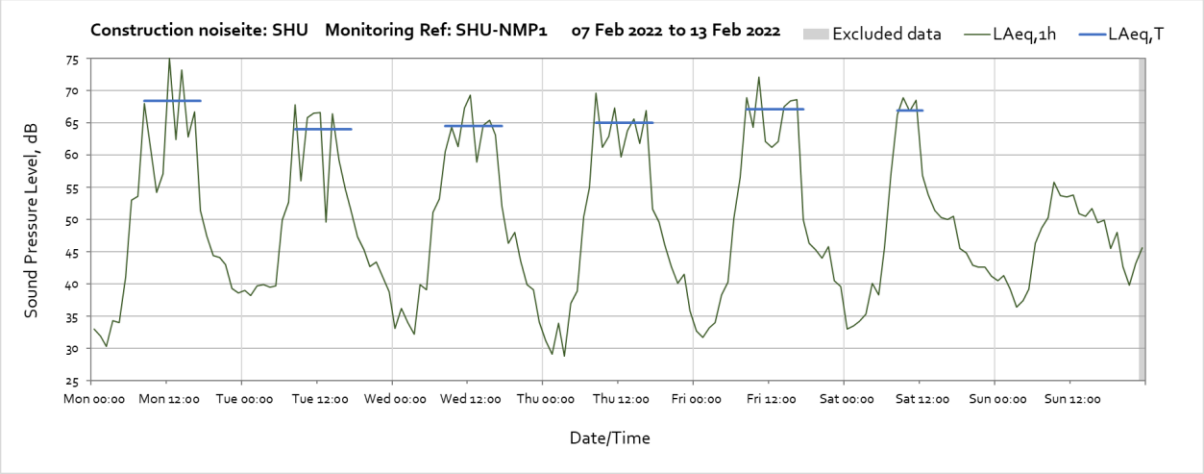
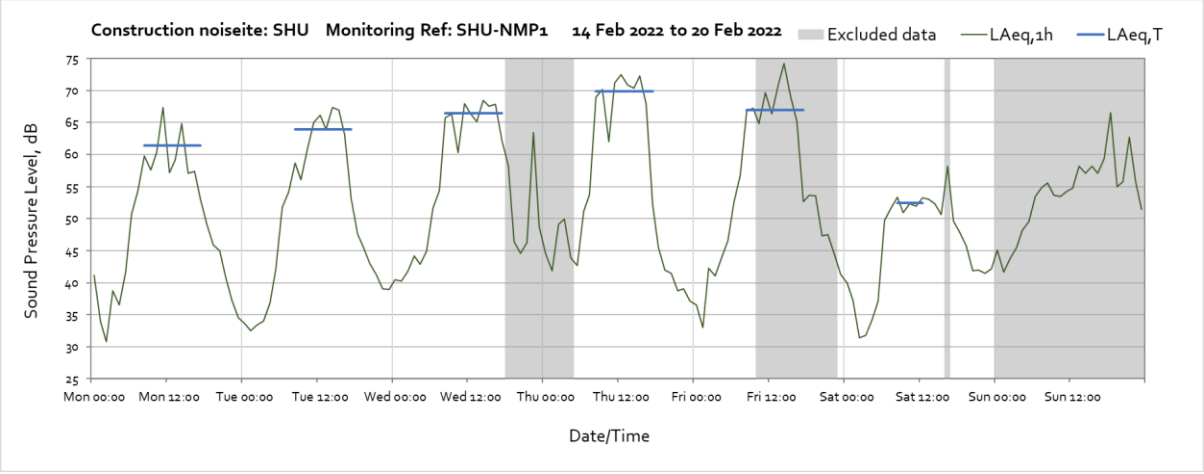
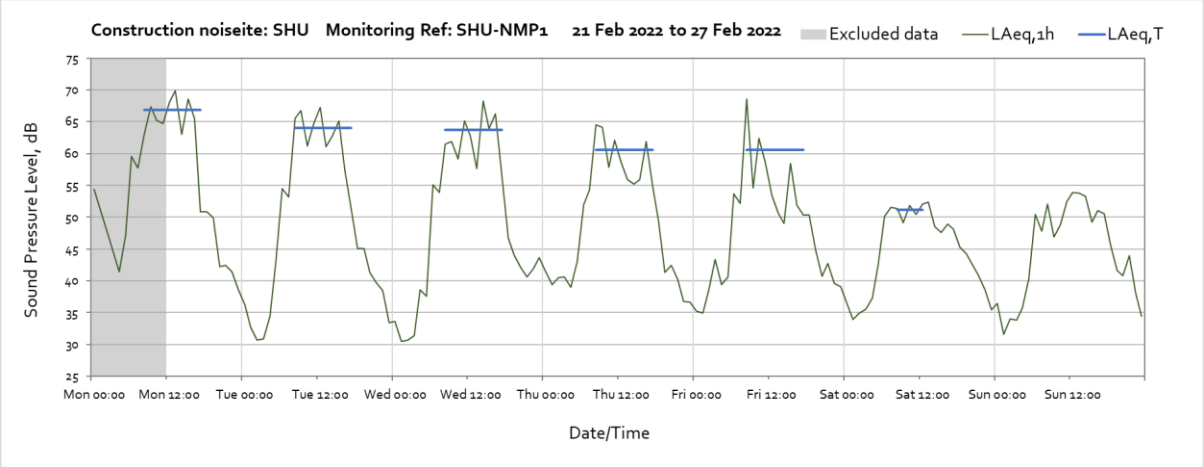
55
45
35
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

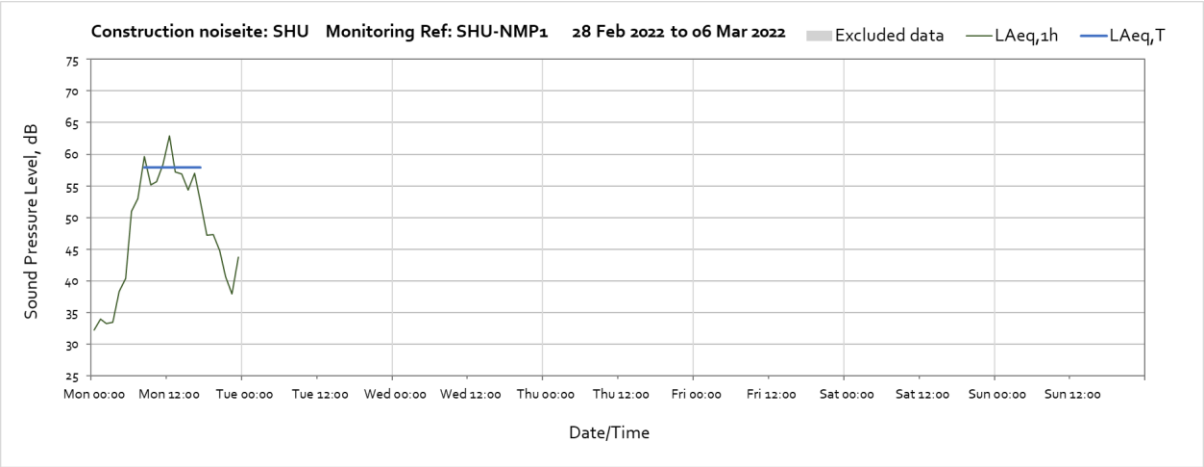
Worksite: SHU – Monitoring Ref: SHU-NMP1



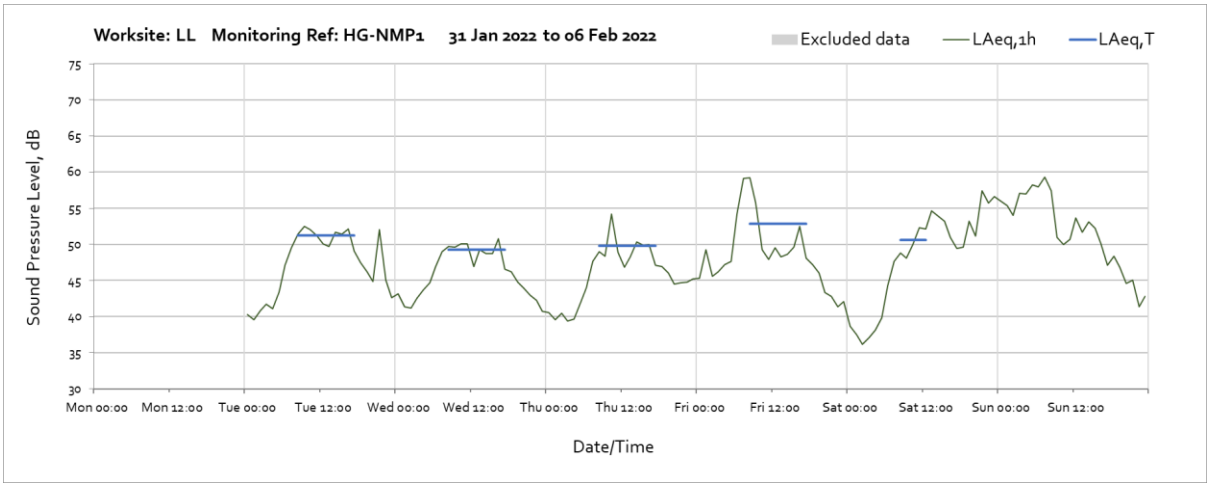


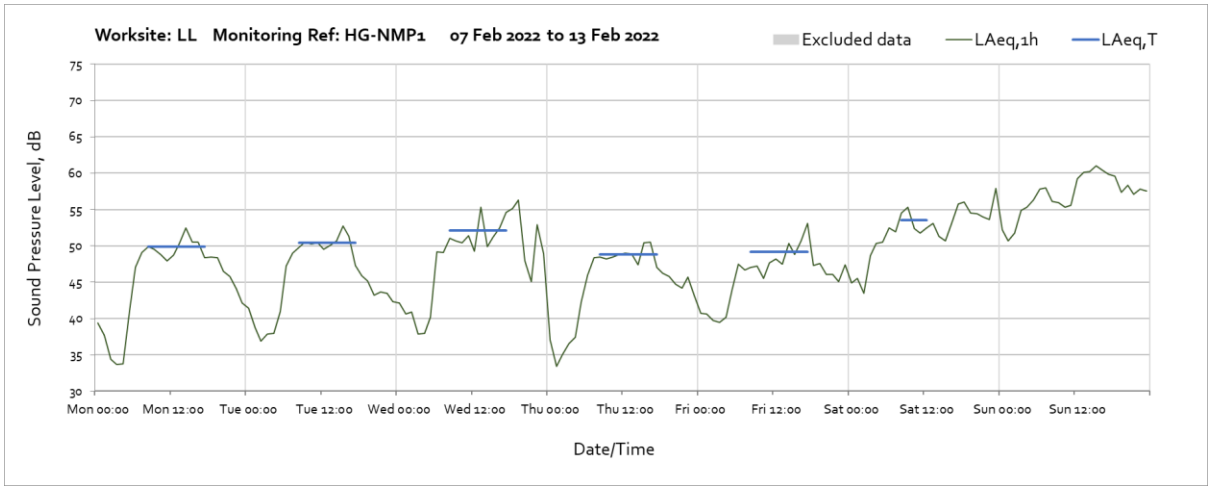


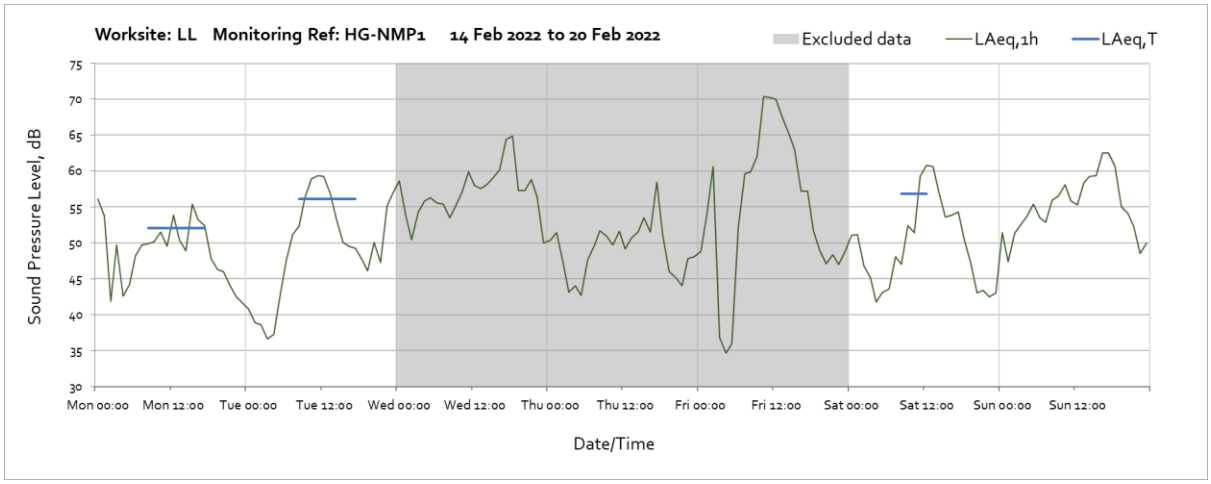




Worksite: LL – Monitoring Ref: HG-NMP1




Worksite: LL Monitoring Ref: HG-NMP1 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
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: LL Monitoring Ref: HG-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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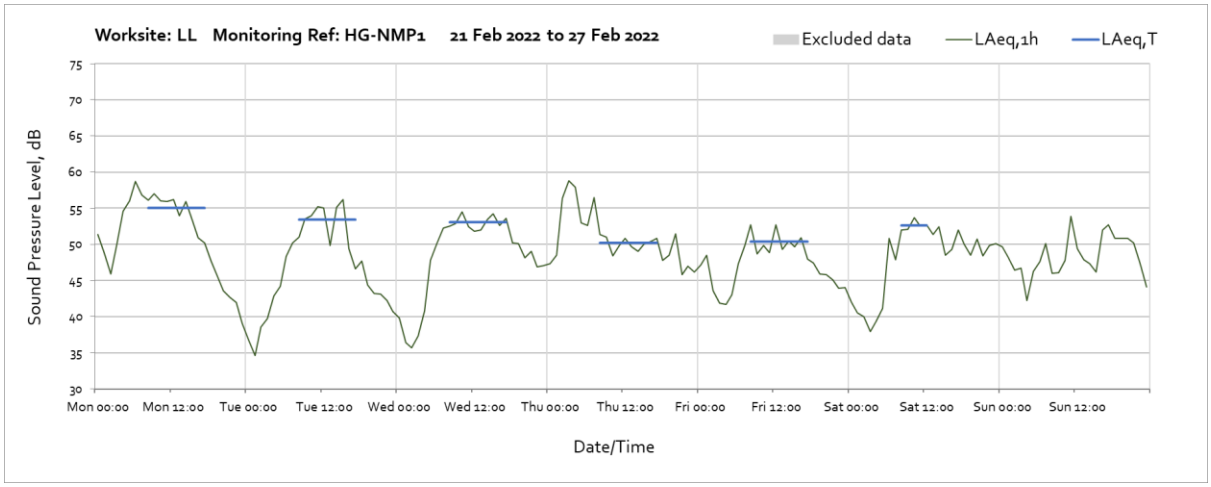
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: LL Monitoring Ref: HG-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
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55
50
45
40
35
30
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
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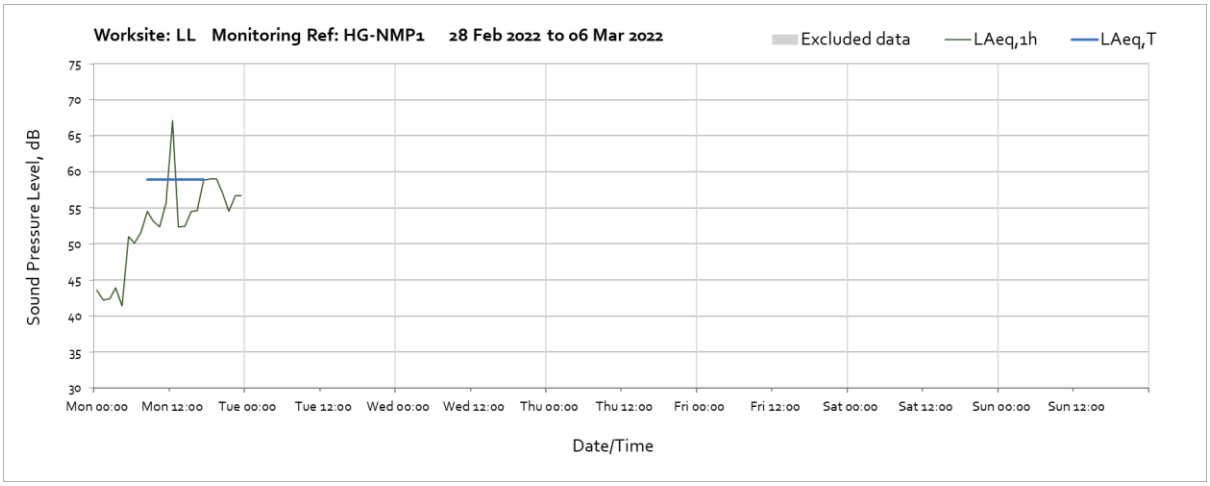
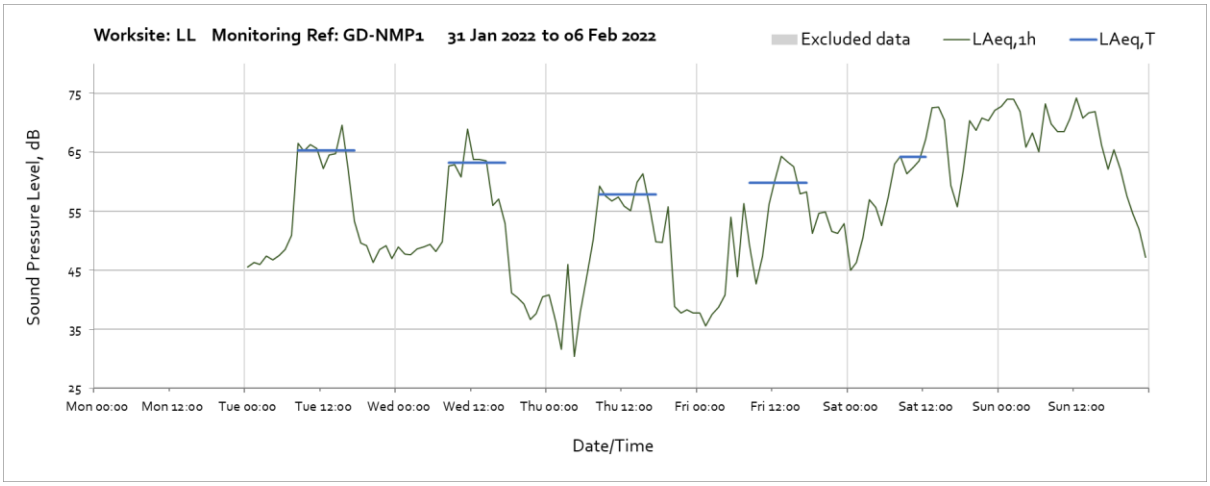
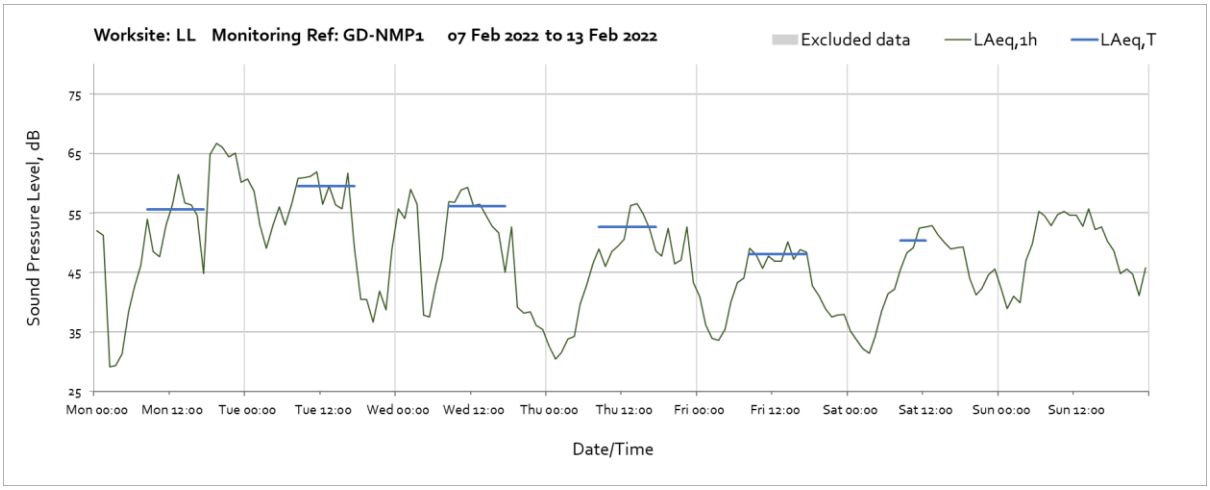
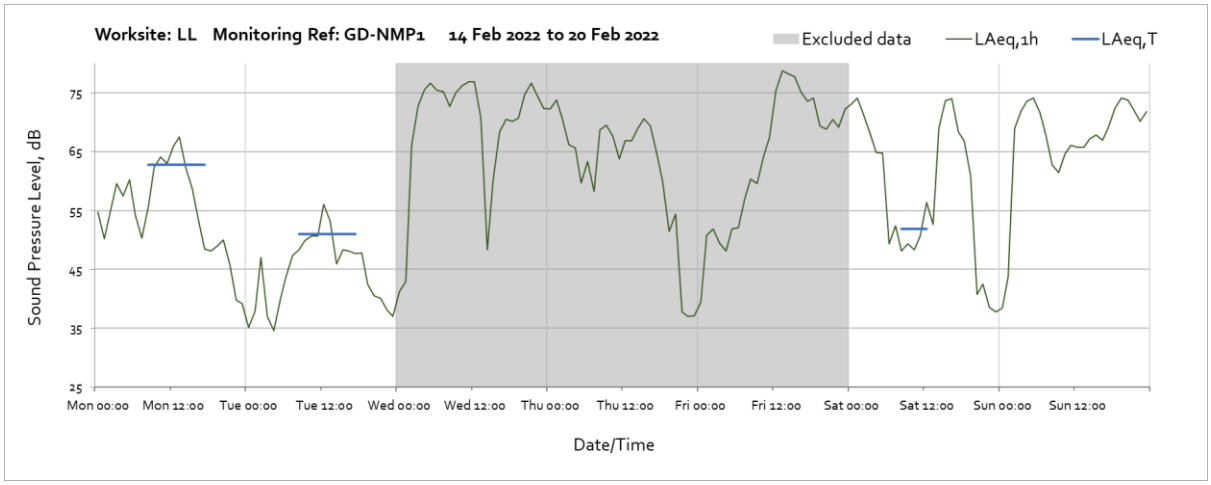
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



Worksite: LL – Monitoring Ref: GD-NMP1






Worksite: LL Monitoring Ref: GD-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
65
55
45
35
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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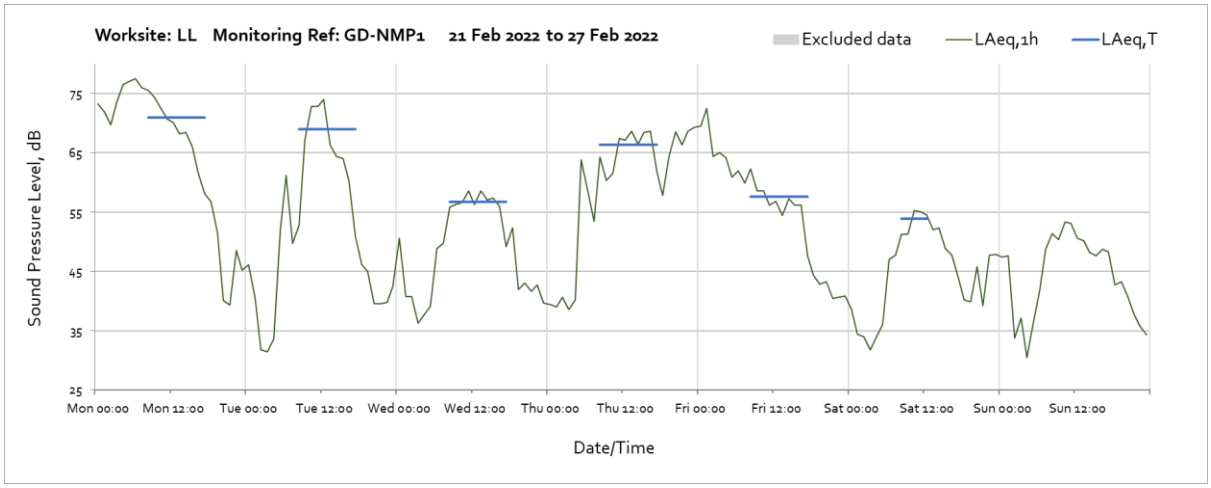
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: LL Monitoring Ref: GD-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
65
55
45
35
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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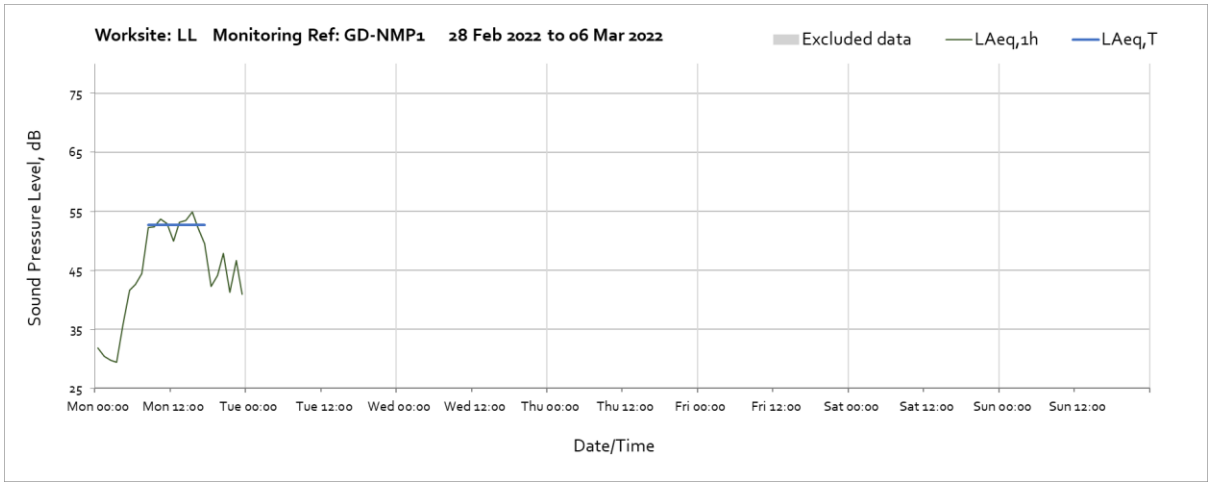
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: LL Monitoring Ref: GD-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
65
55
45
35
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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Fri 00:00
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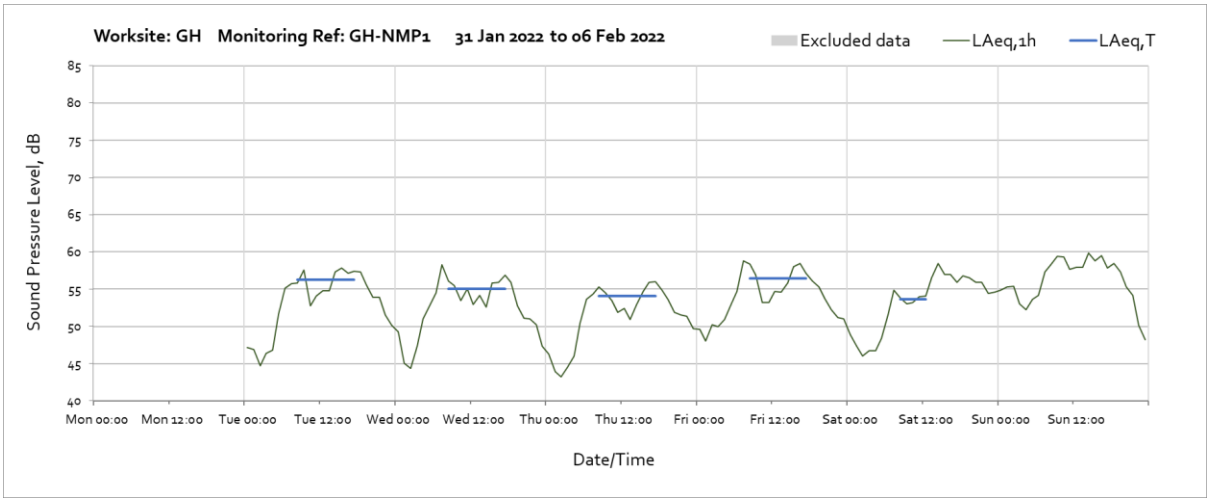
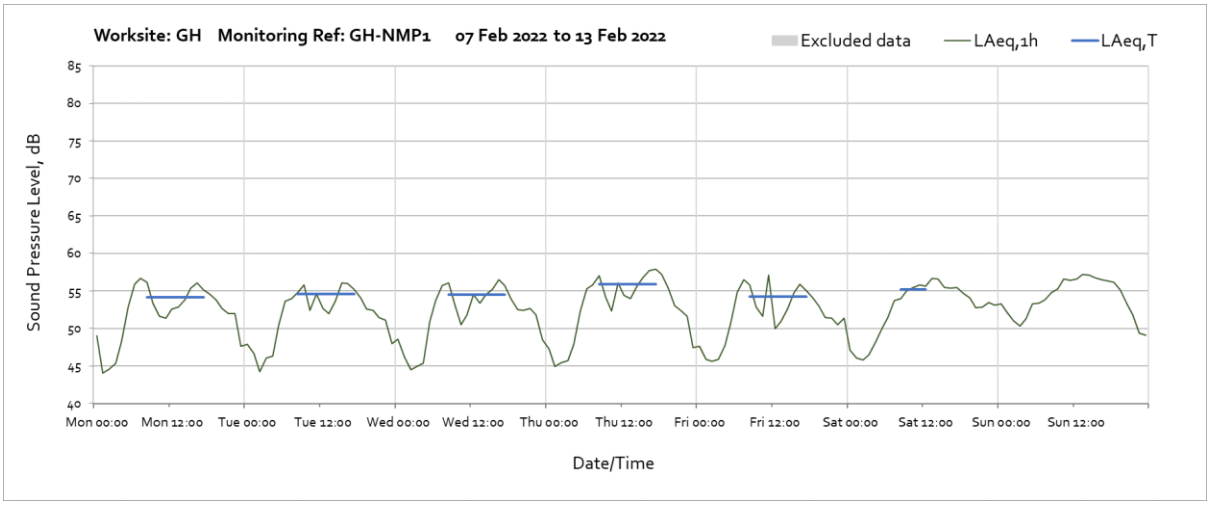
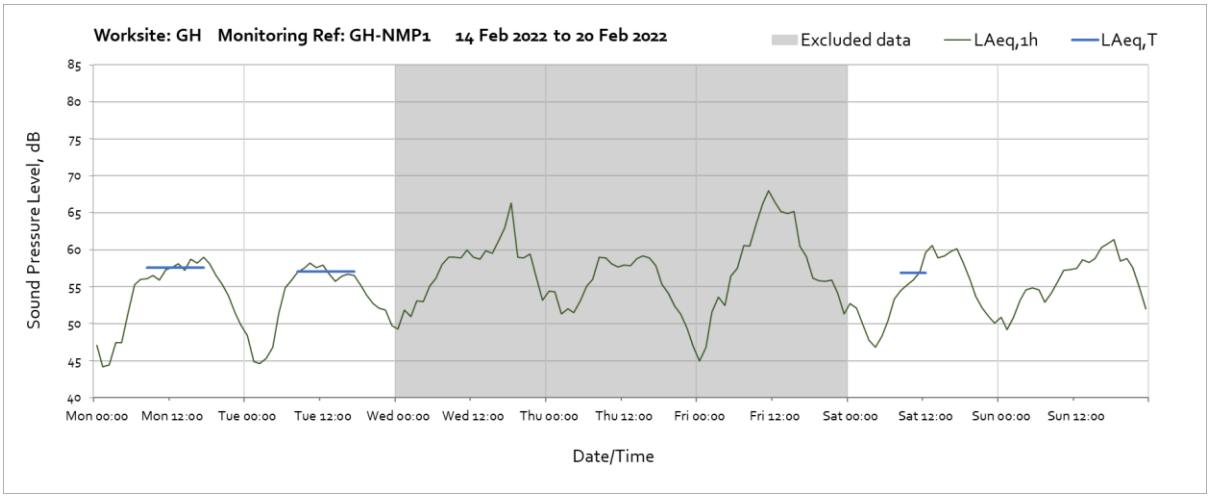
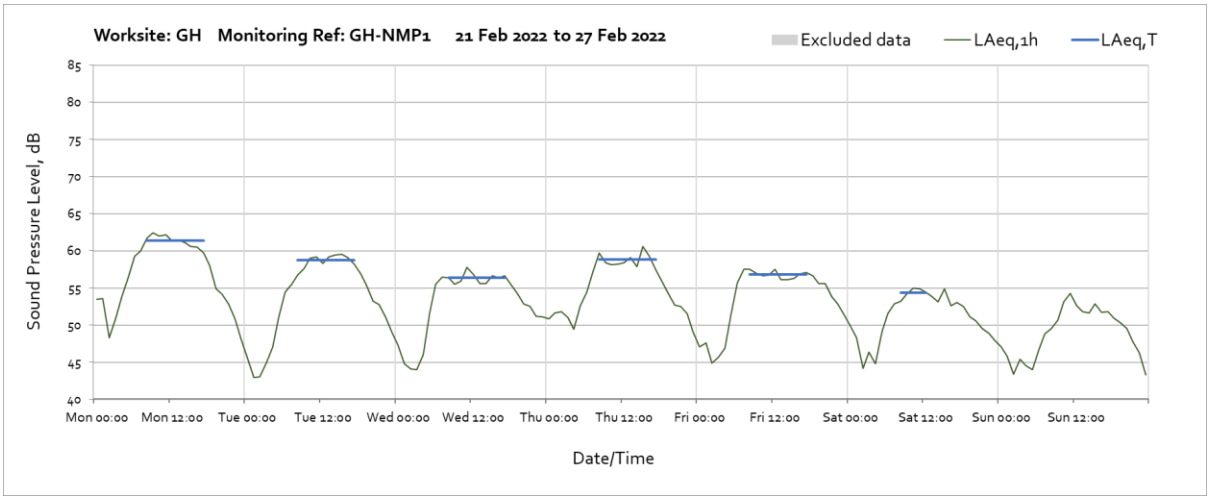
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

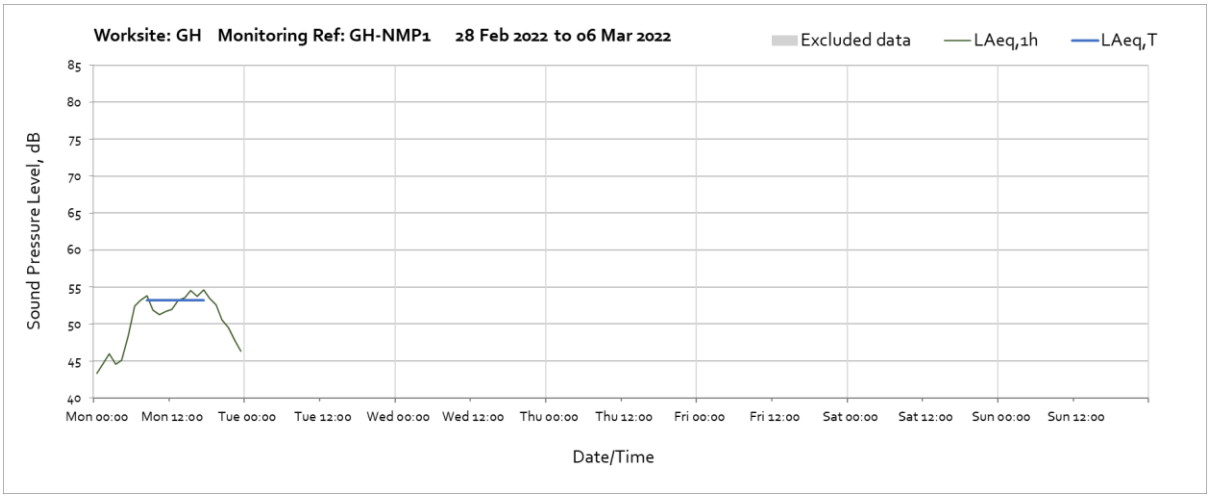
Worksite: MW&GH – Monitoring Ref: GH-NMP1



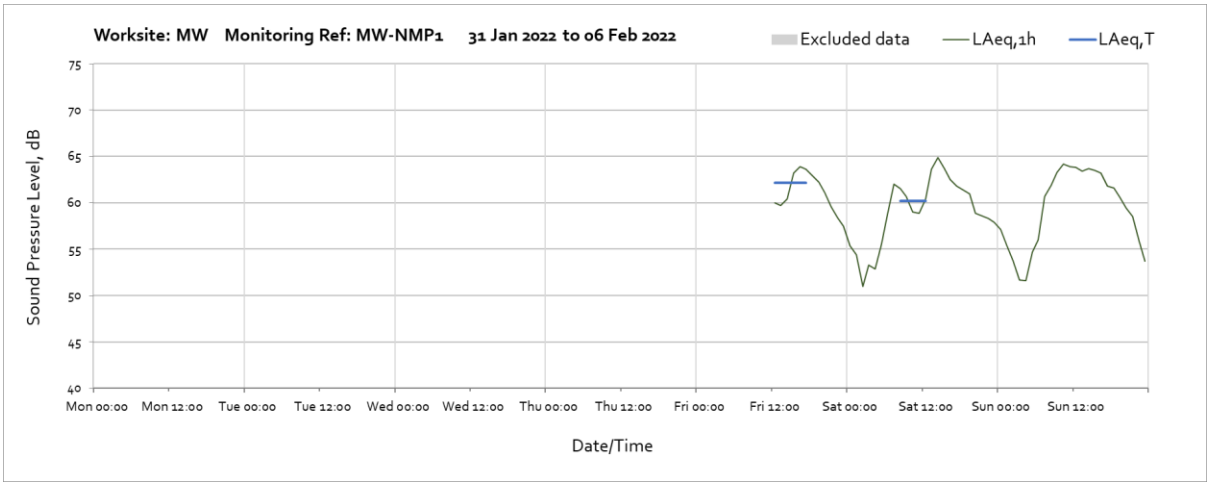




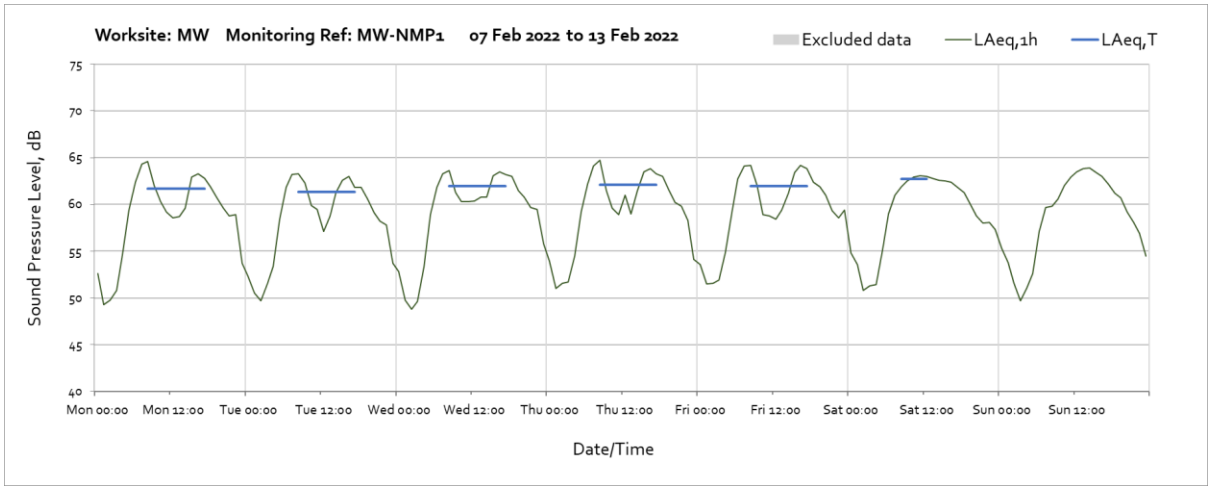




Worksite: MW&GH – Monitoring Ref: MW-NMP1



Note: Missing data between 00:00 on 1st February and 12:00 on 4th February was due to an software error on the charging unit.


Worksite: MW Monitoring Ref: MW-NMP1 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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
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Thu 12:00
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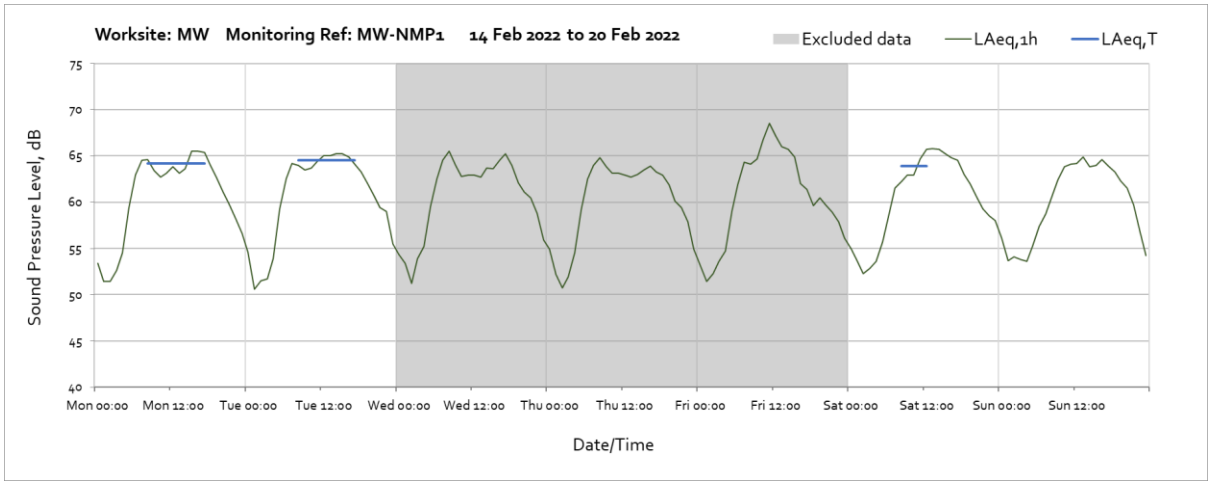
Sun 00:00
Sun 12:00
Date/Time


Worksite: MW Monitoring Ref: MW-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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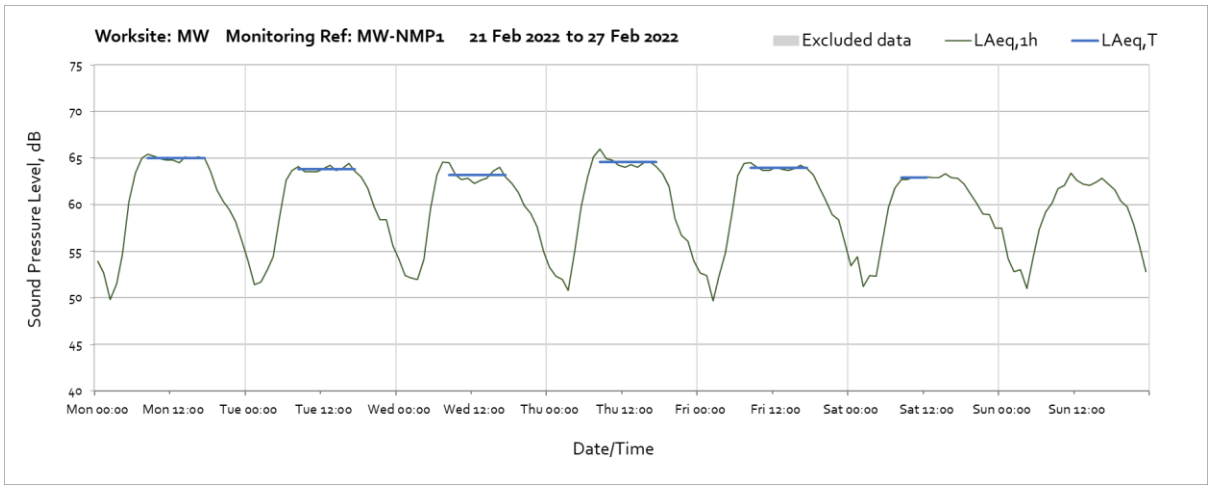
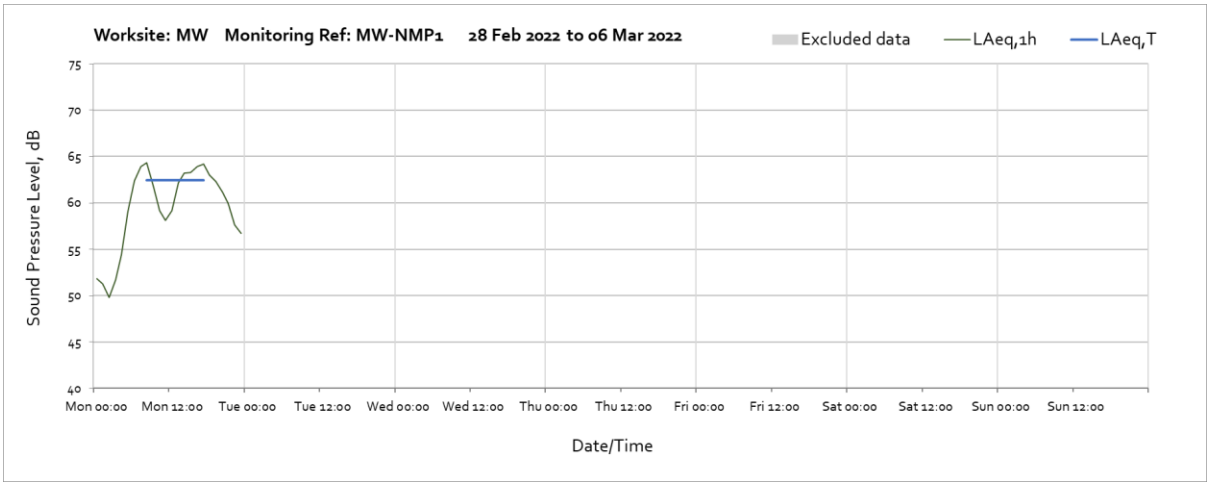
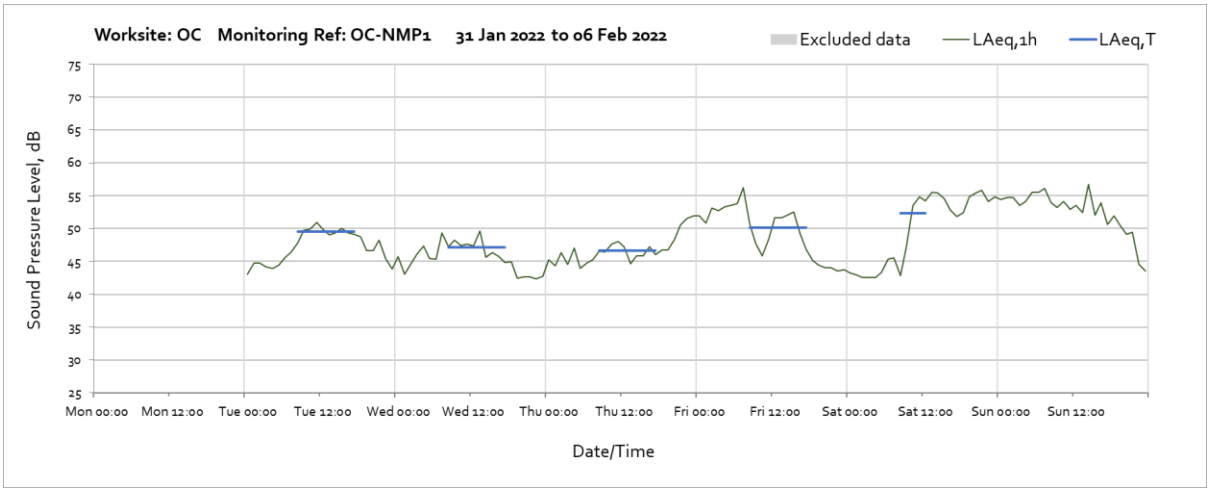
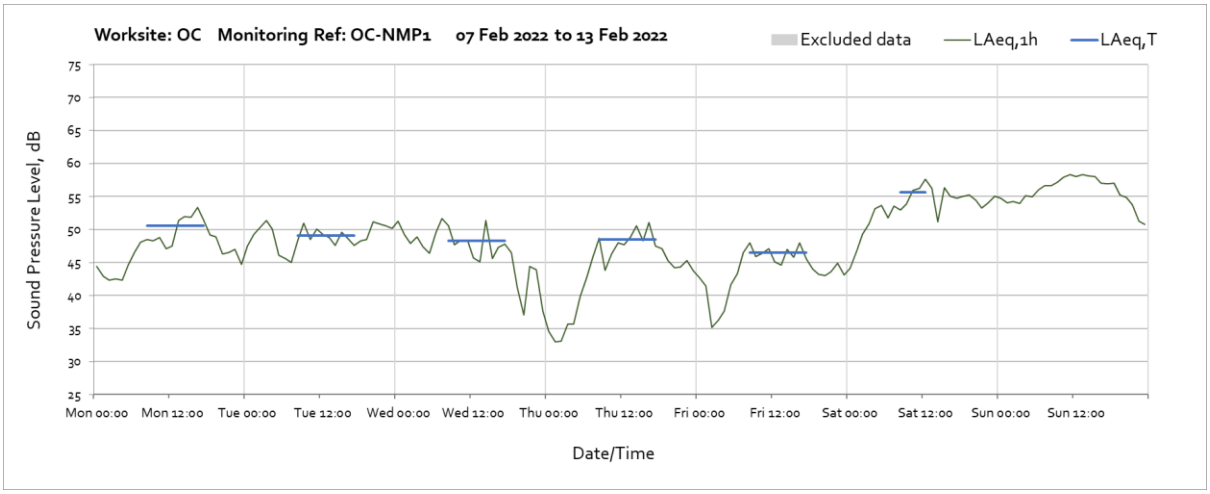
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

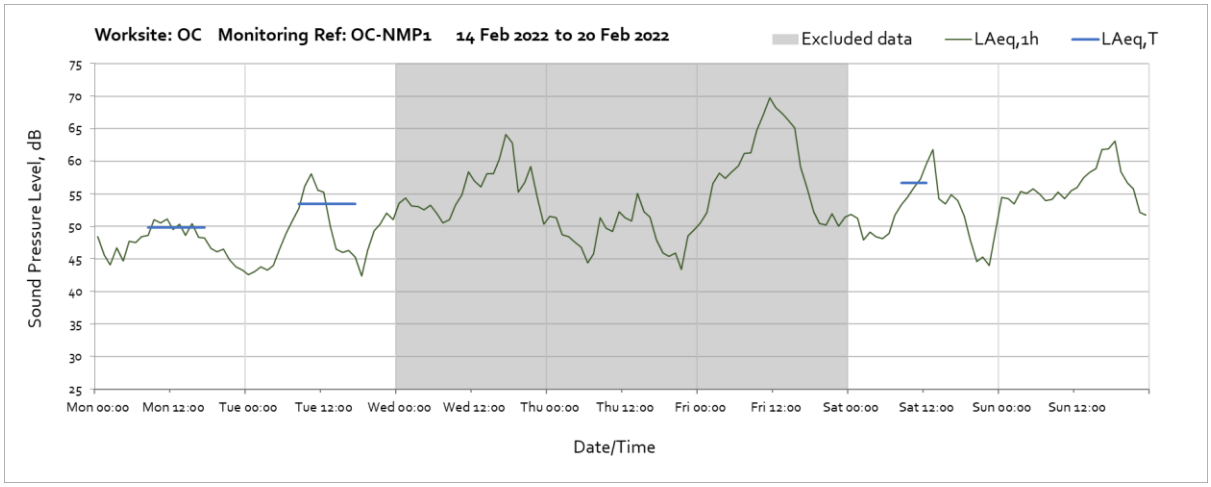

Worksite: MW Monitoring Ref: MW-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



Worksite: OC – Monitoring Ref: OC-NMP1






Worksite: OC Monitoring Ref: OC-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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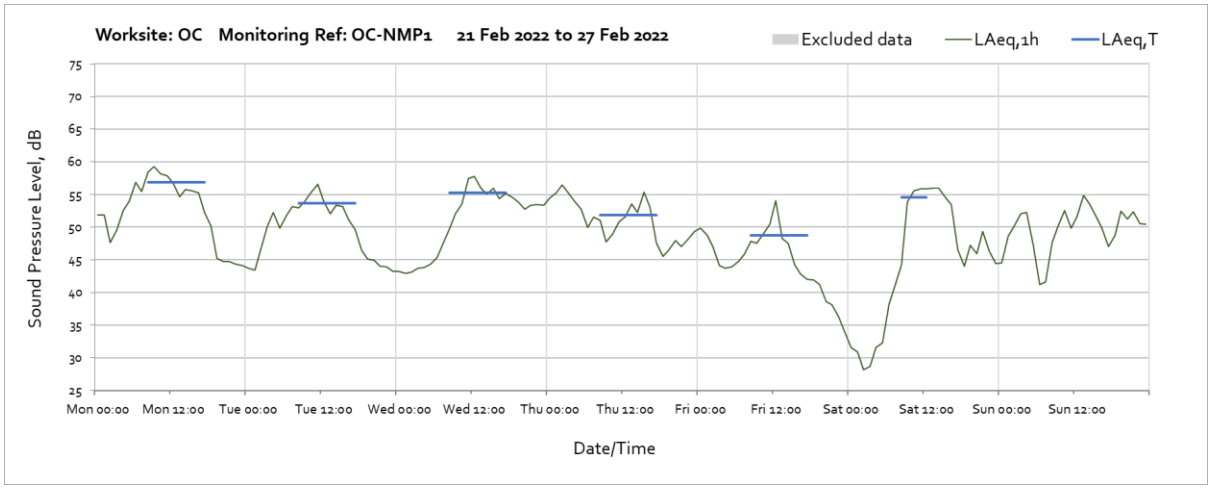
Sun 00:00
Sun 12:00
Date/Time


Worksite: OC Monitoring Ref: OC-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
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55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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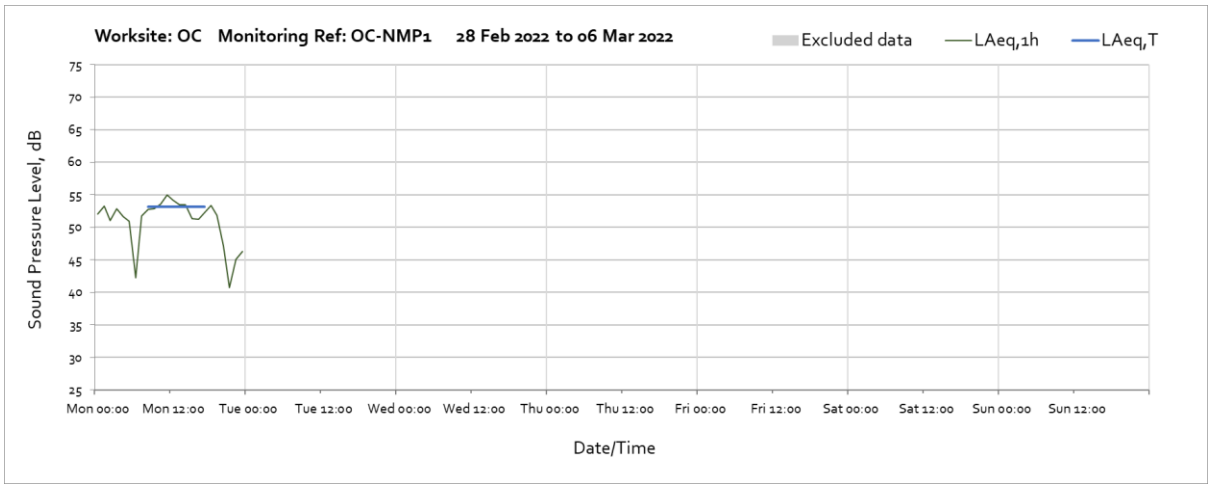
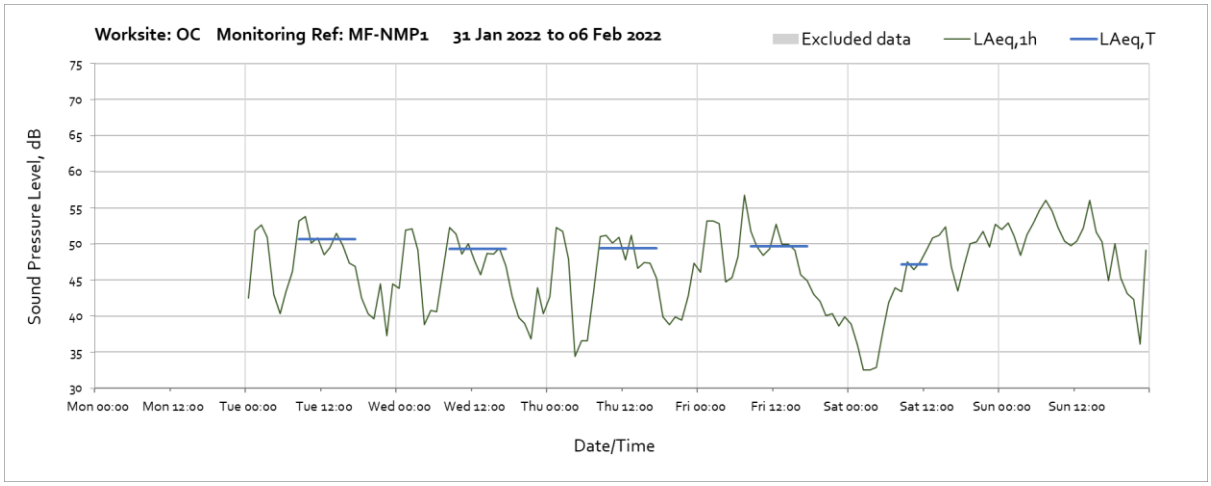
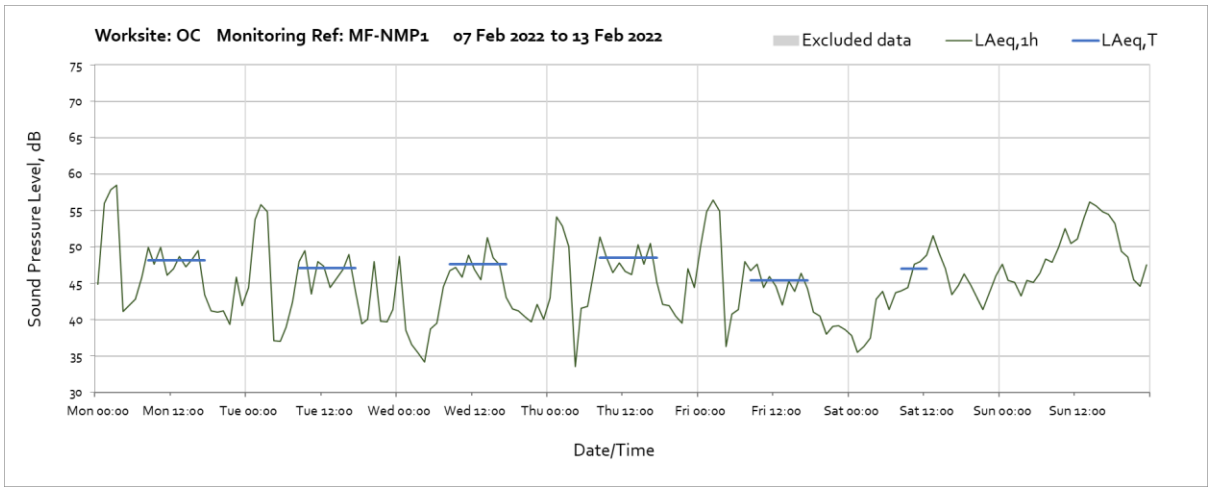
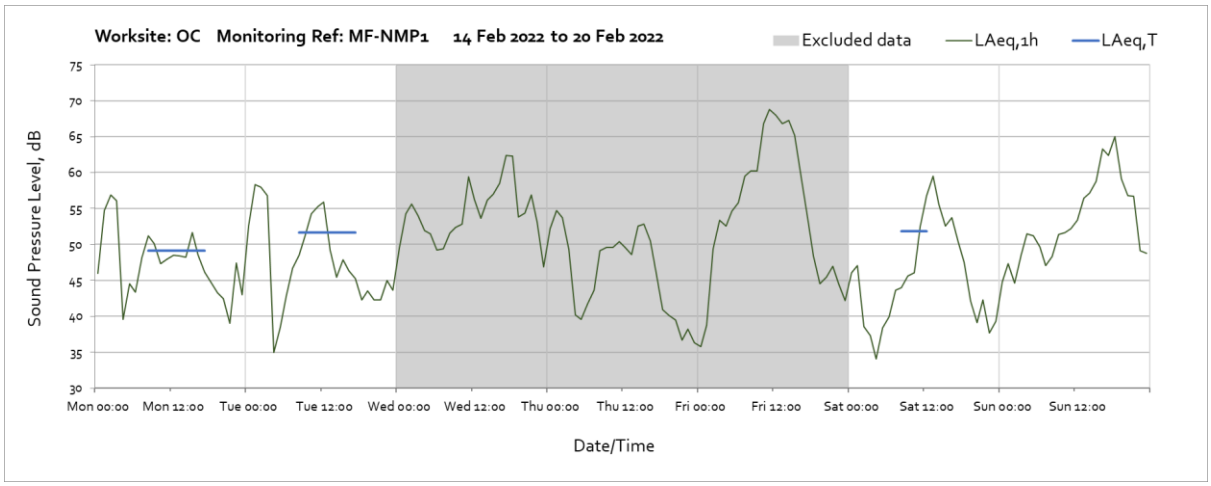
Sun 00:00
Sun 12:00
Date/Time

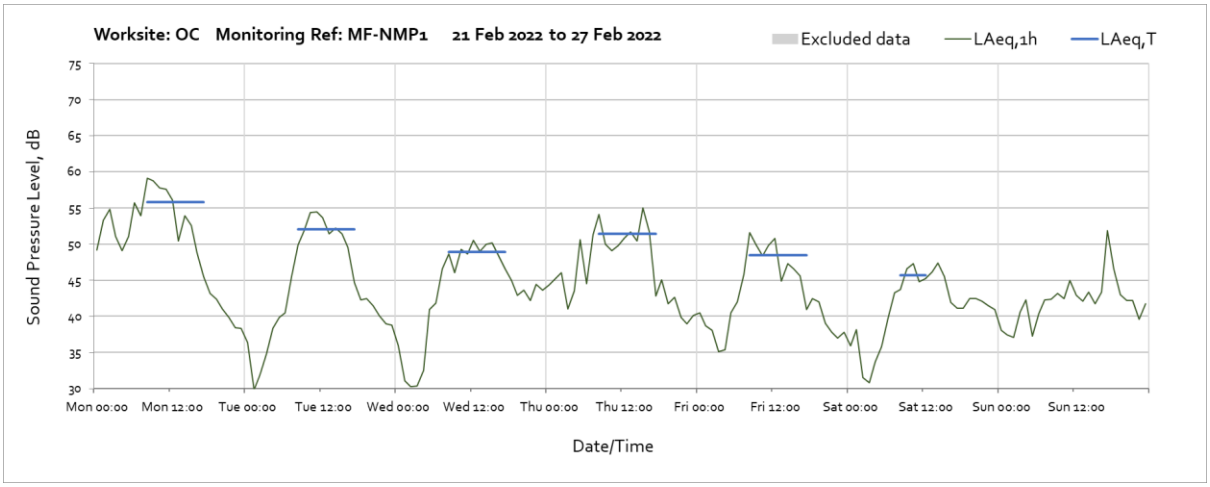

Worksite: OC Monitoring Ref: OC-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

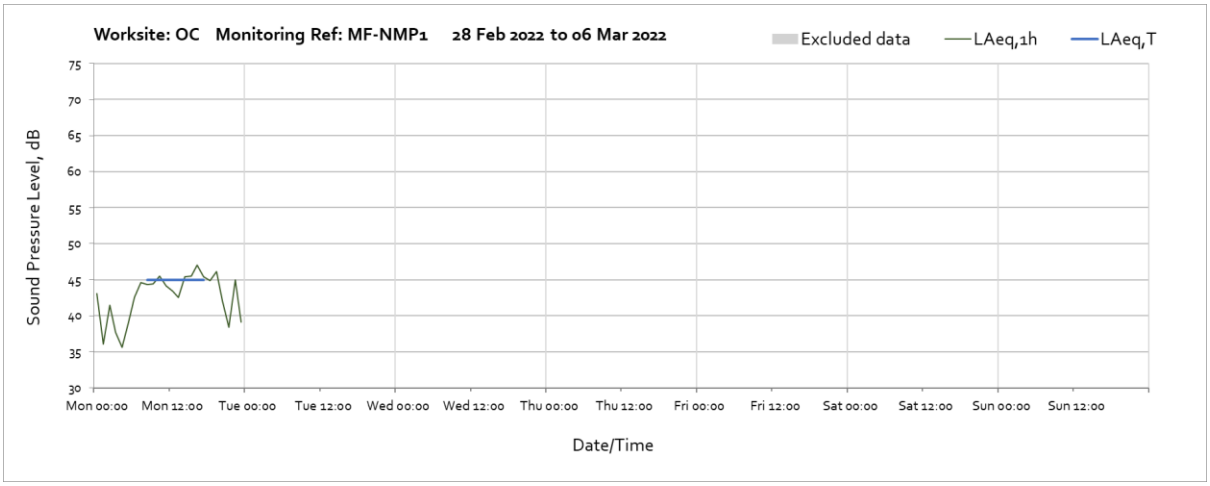
Worksite: OC – Monitoring Ref: MF-NMP1



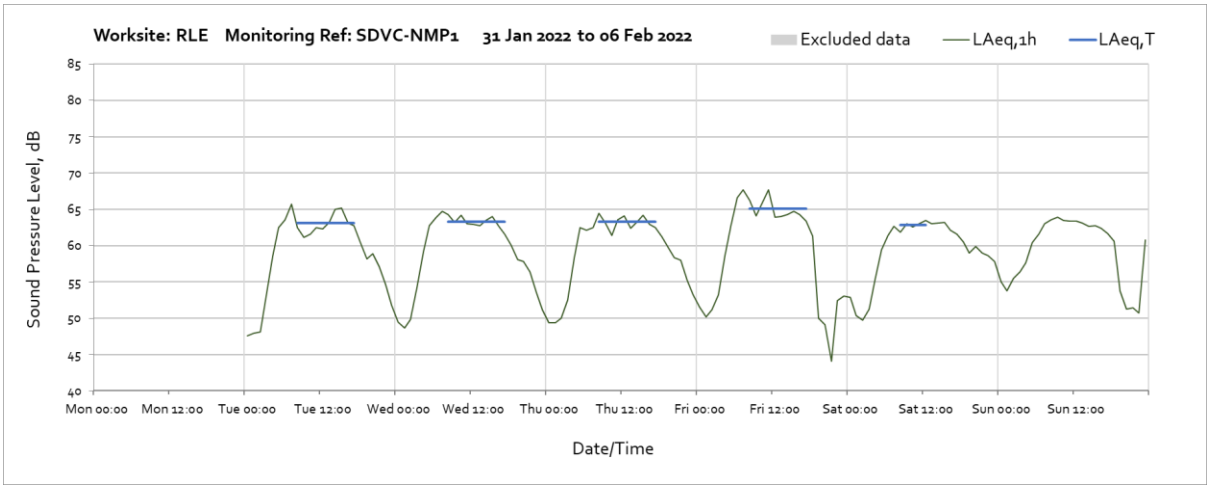


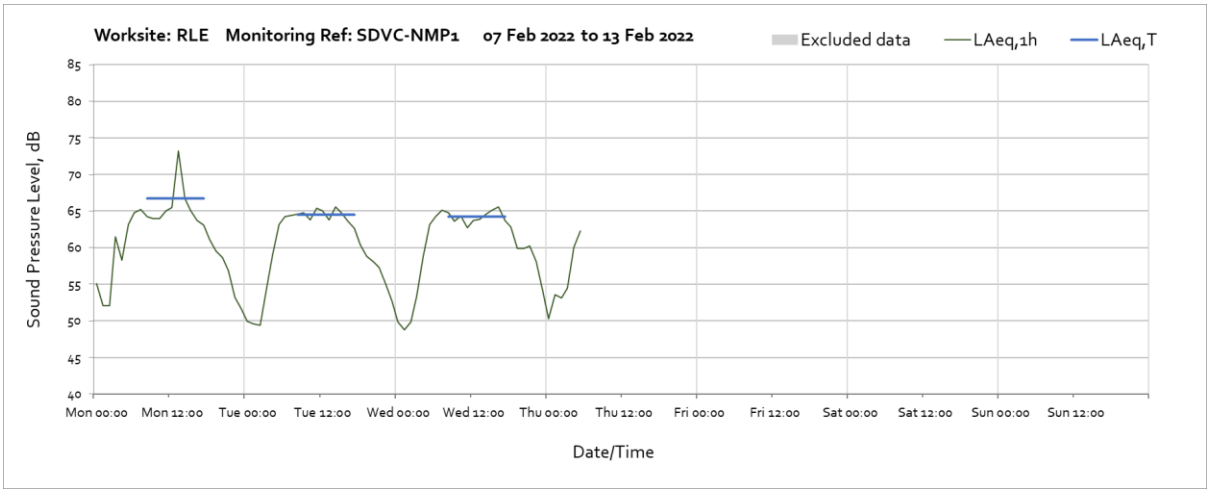




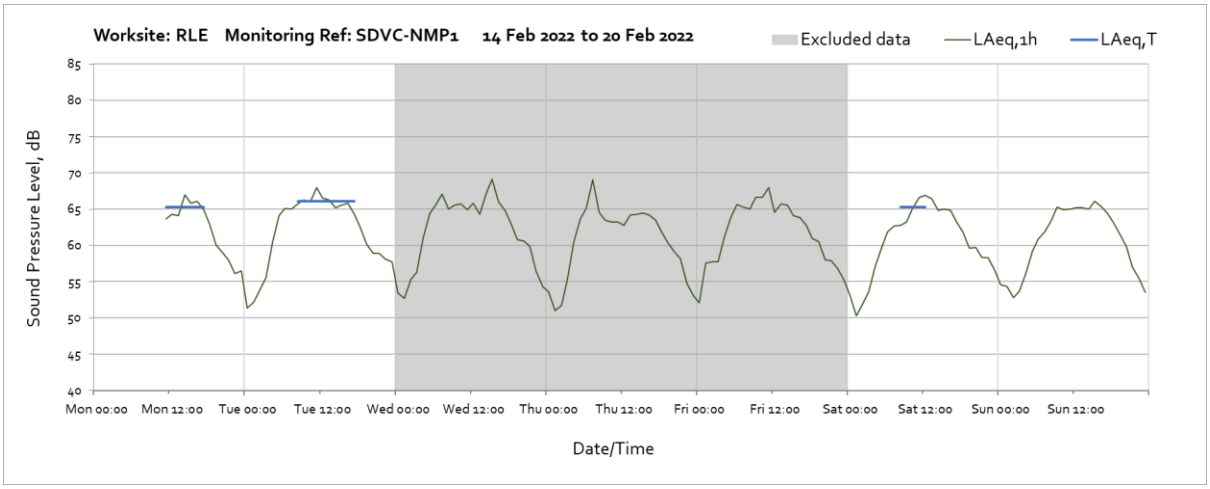


Worksite: RLE – Monitoring Ref: SDVC-NMP1

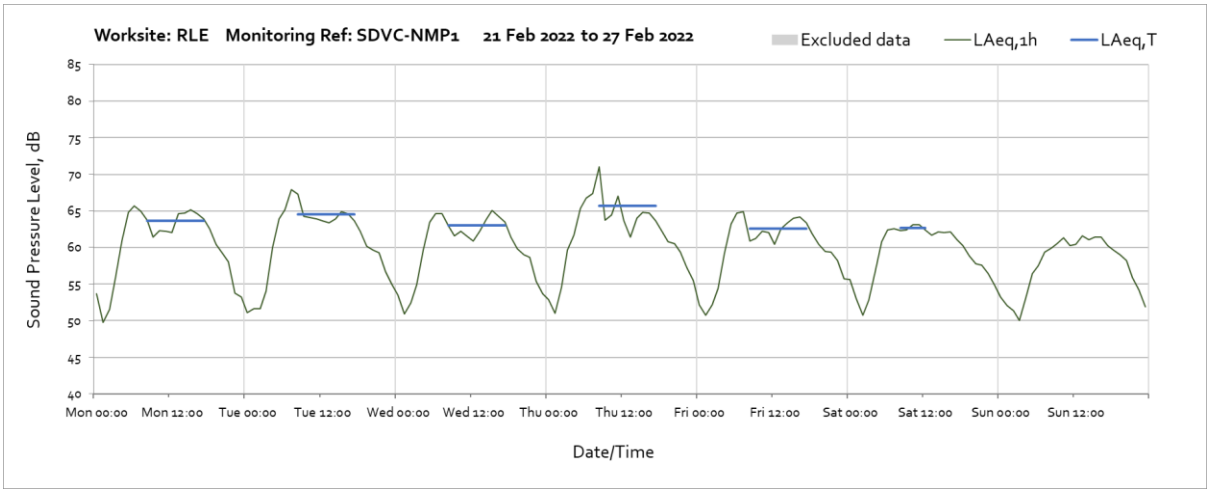


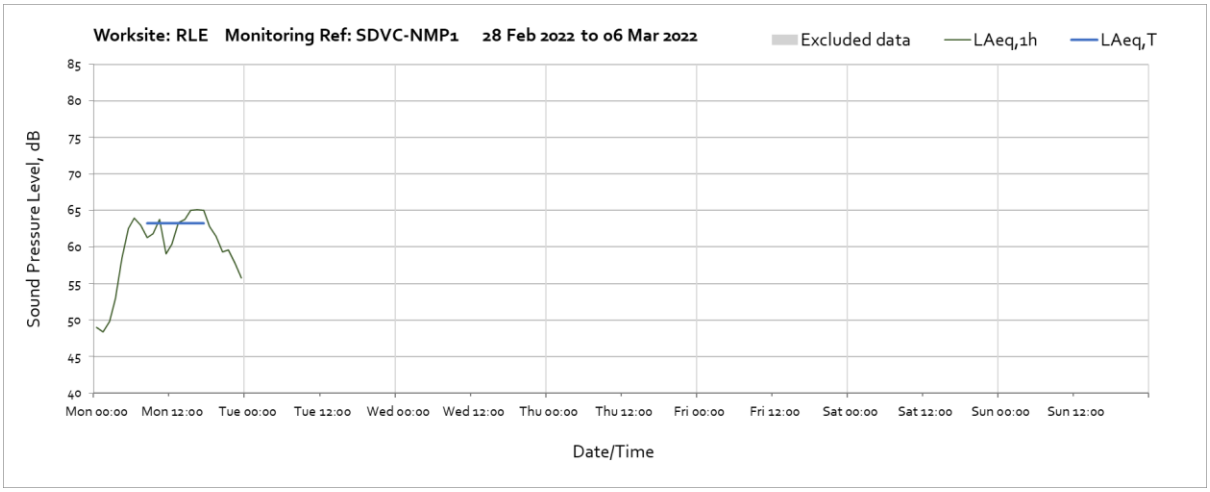


Note: Missing data between 13:00 on 10th February and 12:00 on 14th February was due to loss of power to the equipment caused by faulty battery.

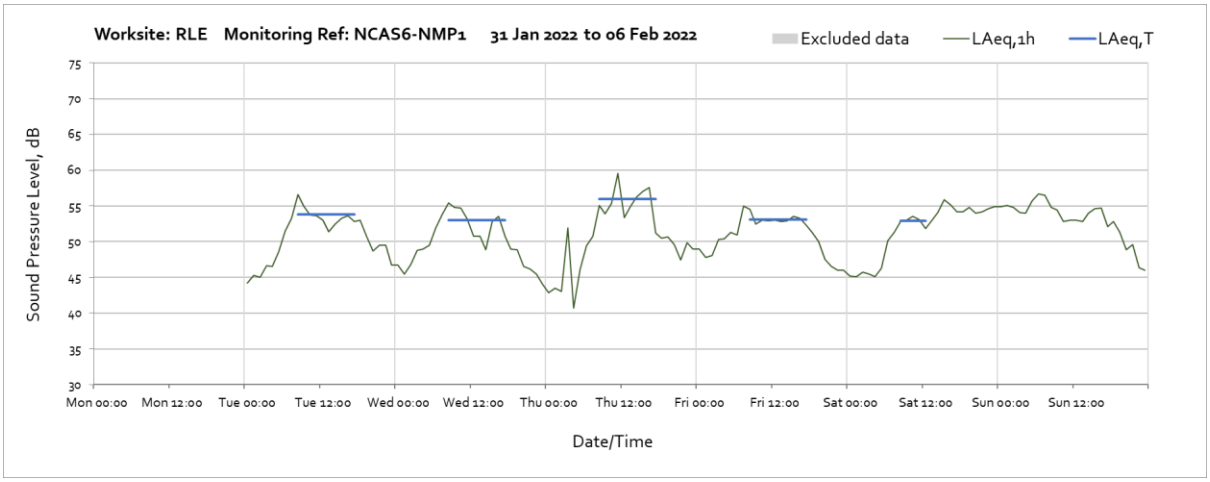


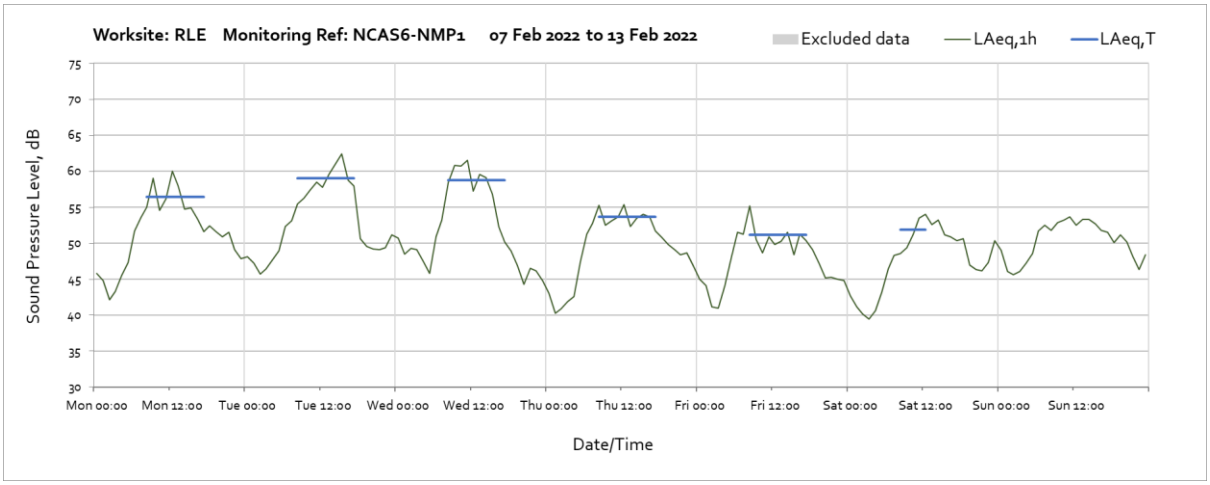
Note: Missing data between 13:00 on 10th February and 12:00 on 14th February was due to loss of power to the equipment caused by faulty battery.

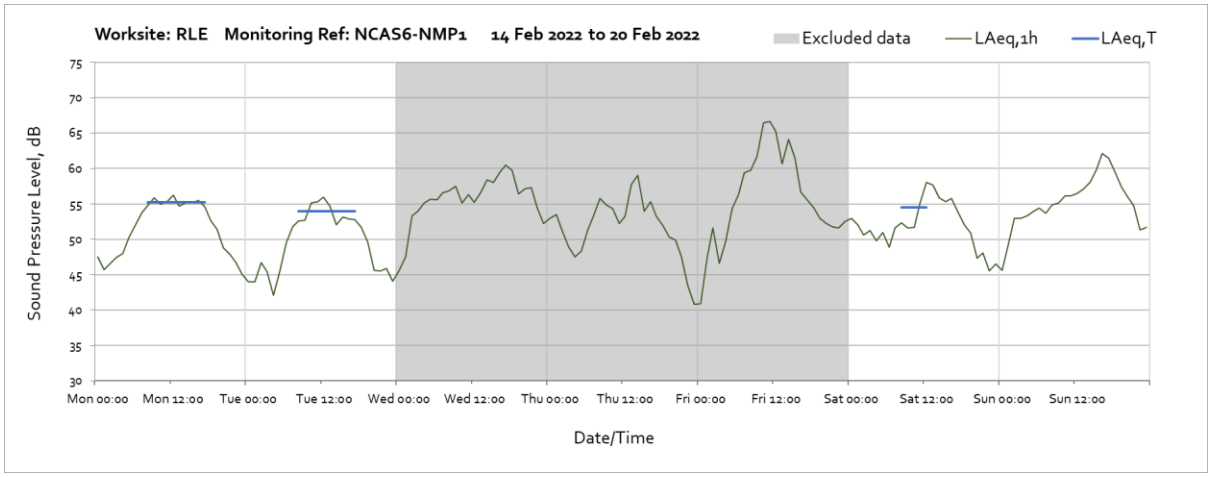


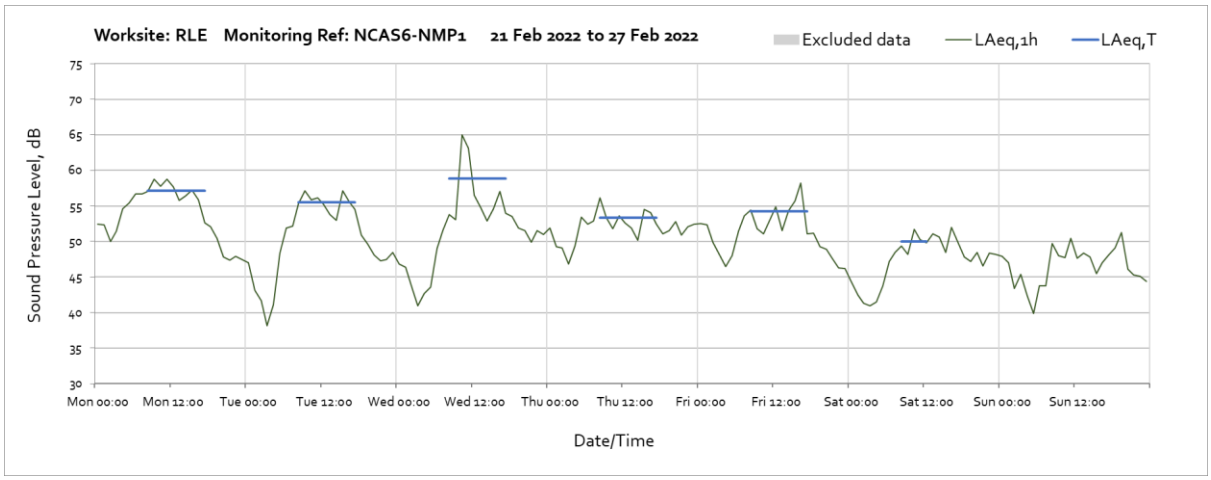


Worksite: RLE – Monitoring Ref: NCAS6-NMP1






Worksite: RLE Monitoring Ref: NCAS6-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
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: RLE Monitoring Ref: NCAS6-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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Fri 12:00
Sat 00:00
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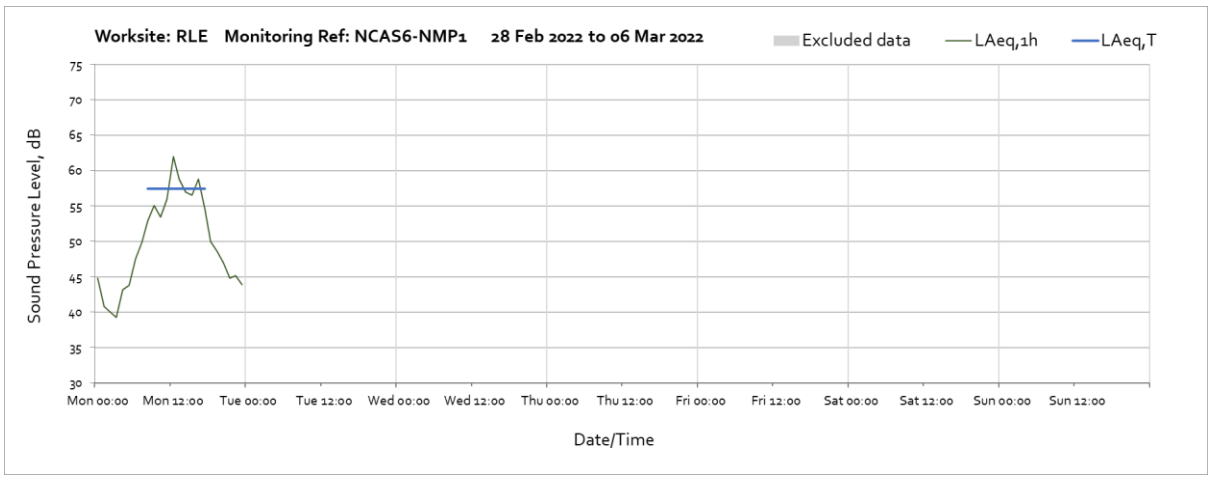
Sun 00:00
Sun 12:00
Date/Time


Worksite: RLE Monitoring Ref: NCAS6-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
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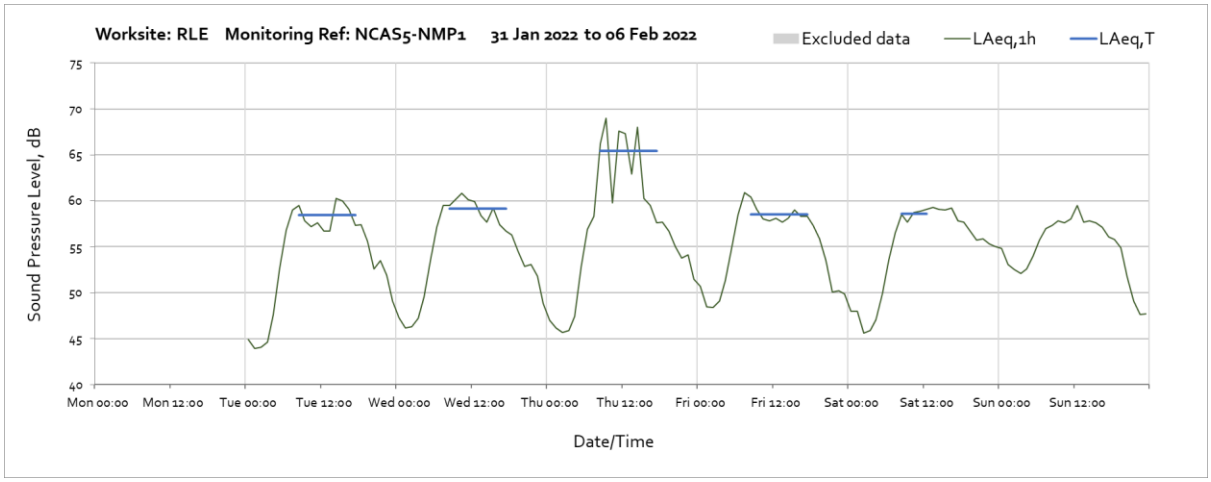
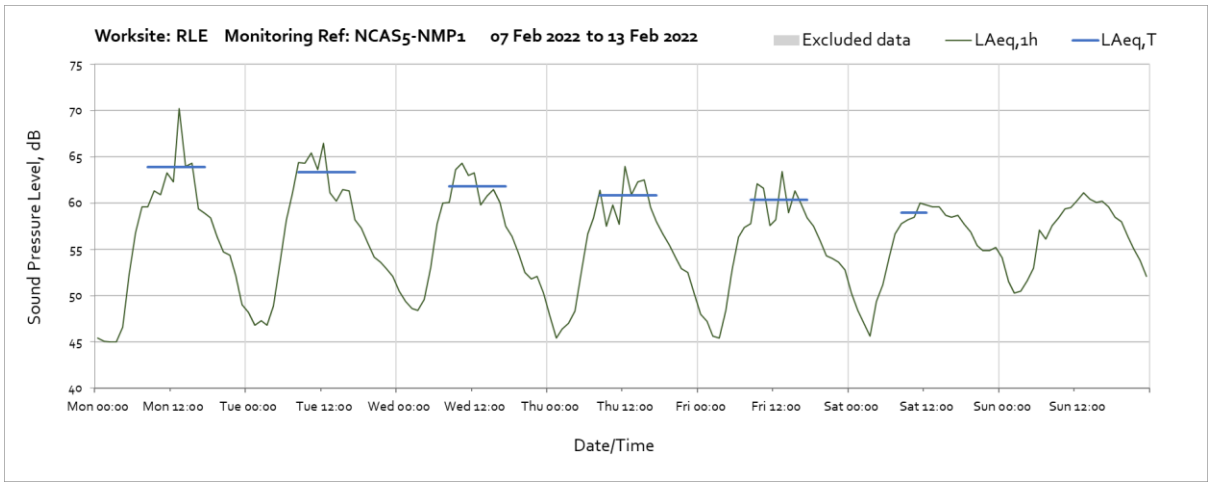
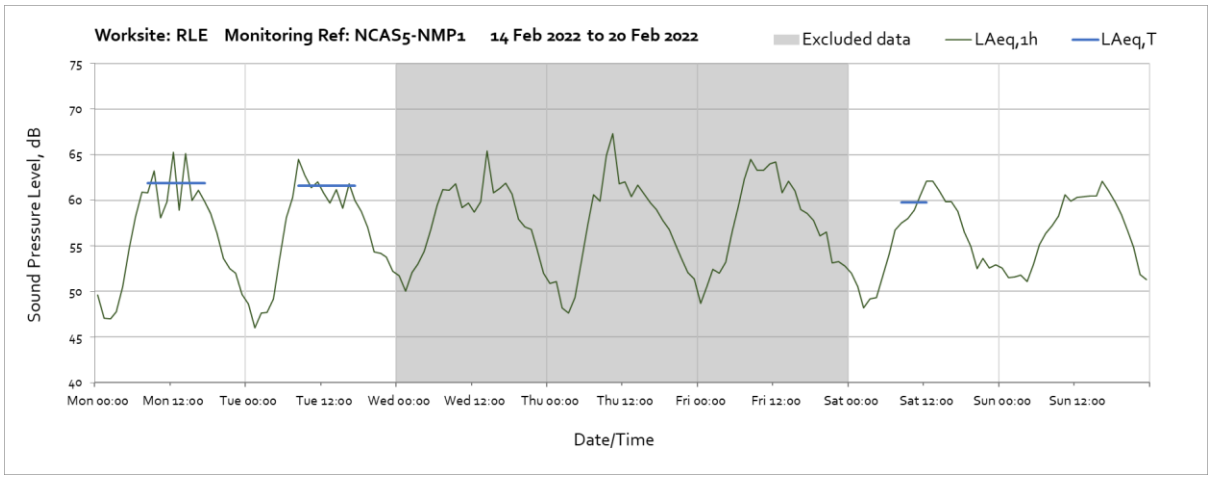
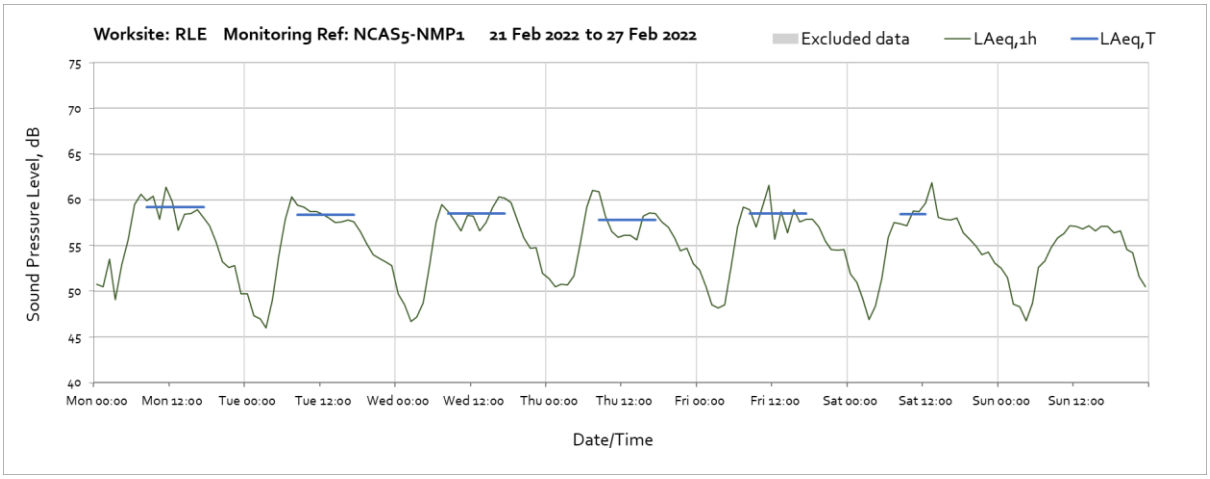
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

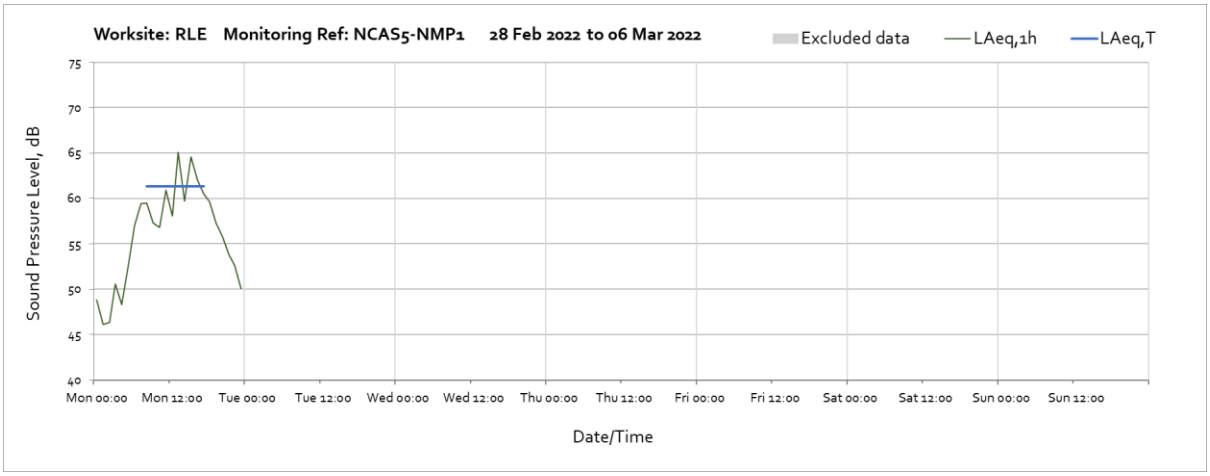
Worksite: RLE – Monitoring Ref: NCAS5-NMP1



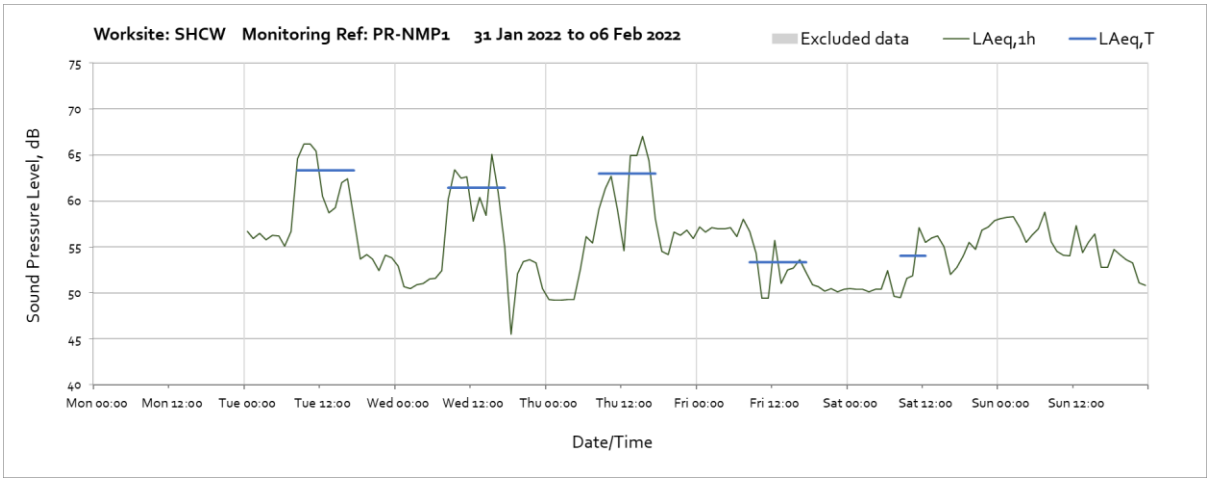


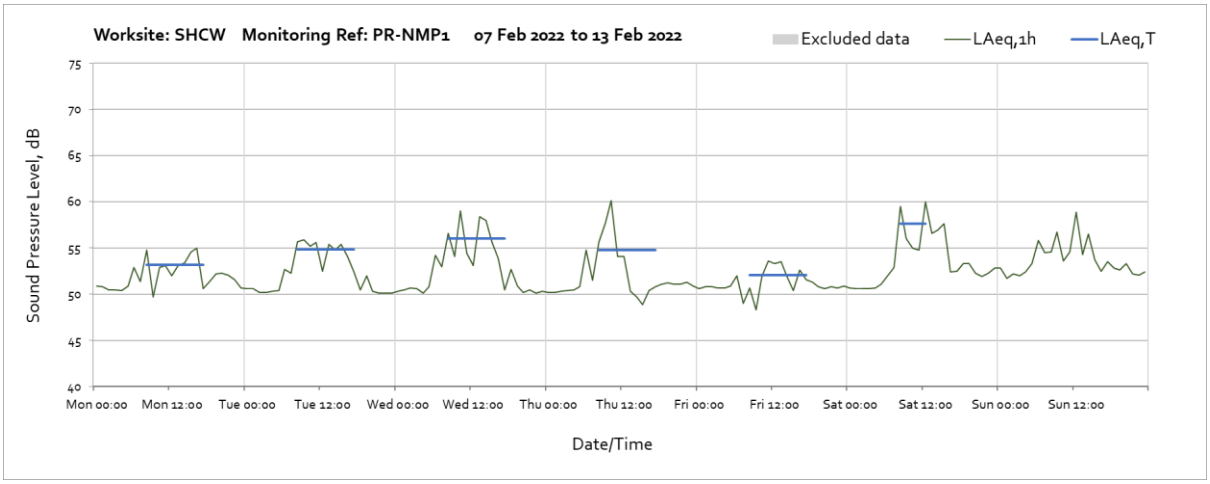






Worksite: SHCW – Monitoring Ref: PR-NMP1




Worksite: SHCW Monitoring Ref: PR-NMP1 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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
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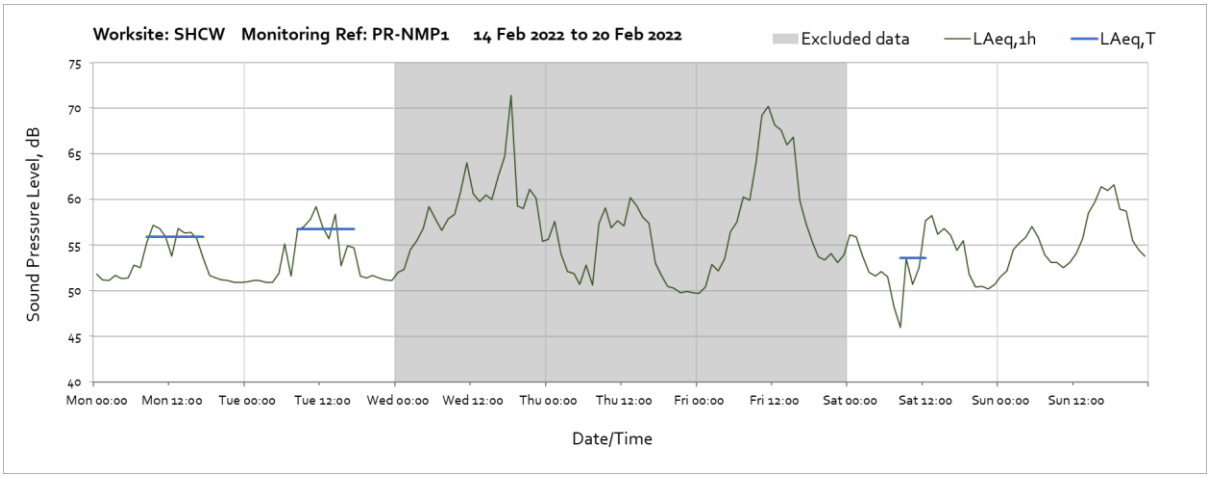
Sun 00:00
Sun 12:00
Date/Time


Worksite: SHCW Monitoring Ref: PR-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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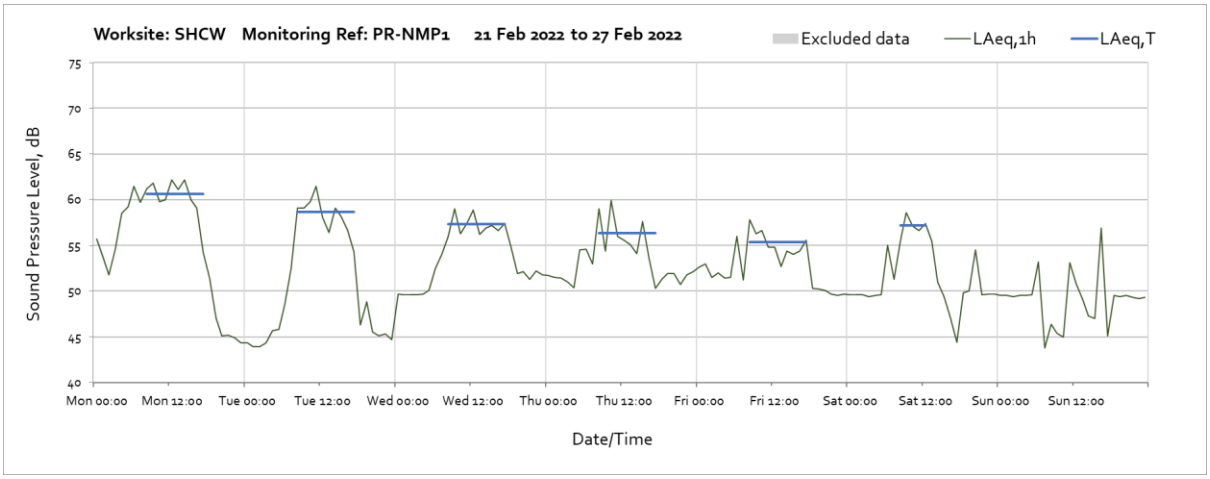
Sun 00:00
Sun 12:00
Date/Time


Worksite: SHCW Monitoring Ref: PR-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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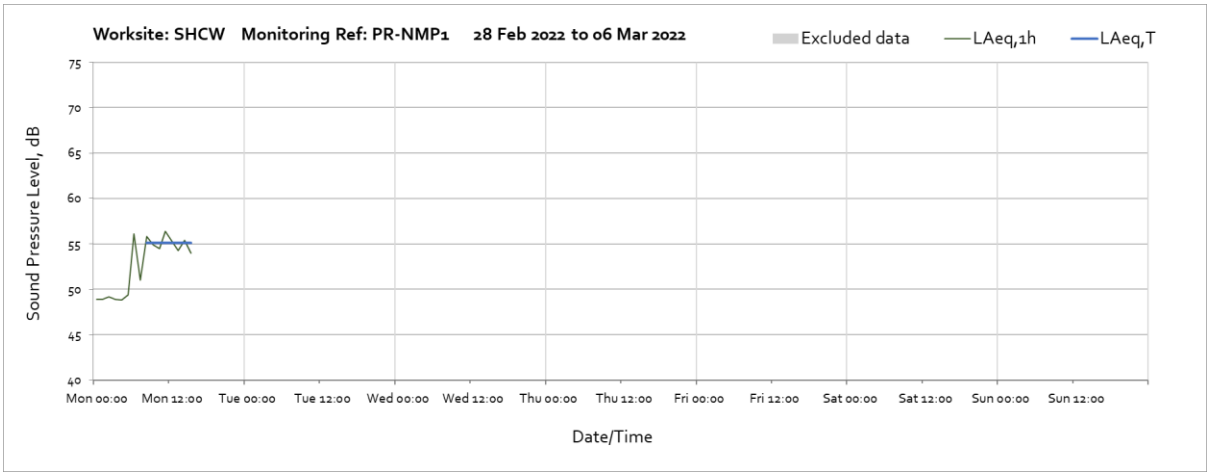
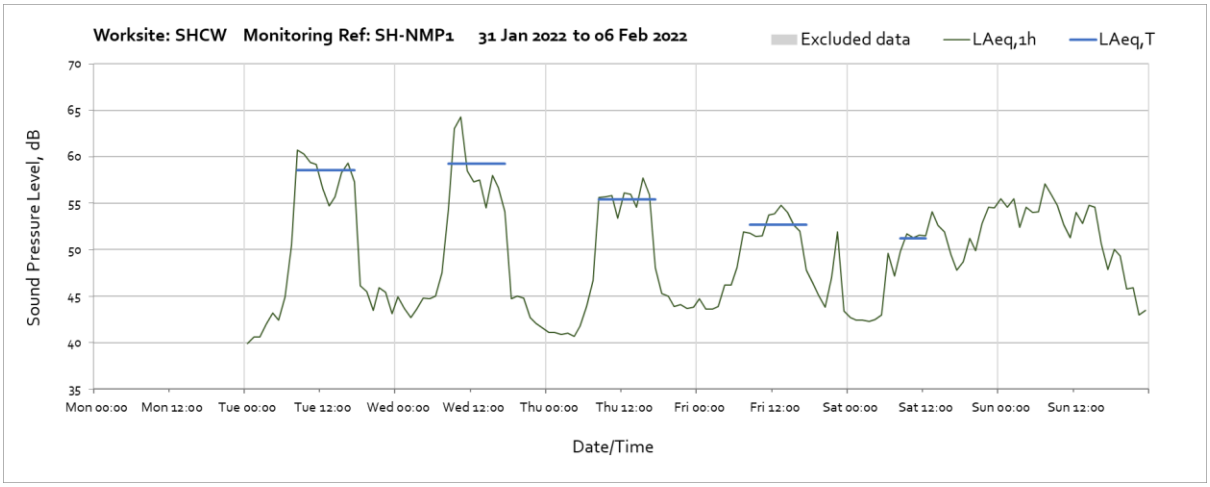
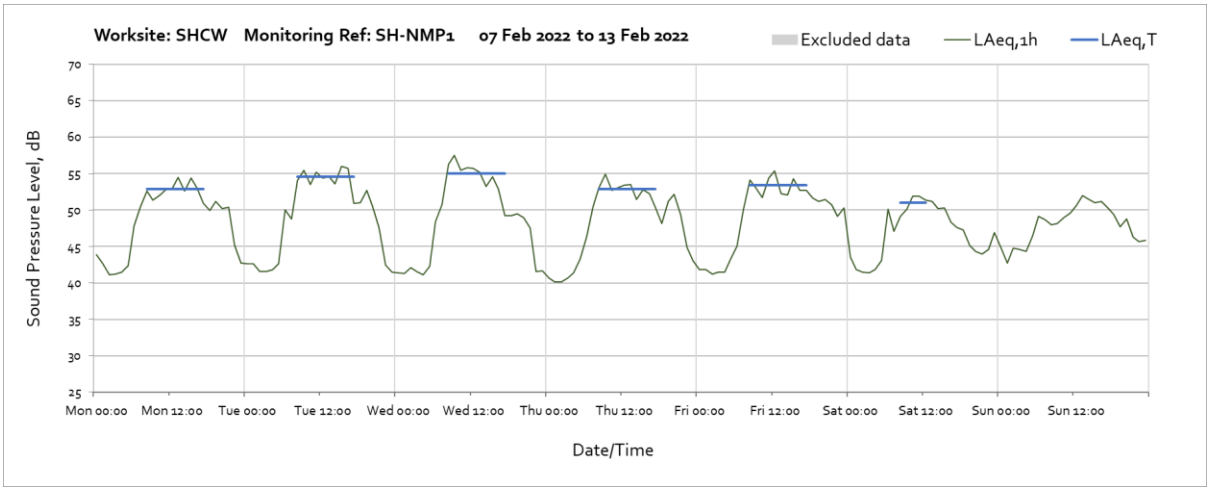
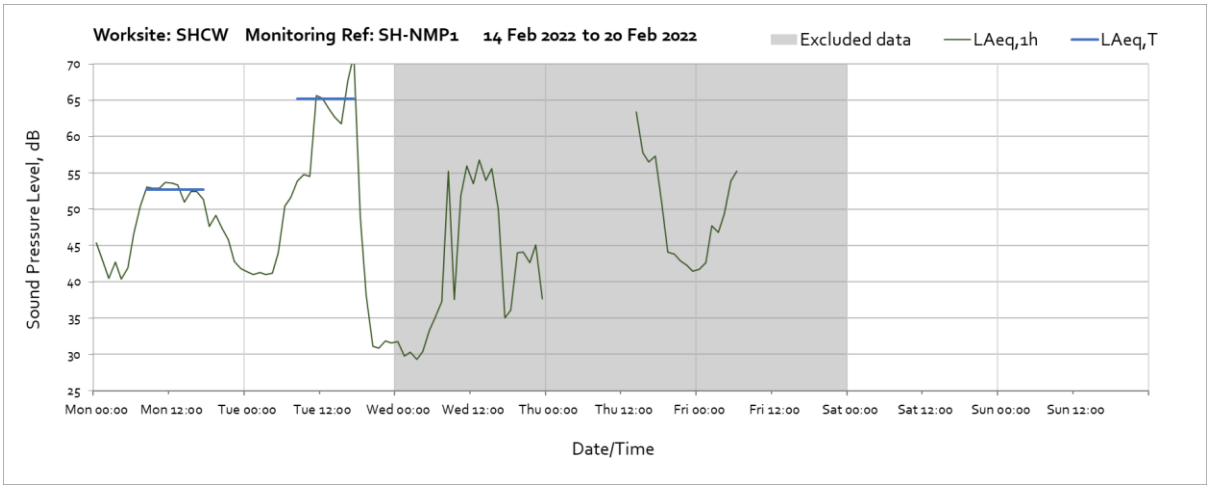
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



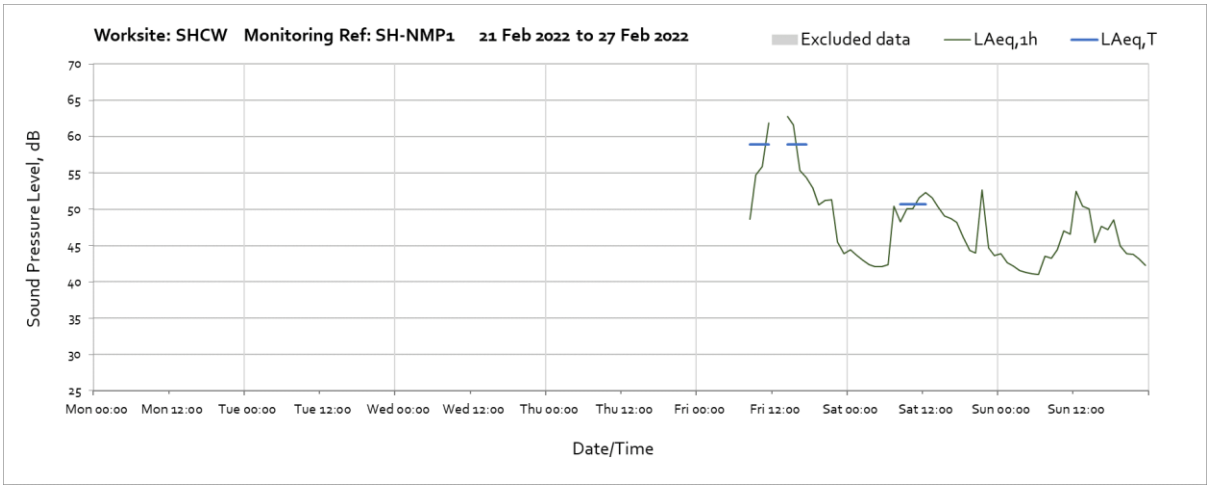
Worksite: SHCW – Monitoring Ref: SH-NMP1



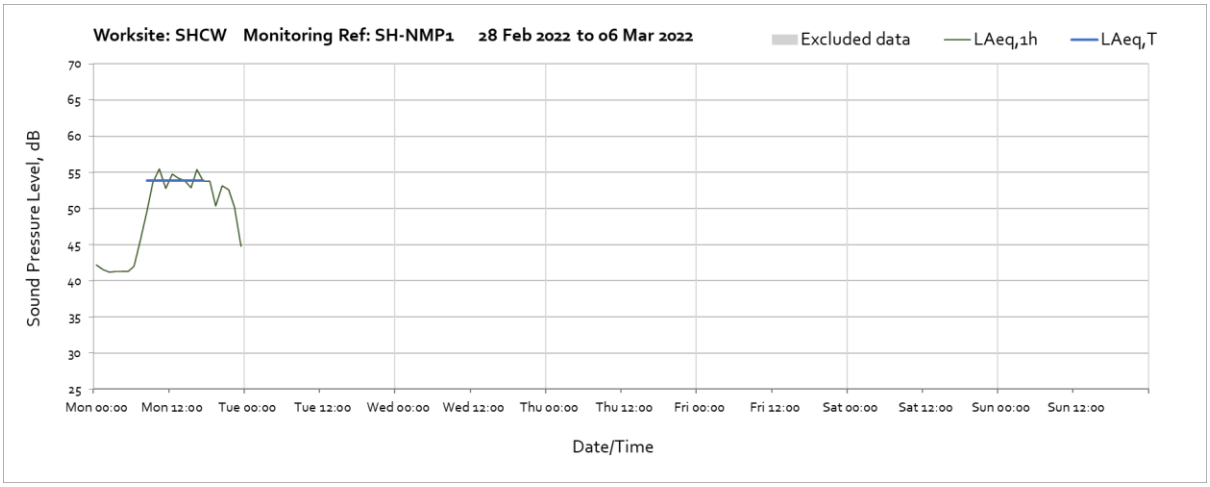




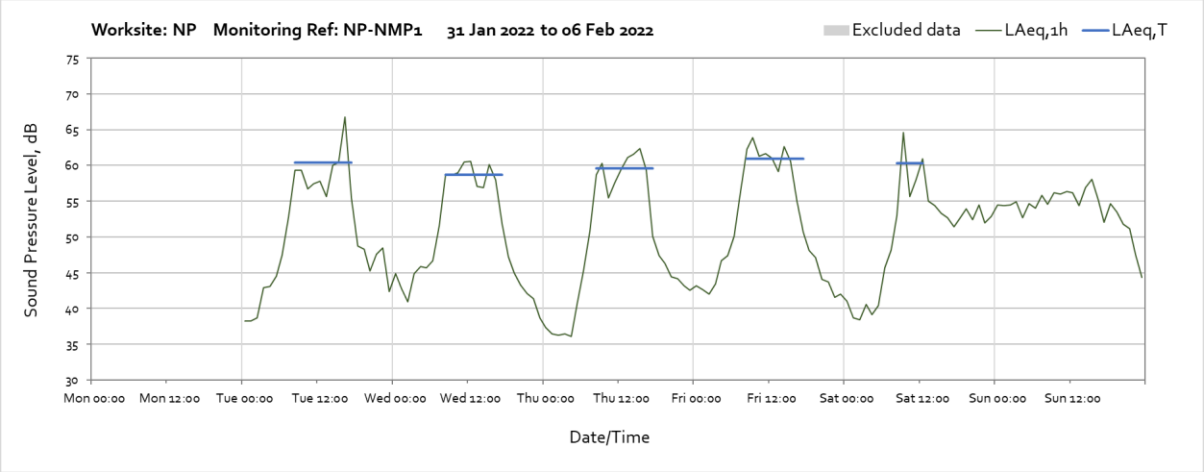
Note: Missing data between 06:00 on 18th February and 08:00 on 25th February was due to a faulty noise monitor which was repaired and reinstated on 25th February.

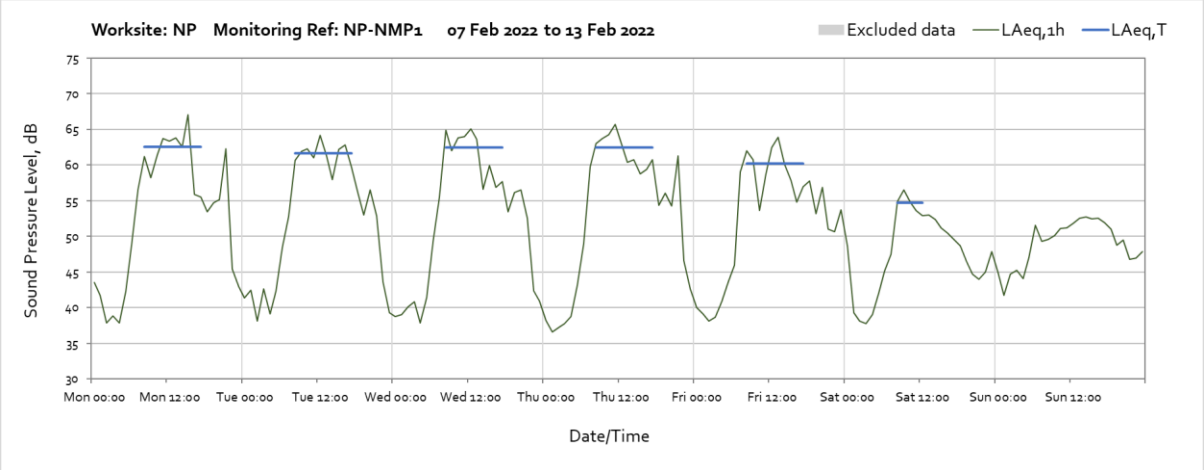


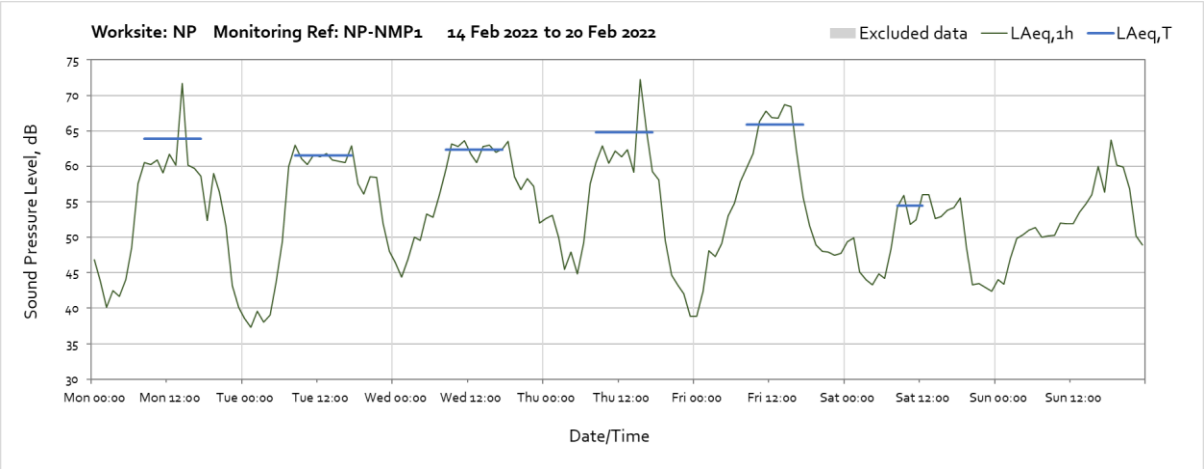
Note: Missing data between 06:00 on 18th February and 08:00 on 25th February was due to a faulty noise monitor which was repaired and reinstated on 25th February.

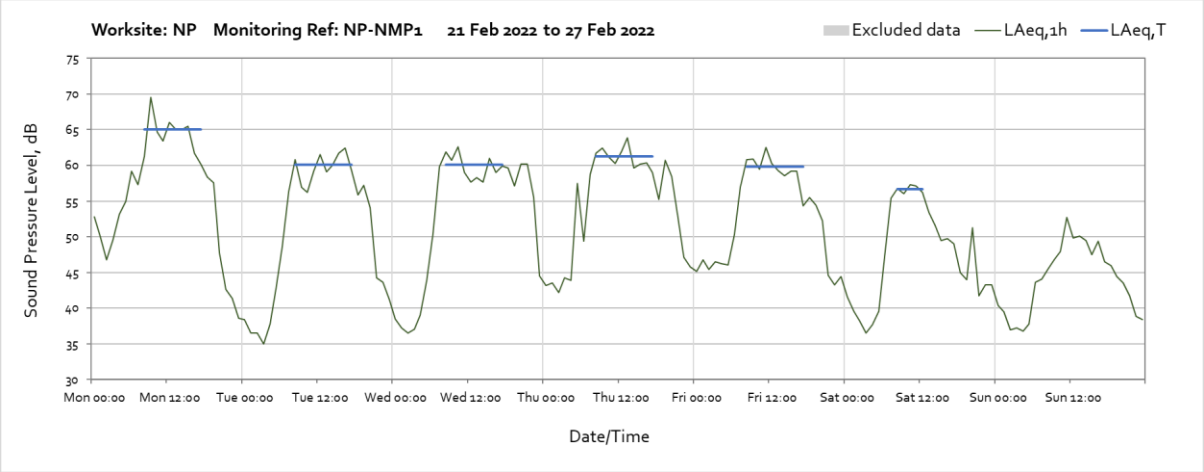


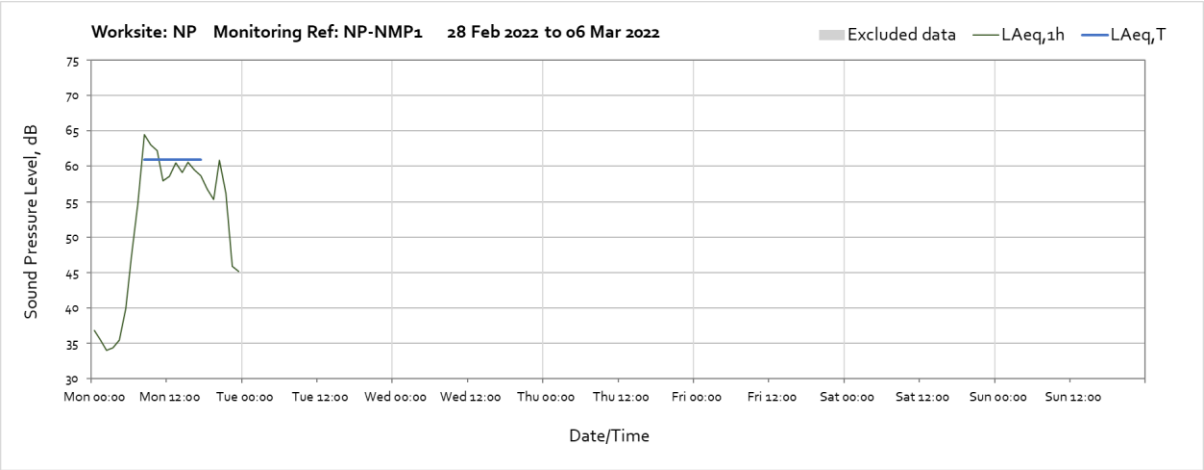
Worksite: NP – Monitoring Ref: NP-NMP1



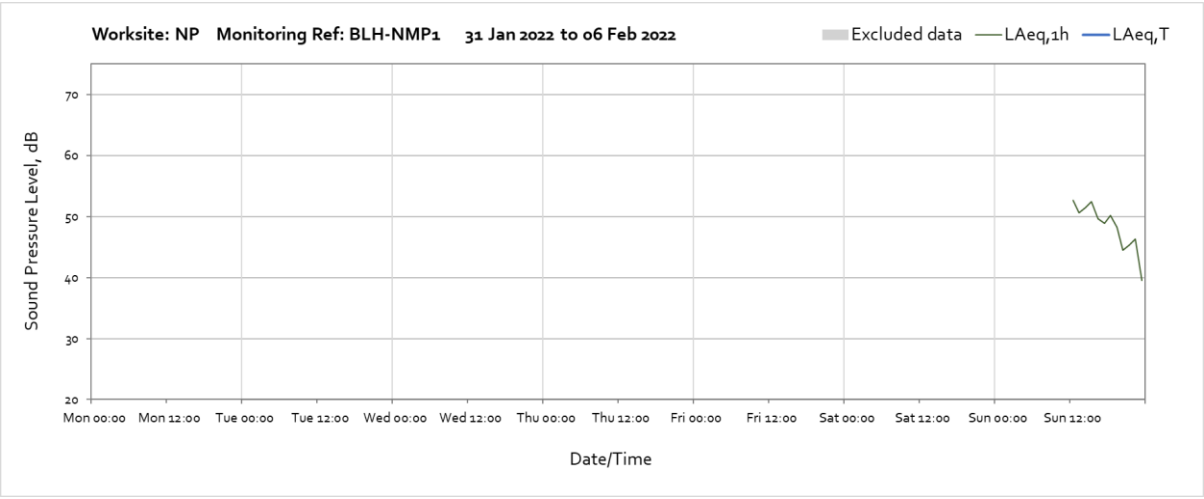




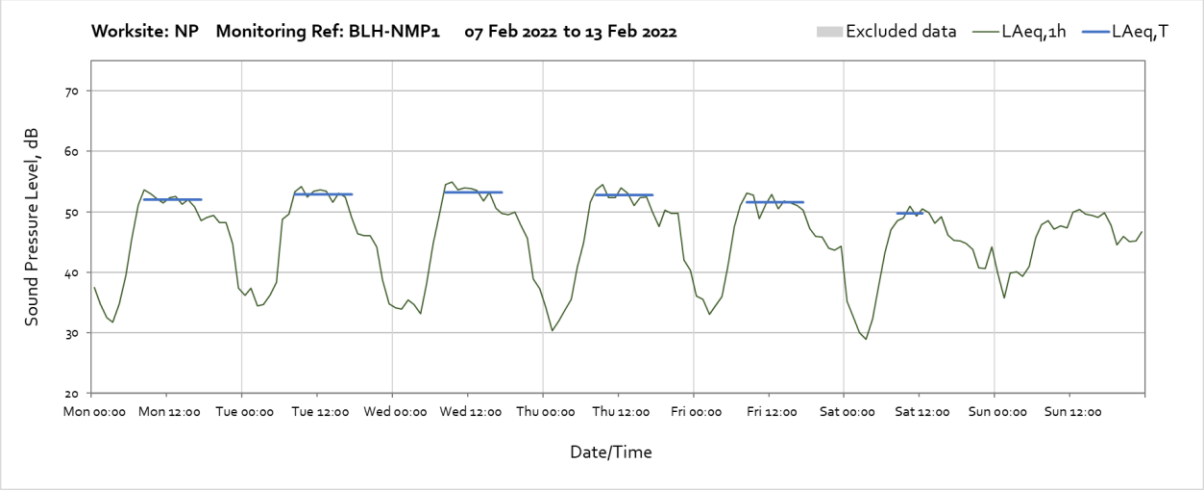




Worksite: NP – Monitoring Ref: BLH-NMP1



Note: The noise monitor was installed on 6th of February 2022.


Worksite: NP Monitoring Ref: BLH-NMP1 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
60
50
40
30
20
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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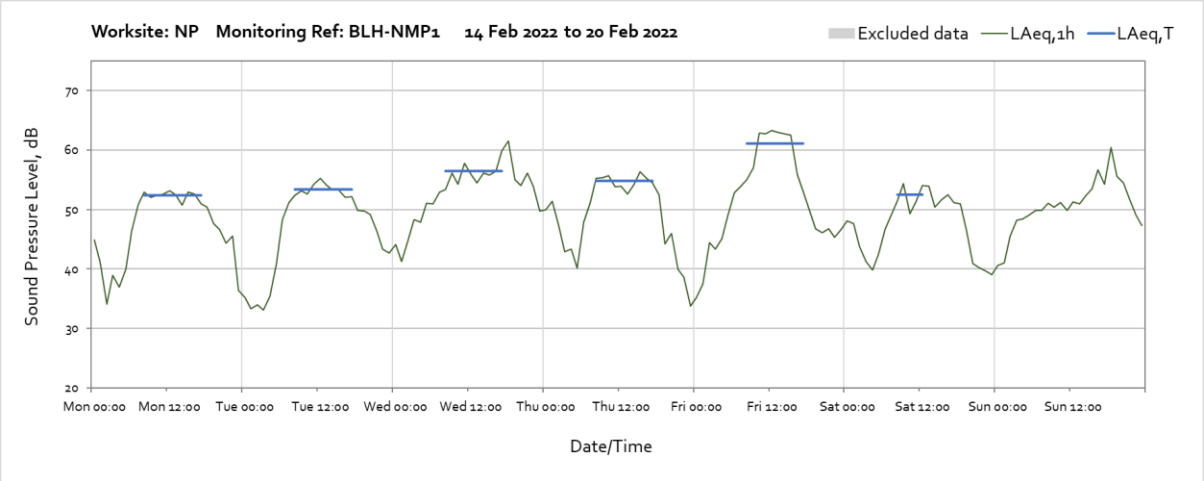
Sun 00:00
Sun 12:00
Date/Time


Worksite: NP Monitoring Ref: BLH-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
60
50
40
30
20
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
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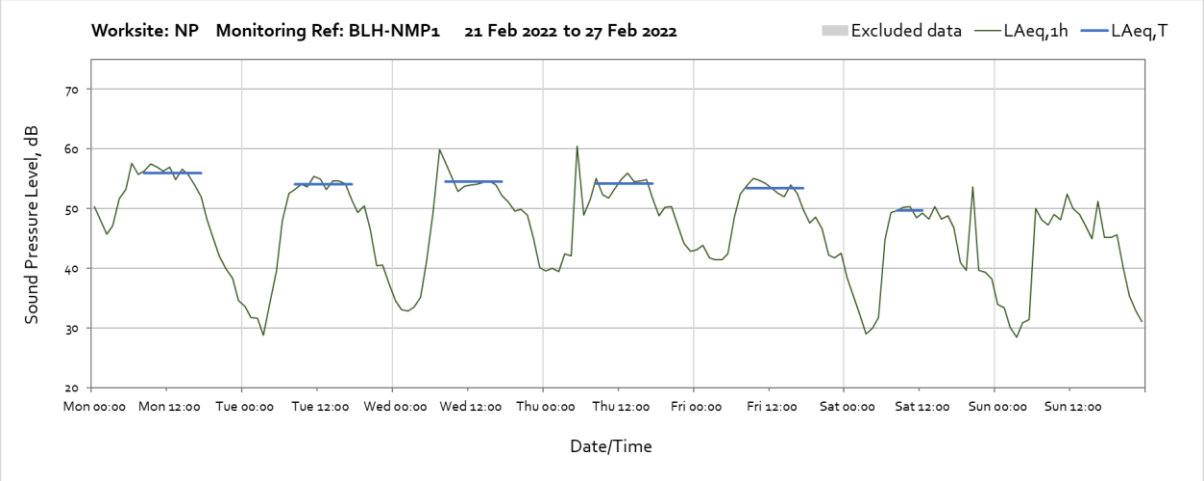
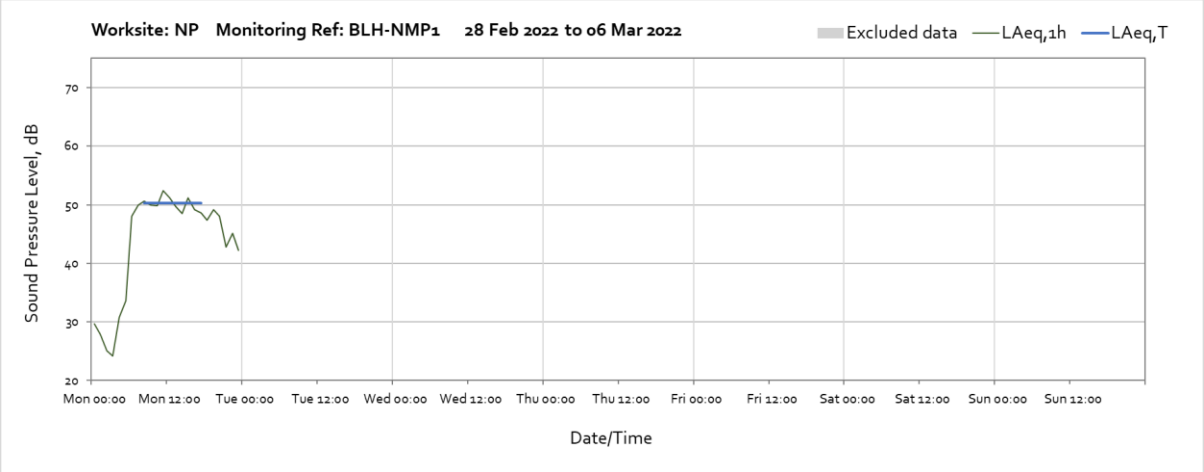
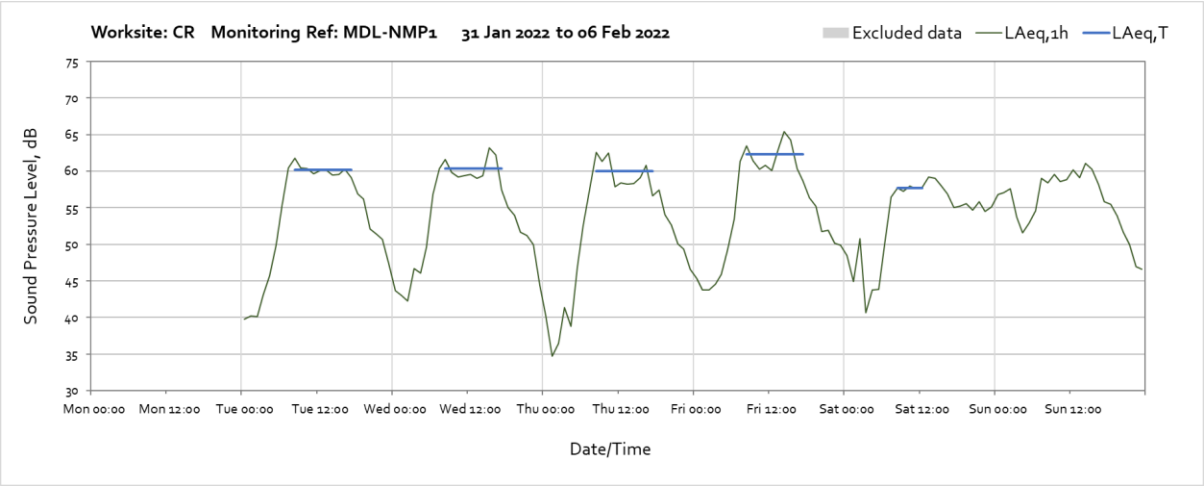
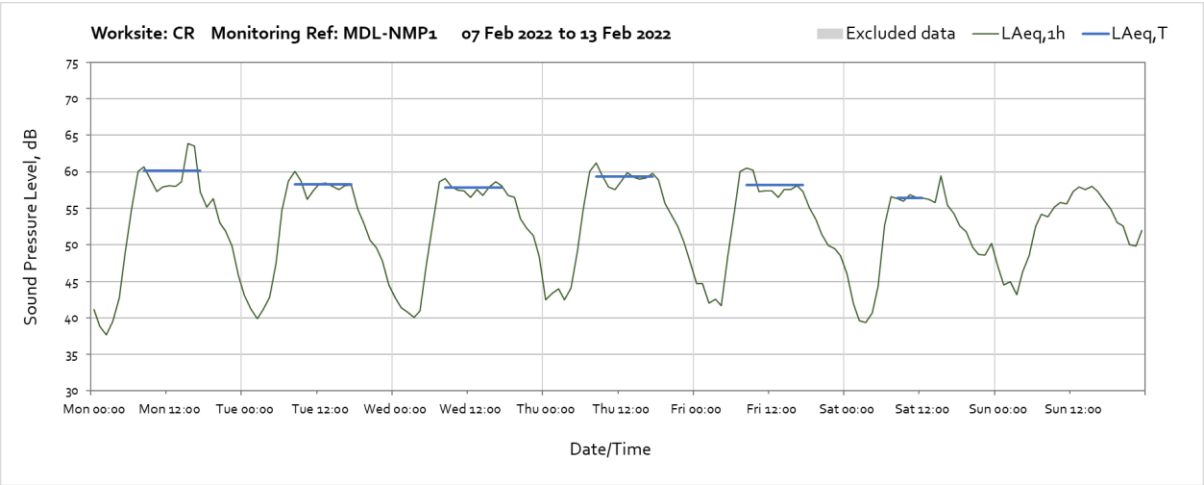
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

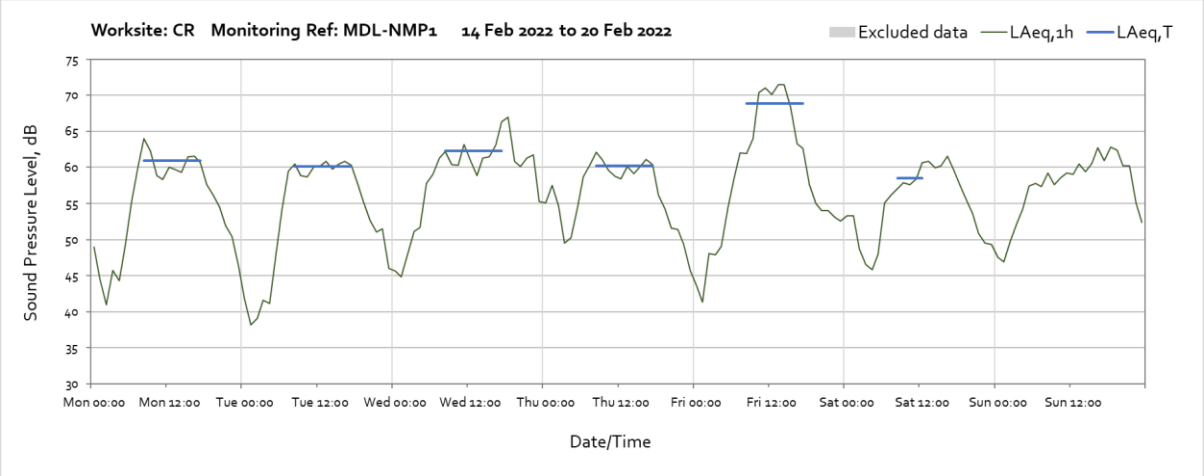

Worksite: NP Monitoring Ref: BLH-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
60
50
40
30
20
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

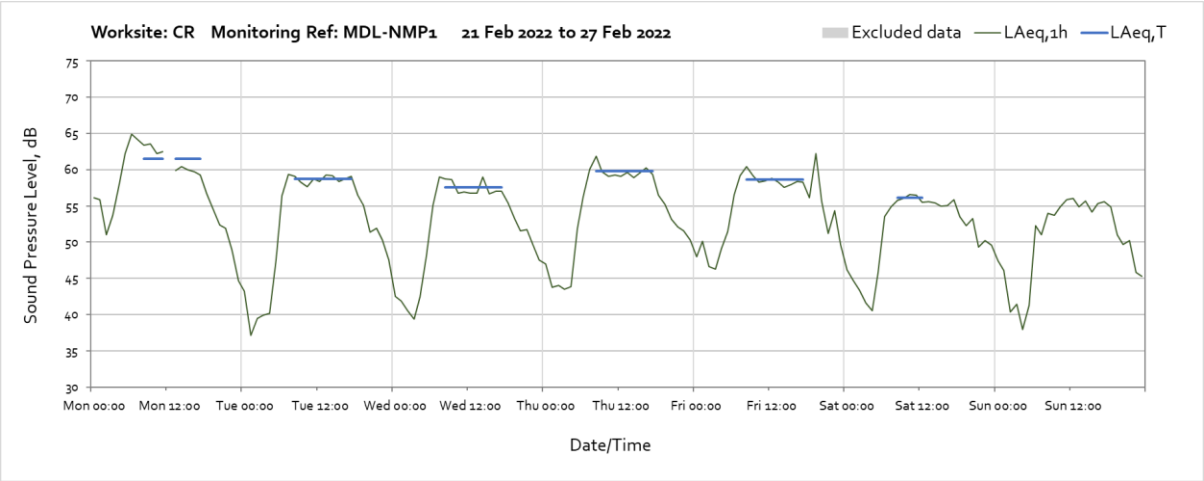


Worksite: CR – Monitoring Ref: MDL-NMP1

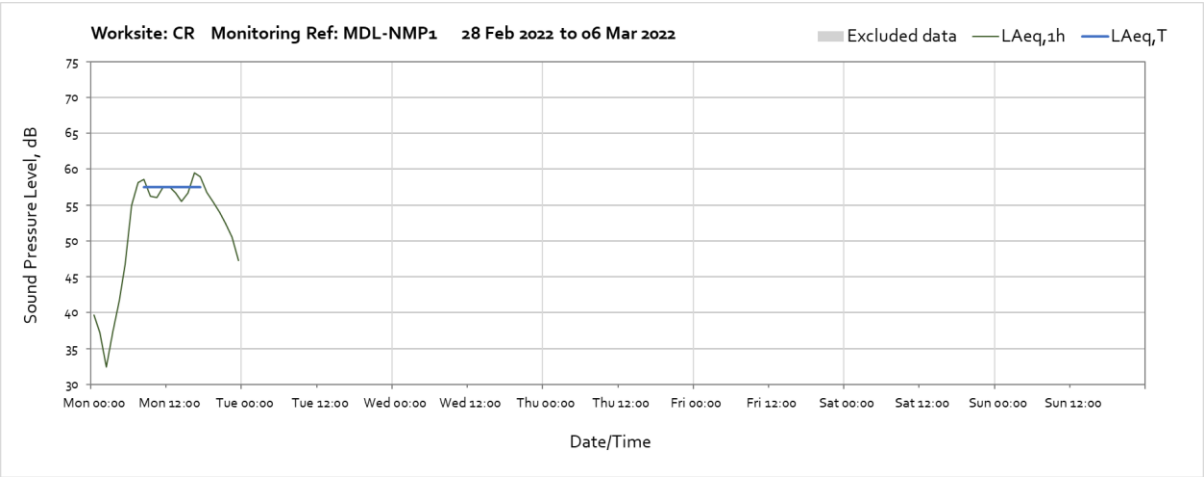




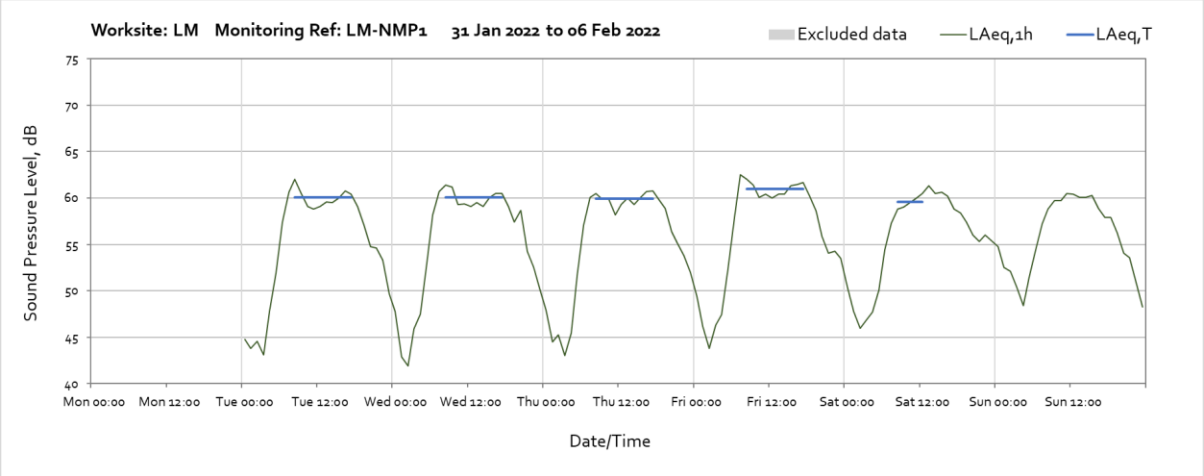


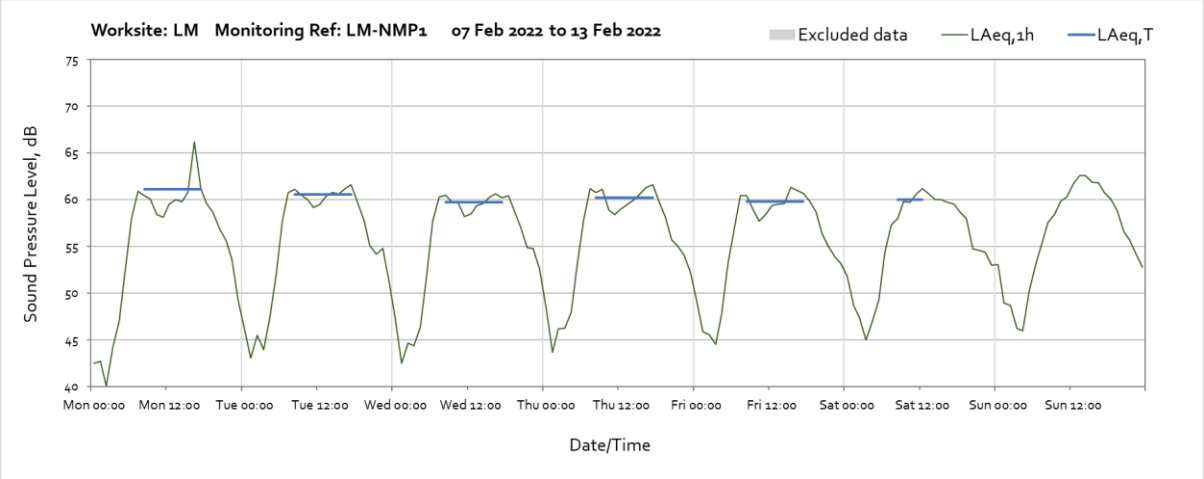


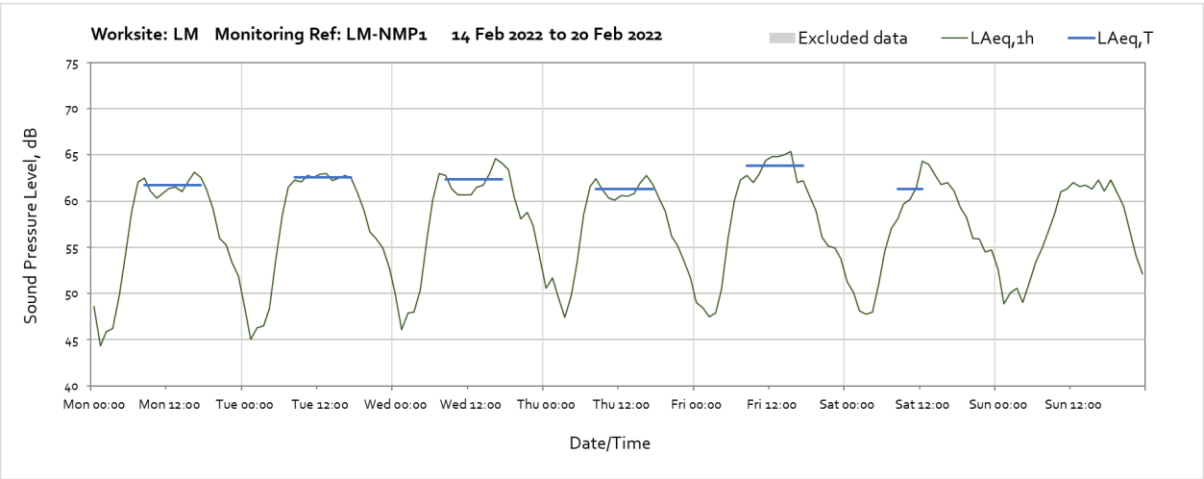
Note: Missing data from 12:00 to 13:00 on 21st February was due to monitor being paused for maintenance.

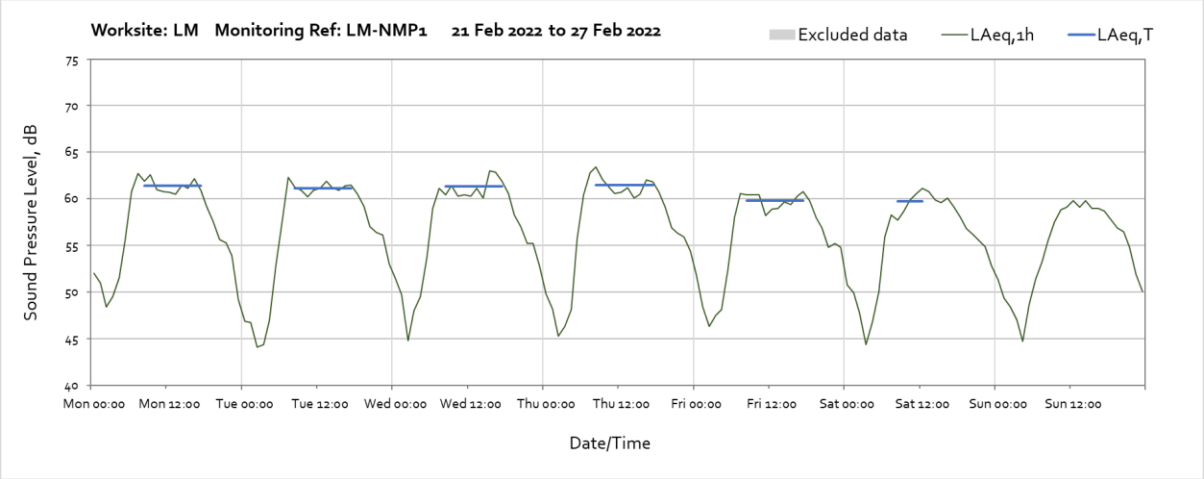


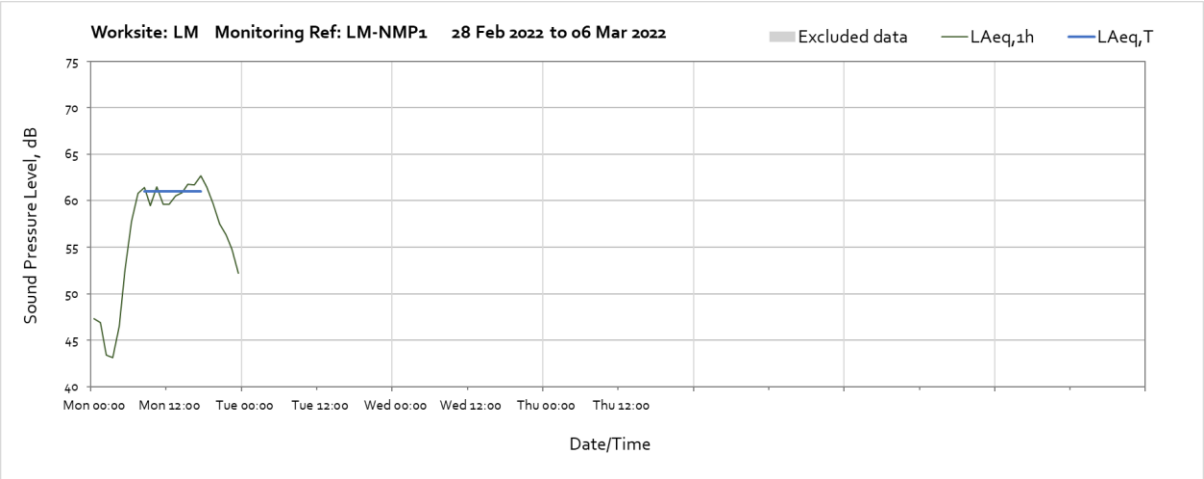
Worksite: LM – Monitoring Ref: LM-NMP1



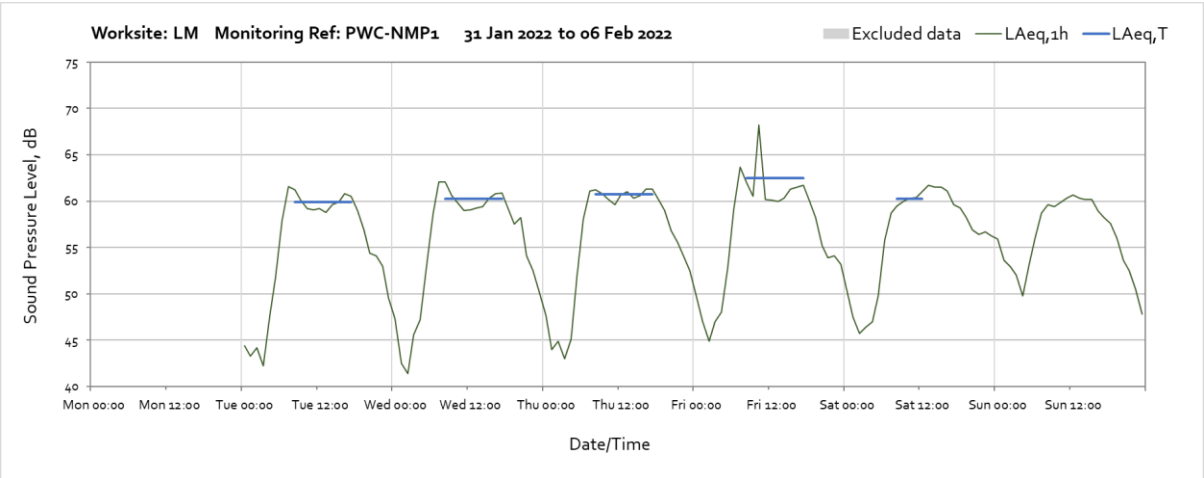


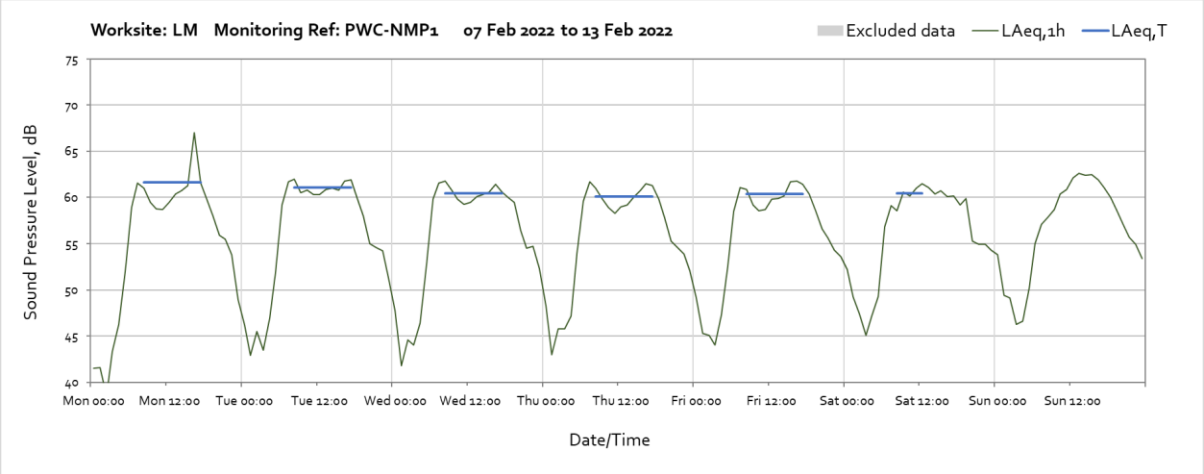






Worksite: LM – Monitoring Ref: PWC-NMP1




Worksite: LM Monitoring Ref: PWC-NMP1 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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Sat 12:00
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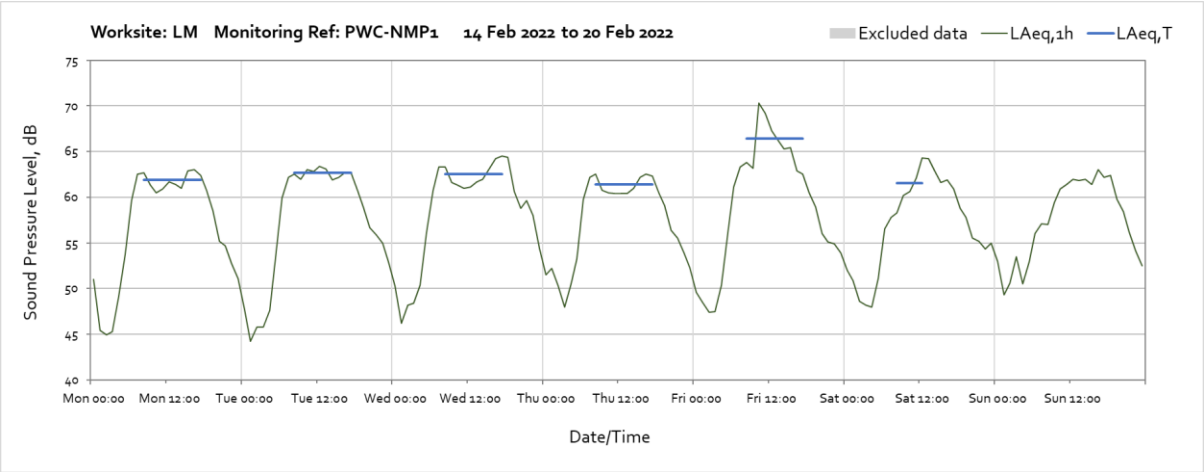
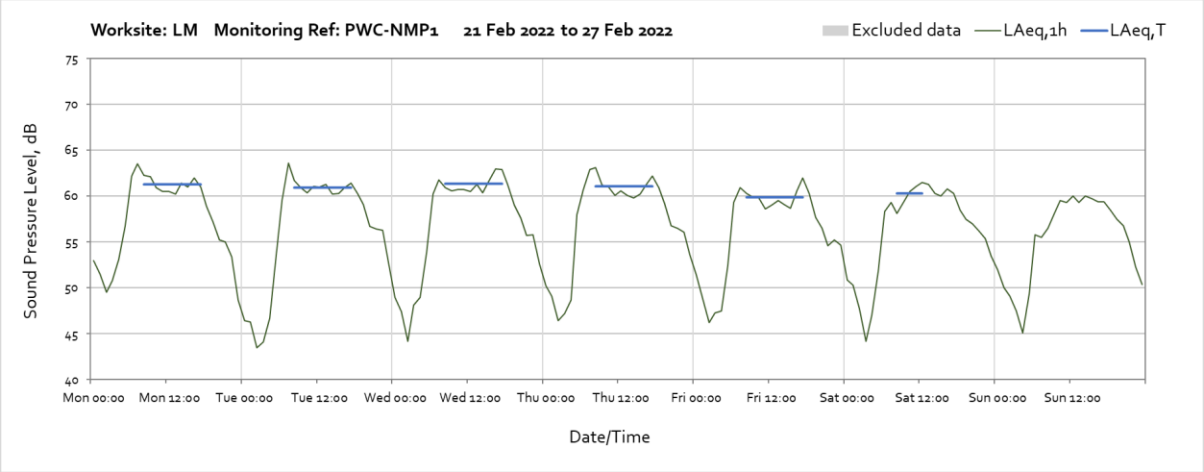
Sun 12:00
Date/Time


Worksite: LM Monitoring Ref: PWC-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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: LM Monitoring Ref: PWC-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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
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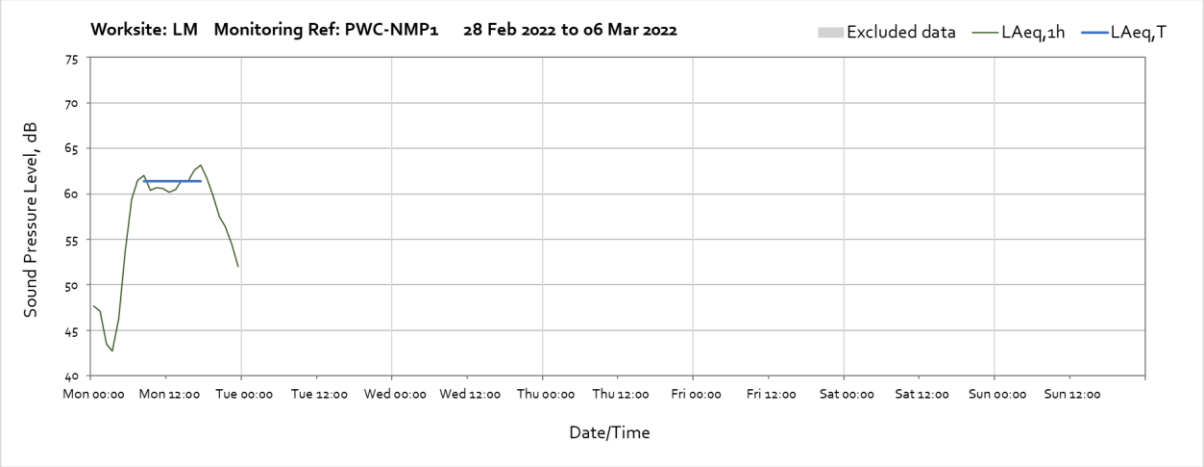
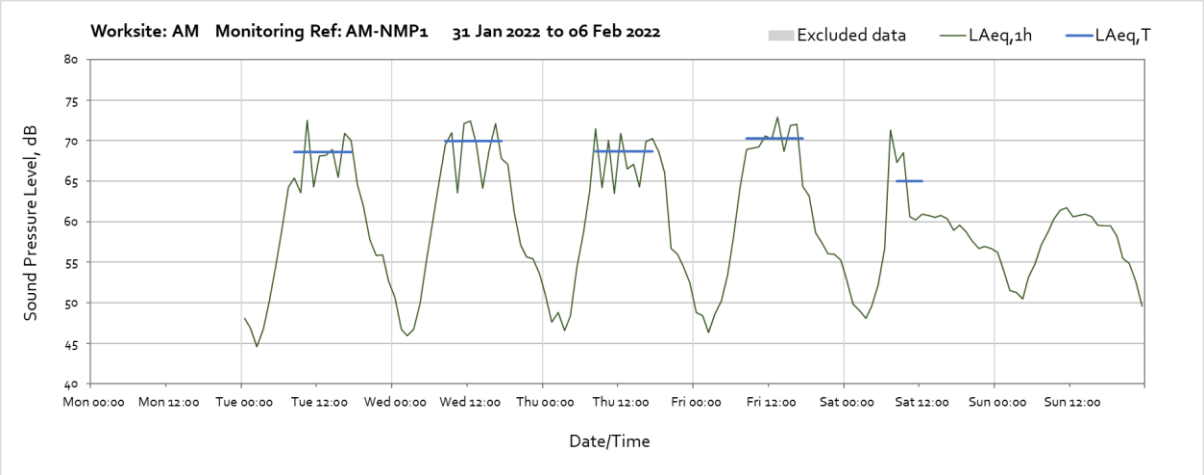
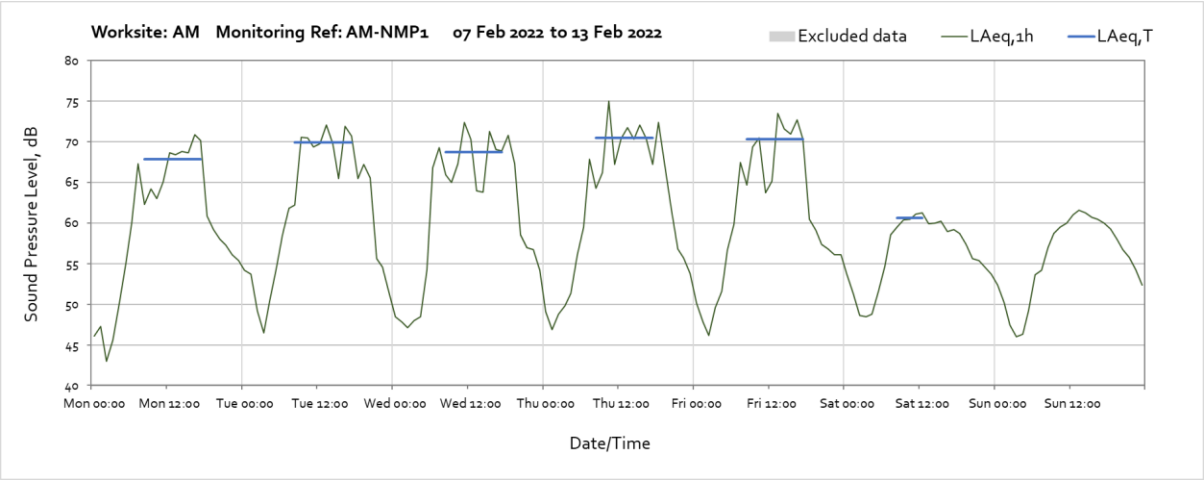
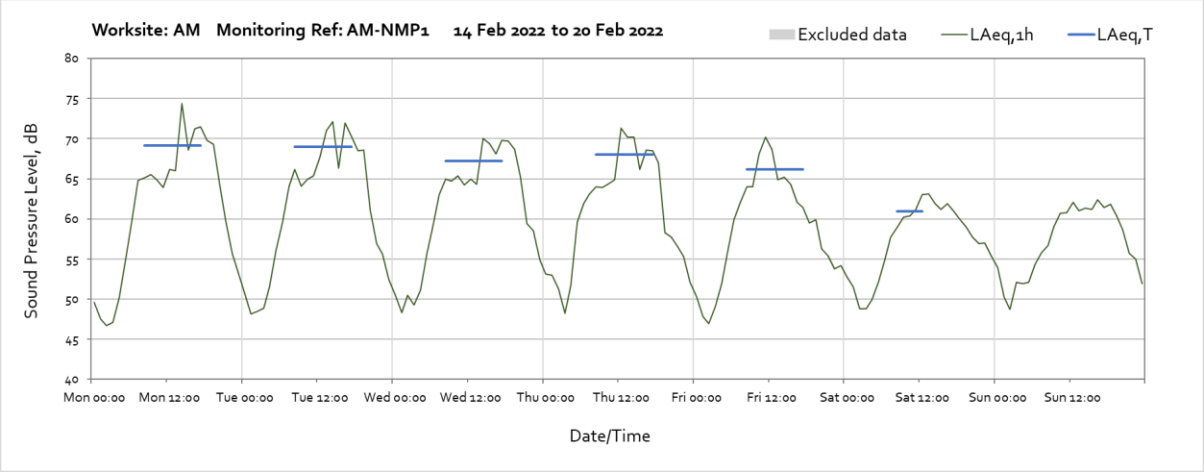
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

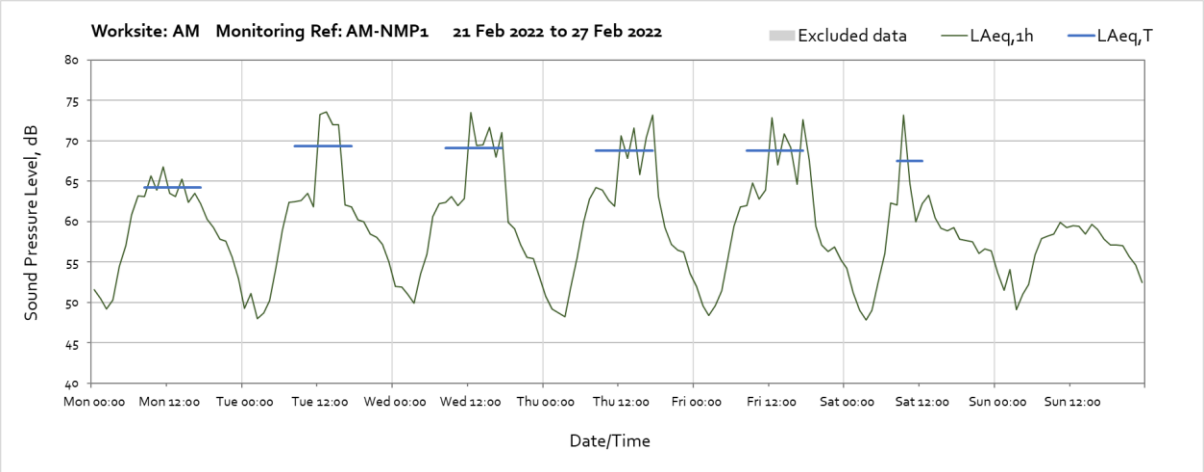


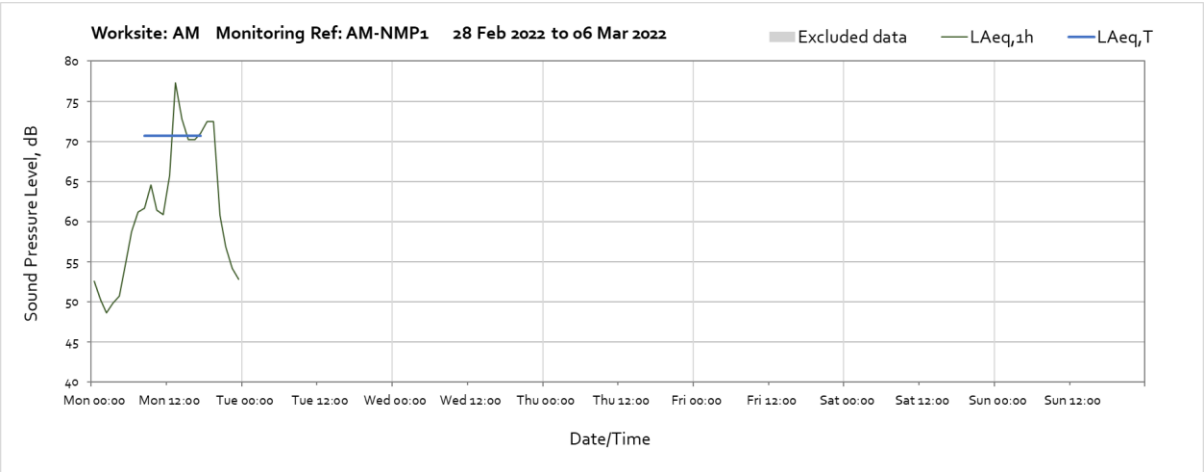
Worksite: AM – Monitoring Ref: AM-NMP1






Worksite: AM Monitoring Ref: AM-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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: AM Monitoring Ref: AM-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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: AM Monitoring Ref: AM-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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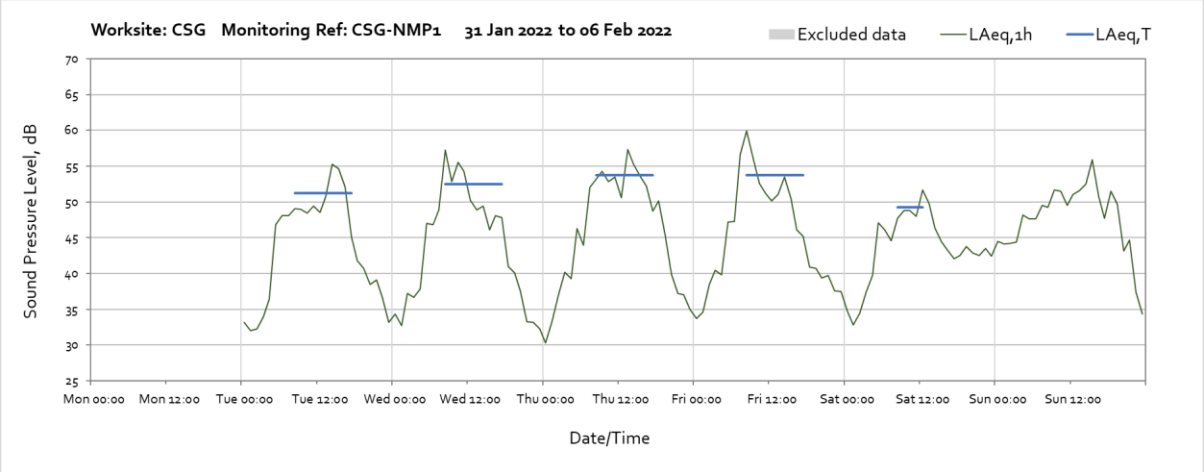
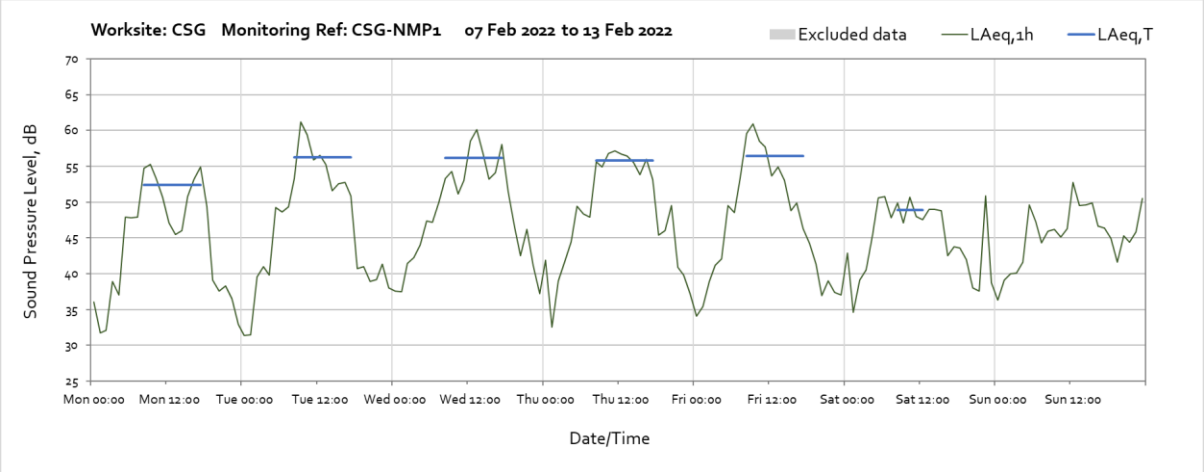
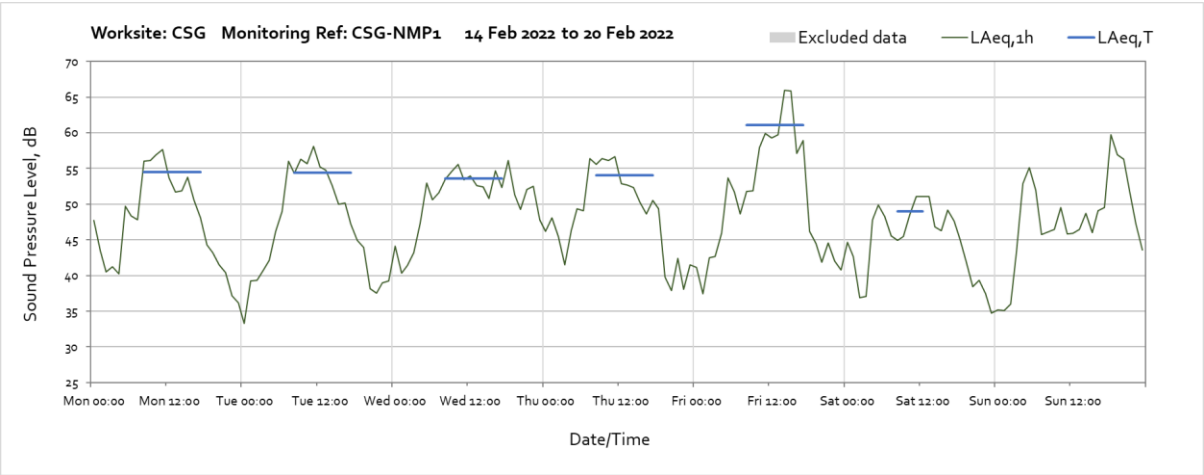
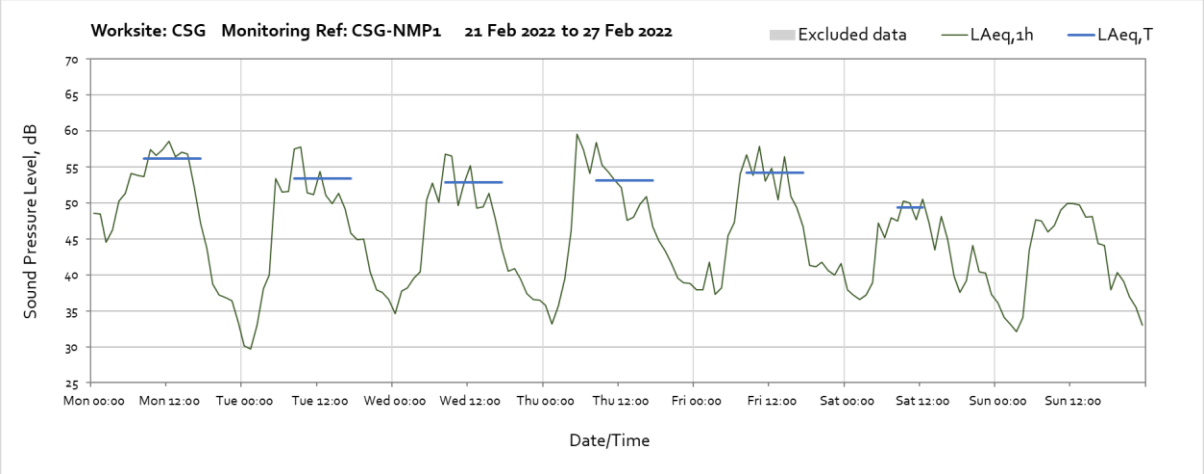
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

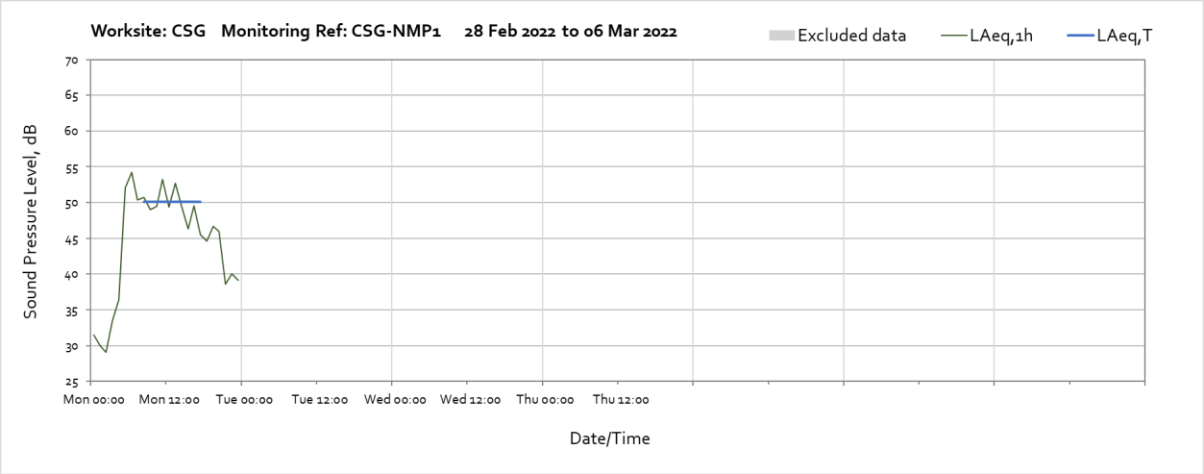
Worksite: CSG – Monitoring Ref: CSG-NMP1



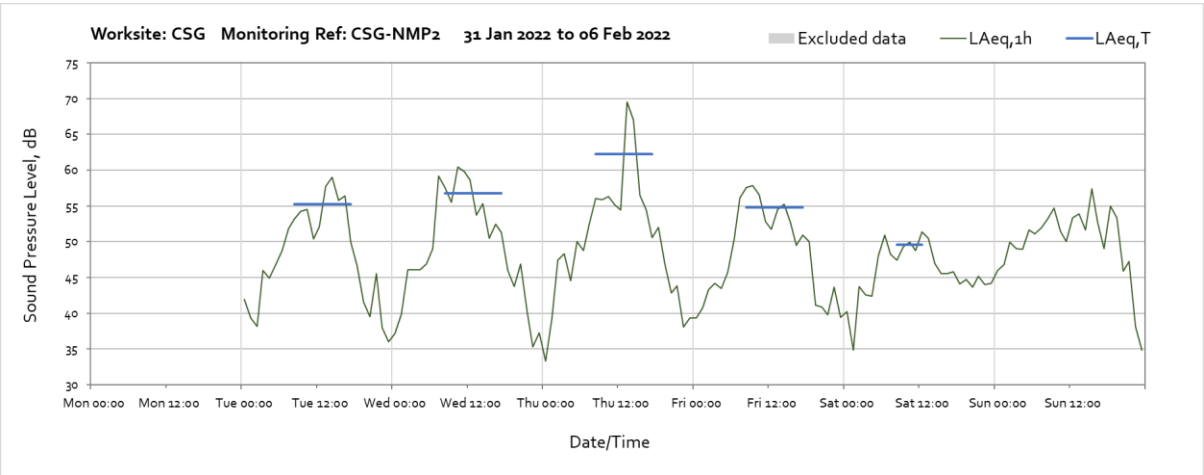


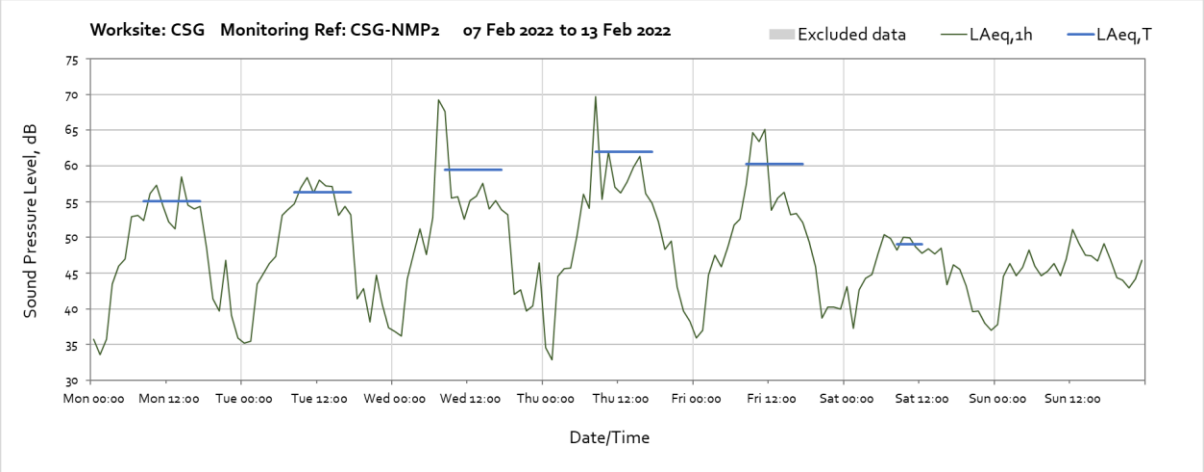


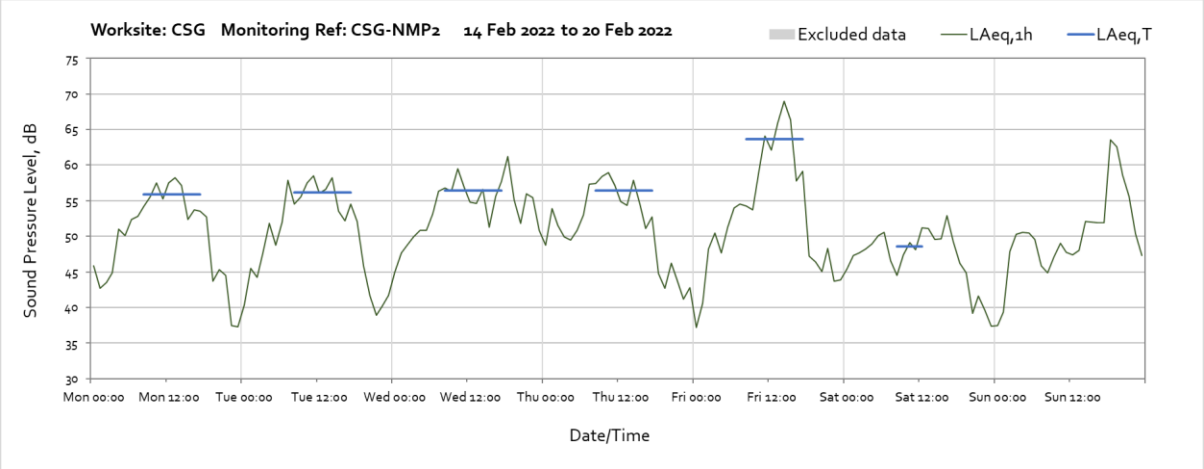




Worksite: CSG – Monitoring Ref: CSG-NMP2




Worksite: CSG Monitoring Ref: CSG-NMP2 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
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: CSG Monitoring Ref: CSG-NMP2 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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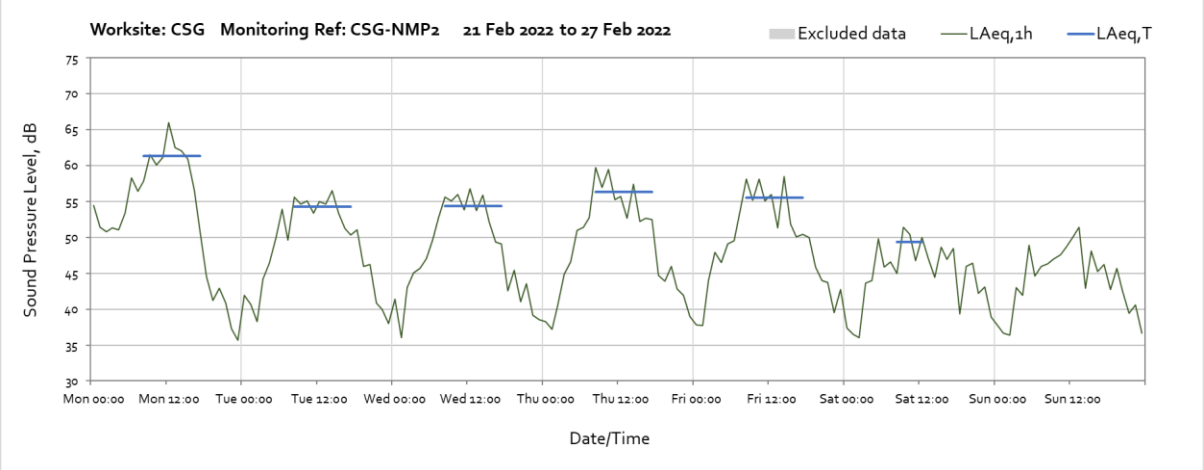
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CSG Monitoring Ref: CSG-NMP2 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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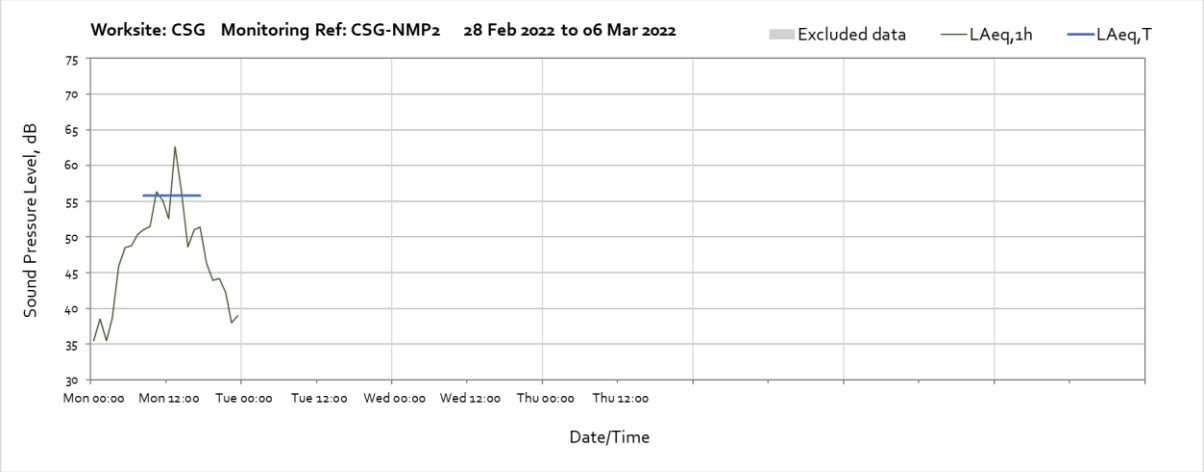
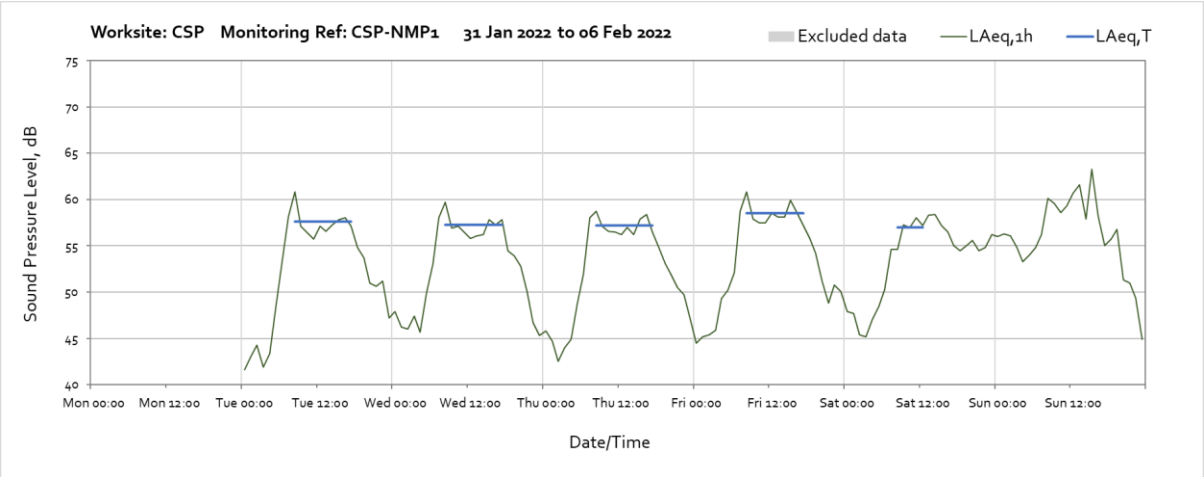
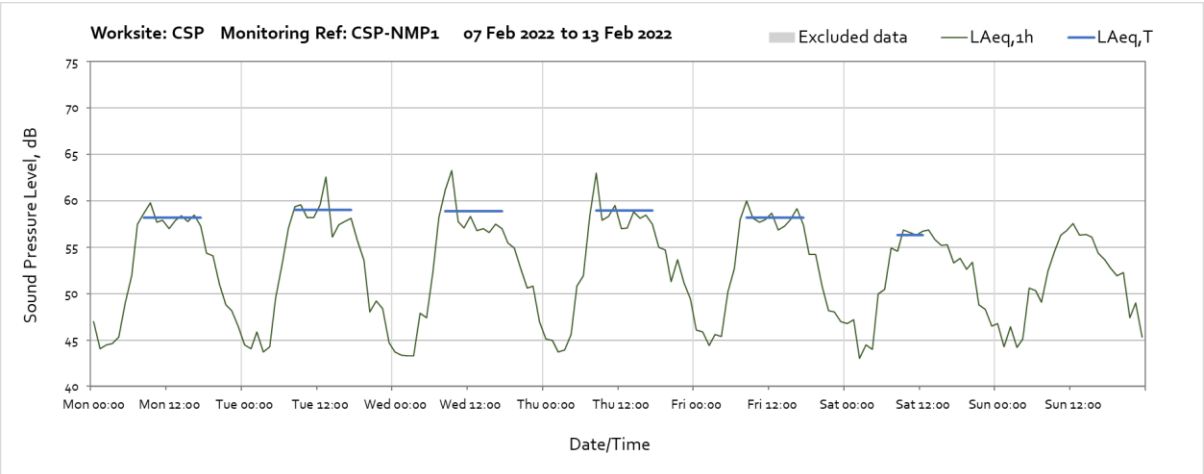
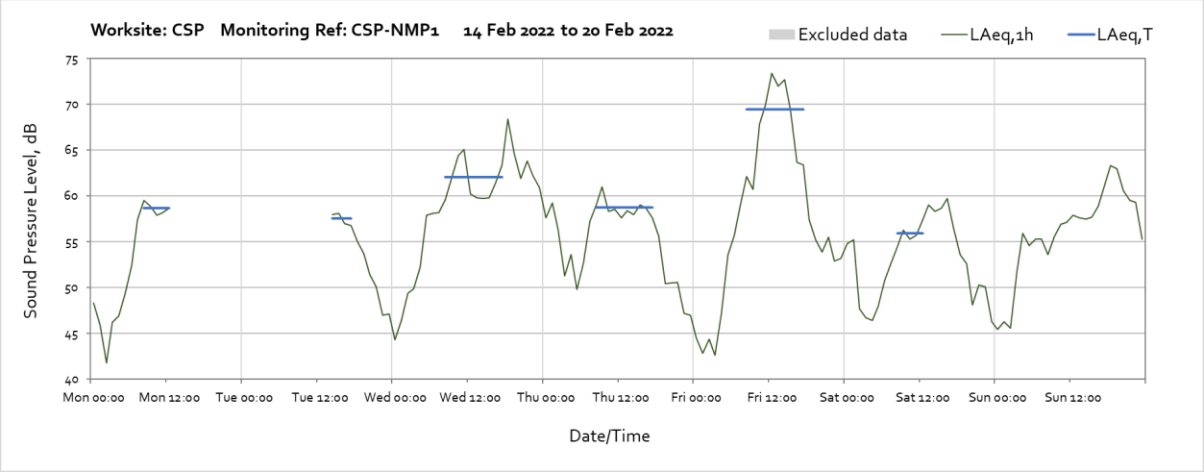
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



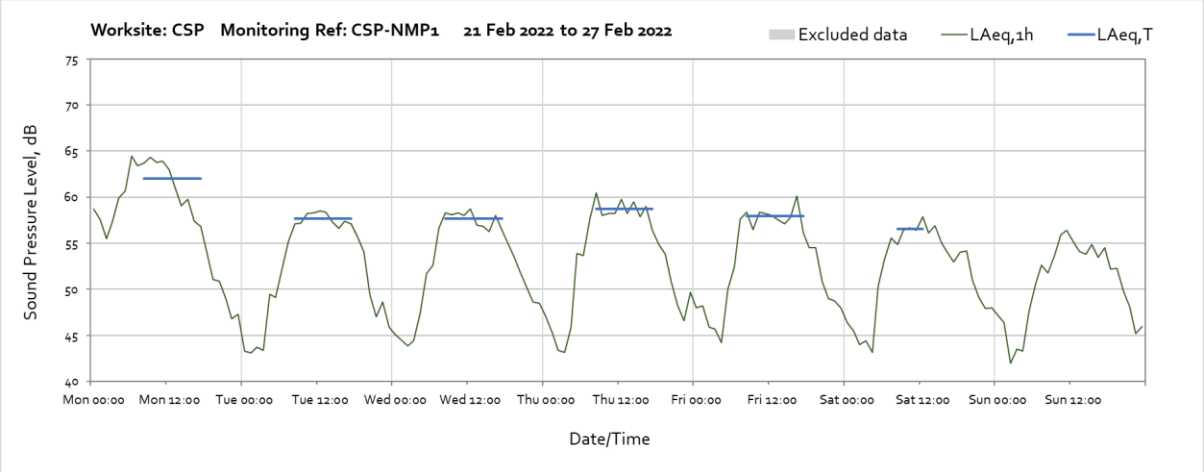
Worksite: CSP – Monitoring Ref: CSP-NMP1

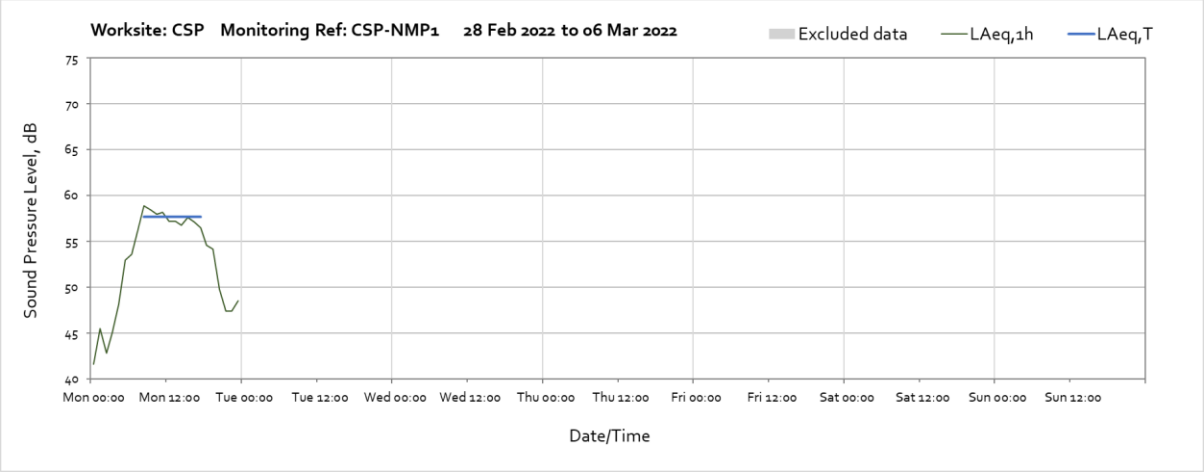




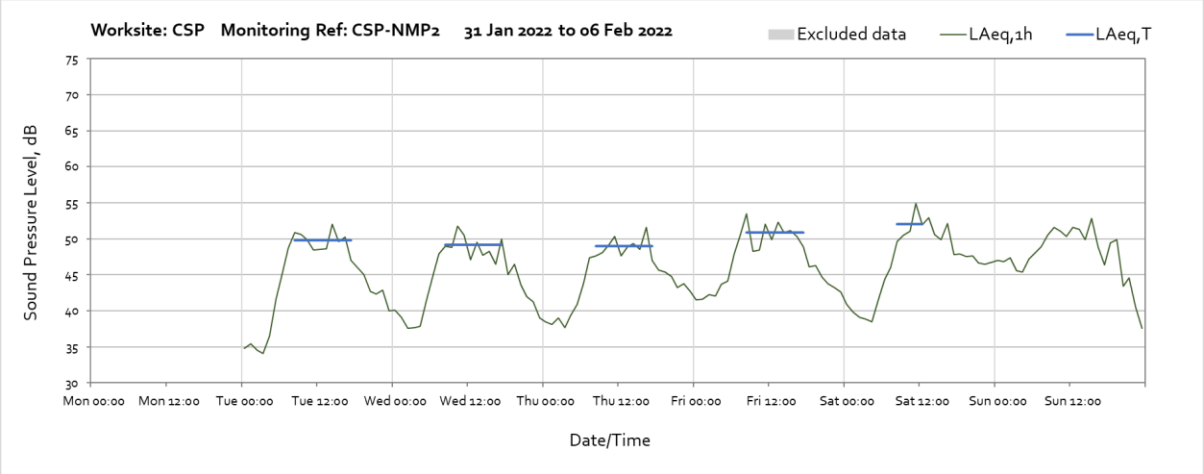


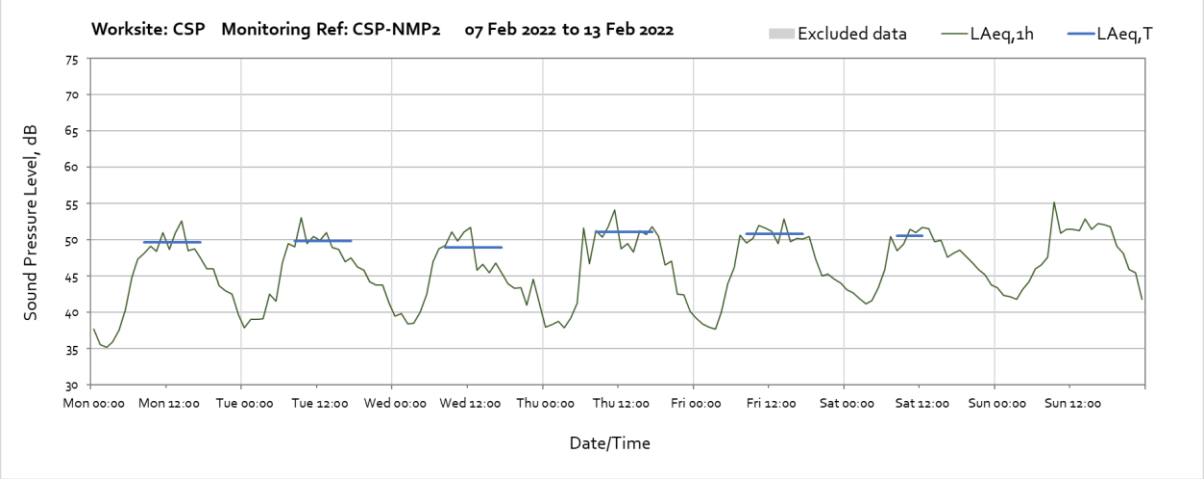
Note: Missing data between 13:00 on 14th February and 14:00 on 15th February was due to disconnection of main power.

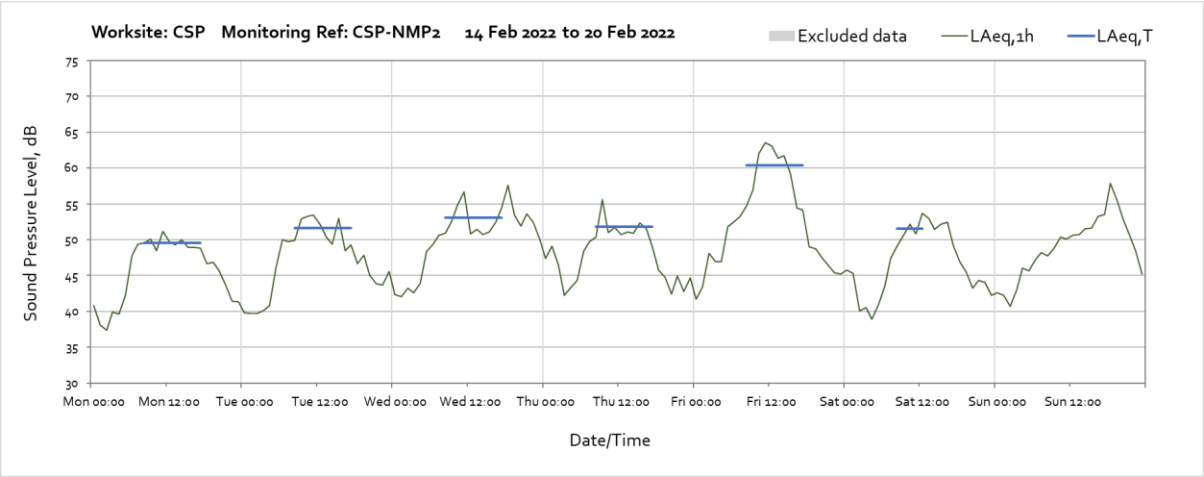


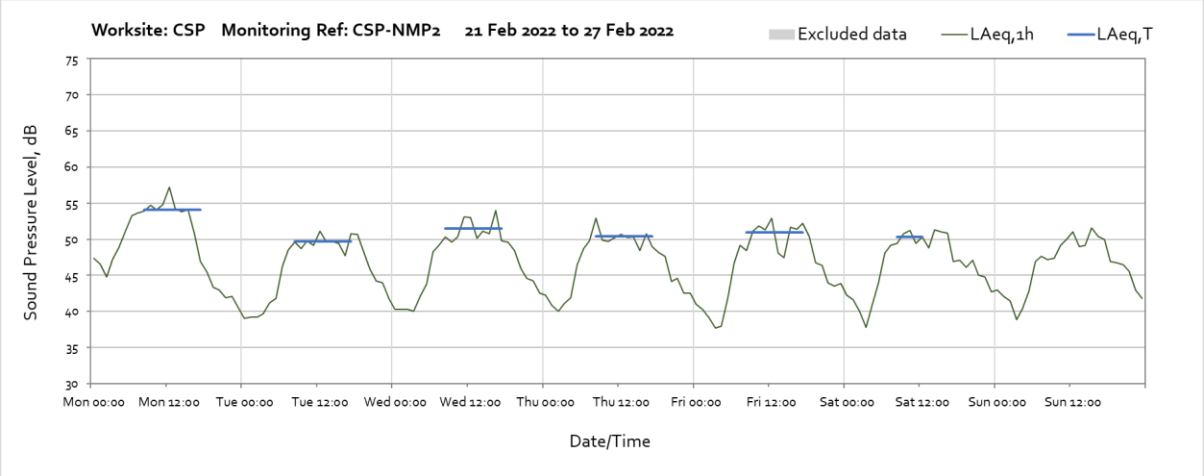


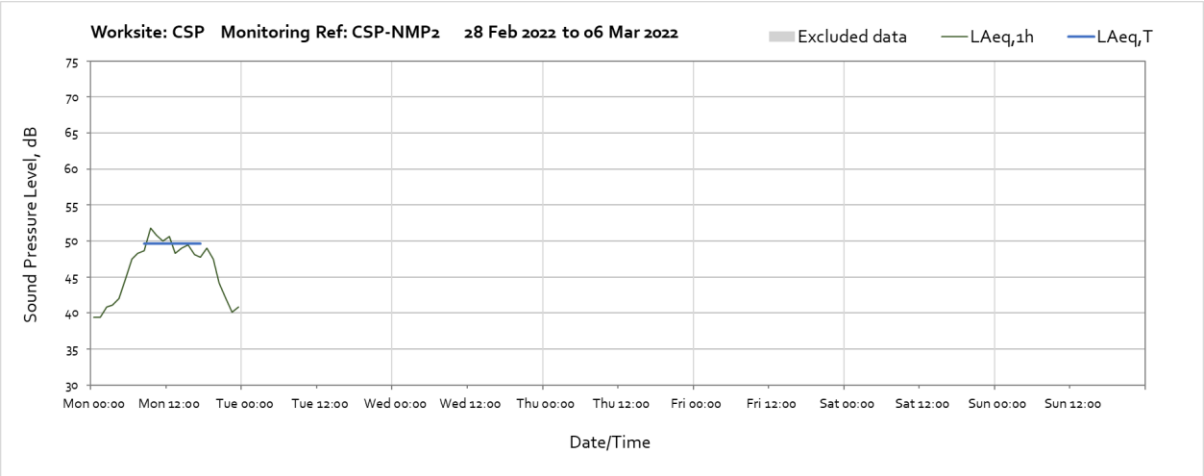
Worksite: CSP – Monitoring Ref: CSP-NMP2



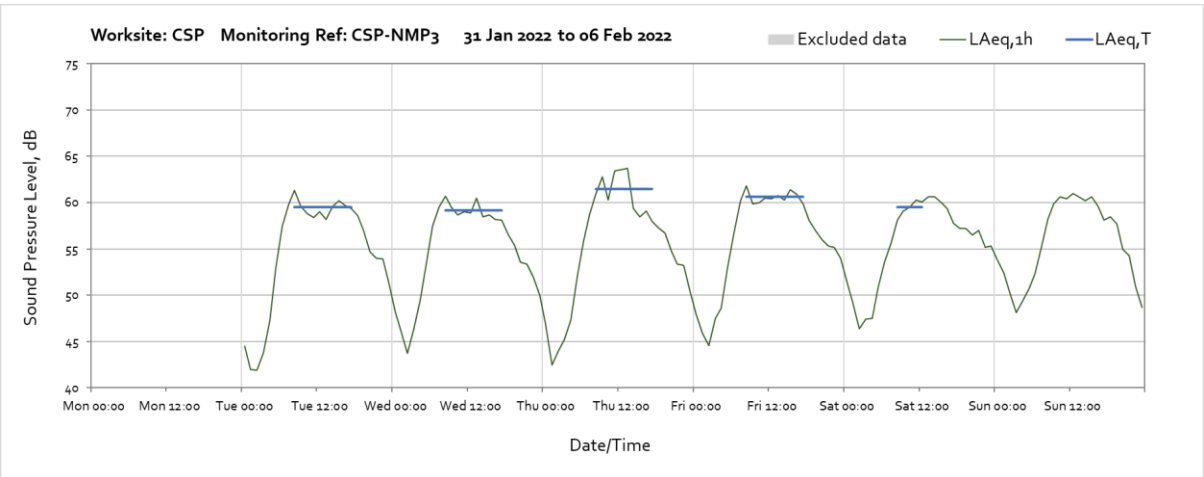


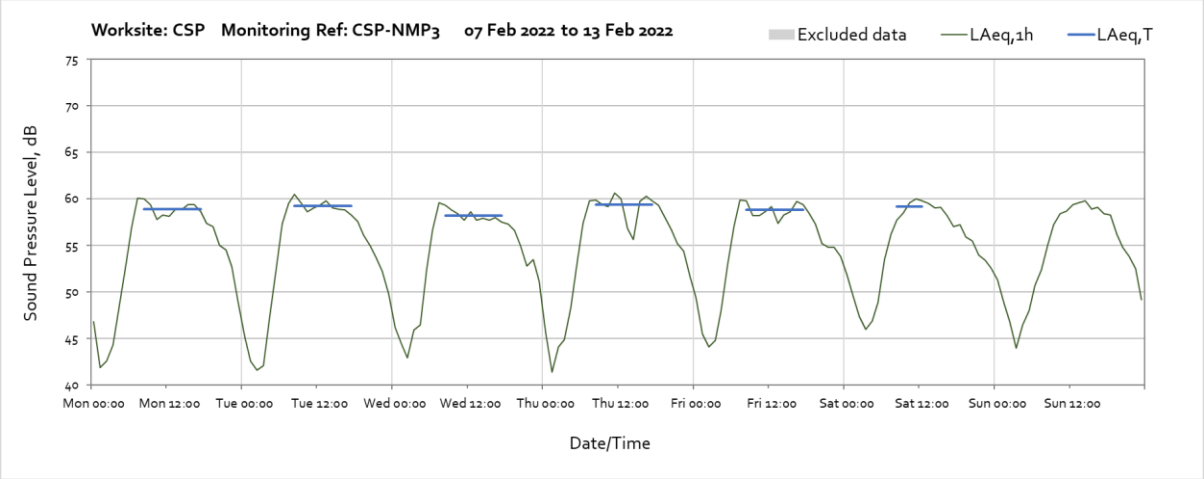


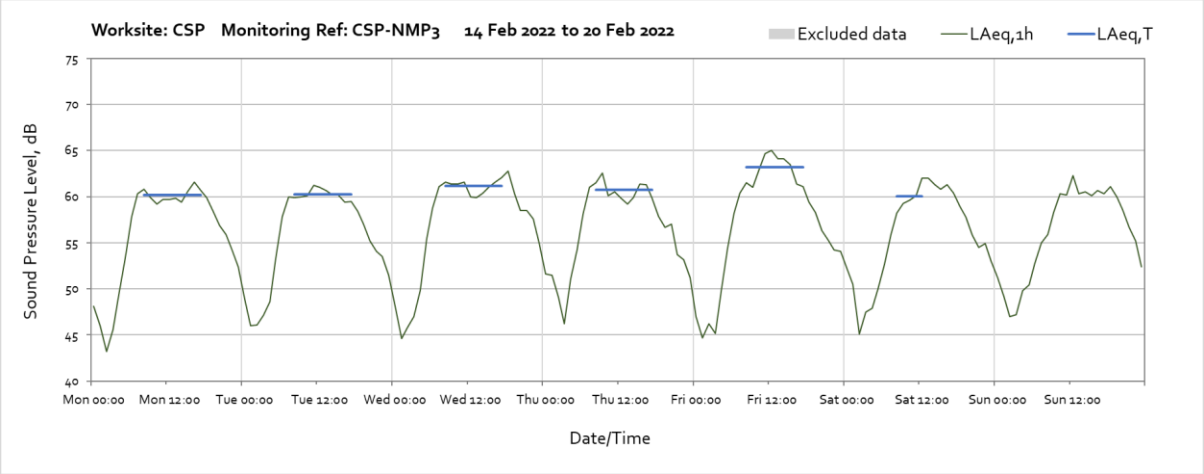




Worksite: CSP – Monitoring Ref: CSP-NMP3




Worksite: CSP Monitoring Ref: CSP-NMP3 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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: CSP Monitoring Ref: CSP-NMP3 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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
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Thu 12:00
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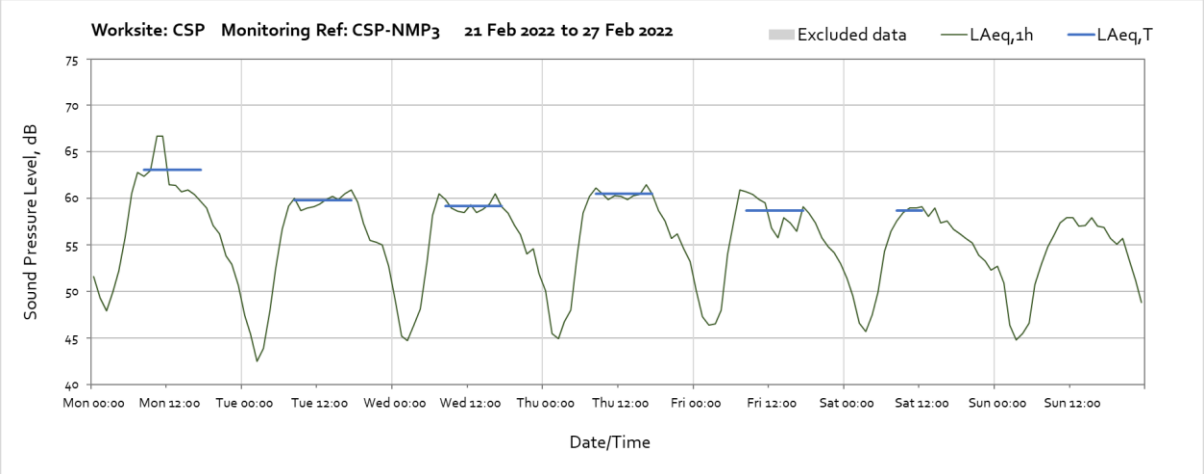
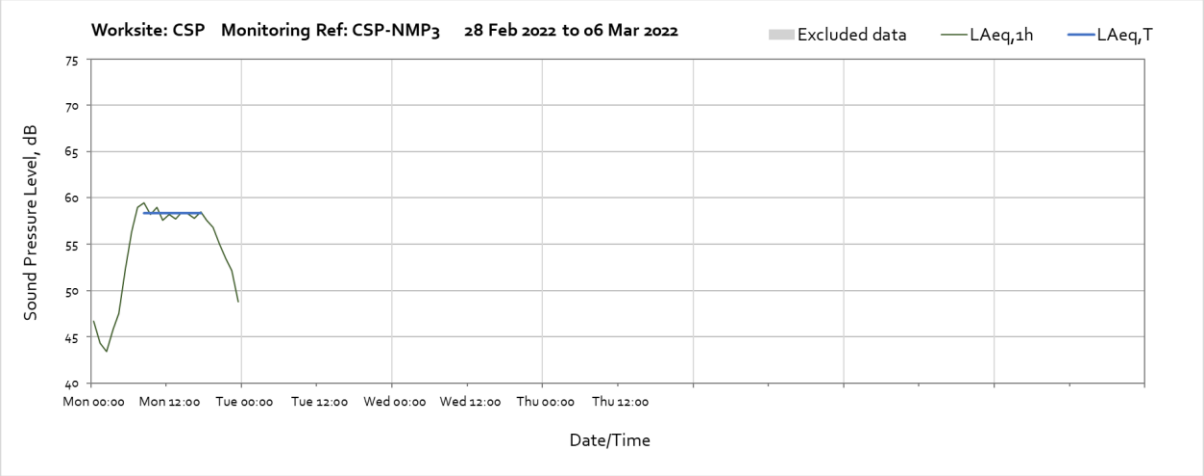
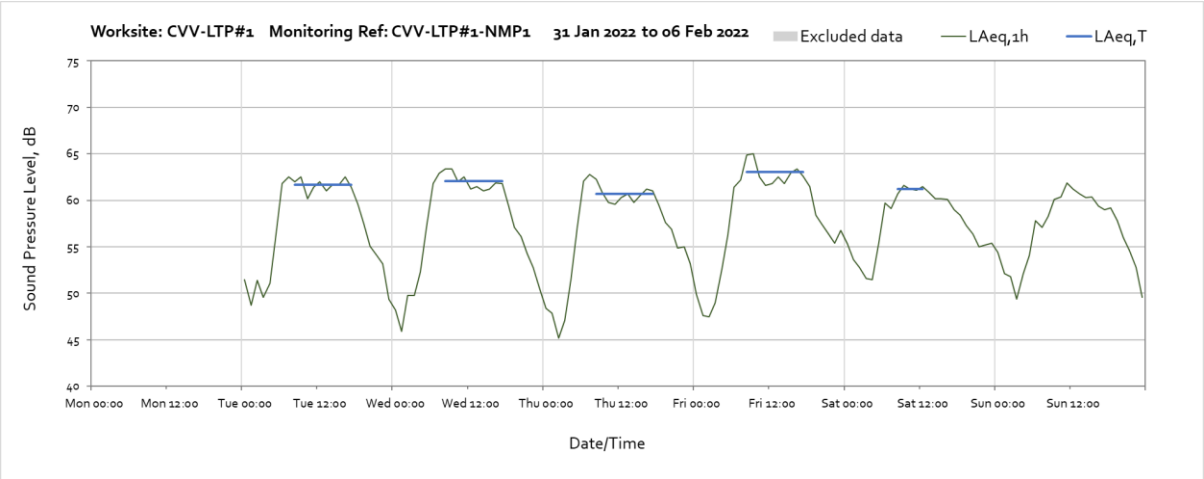
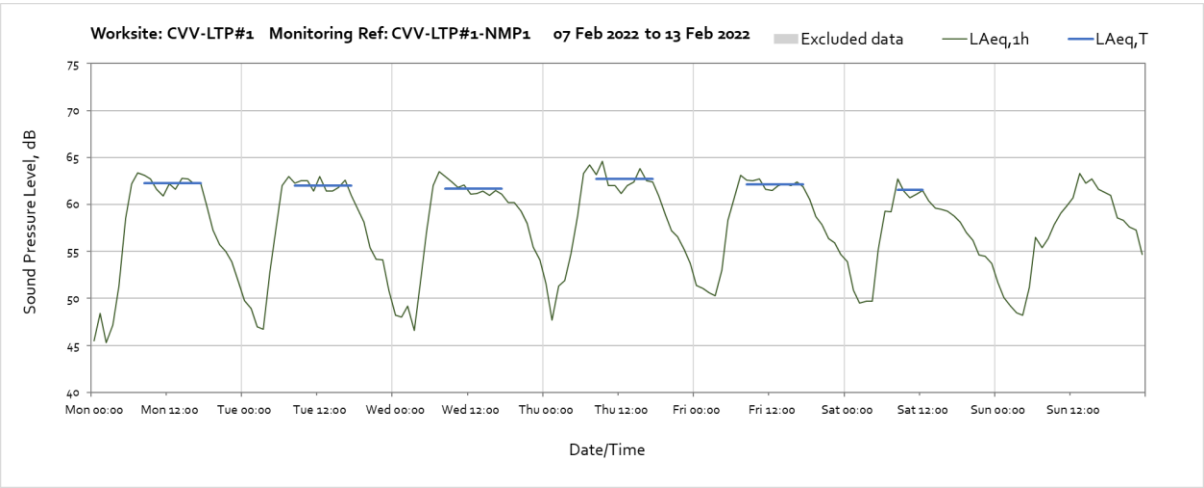
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

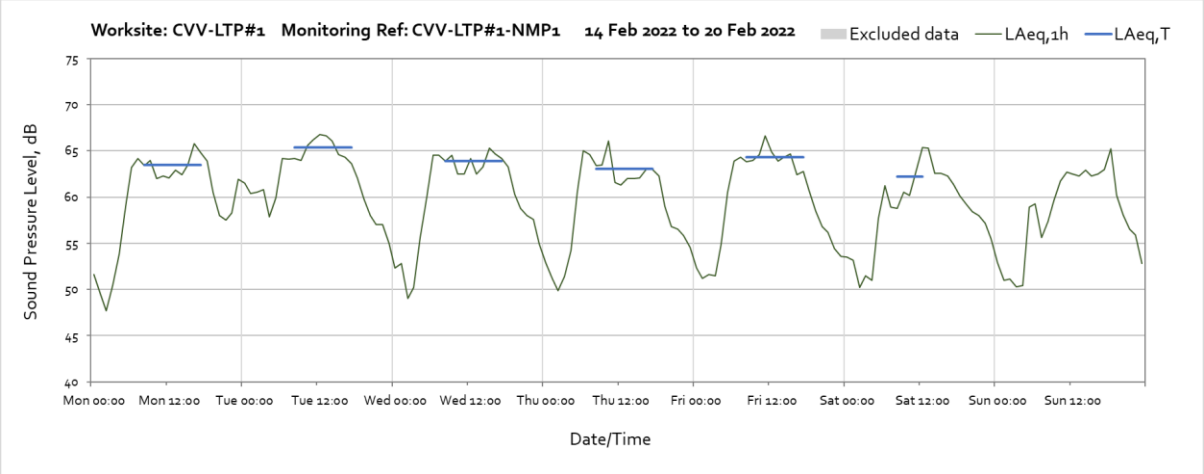

Worksite: CSP Monitoring Ref: CSP-NMP3 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



Worksite: CVV-LPT#1 – Monitoring Ref: CVV-LPT#1-NMP1






Worksite: CVV-LTP#1 Monitoring Ref: CVV-LTP#1-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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
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Thu 12:00
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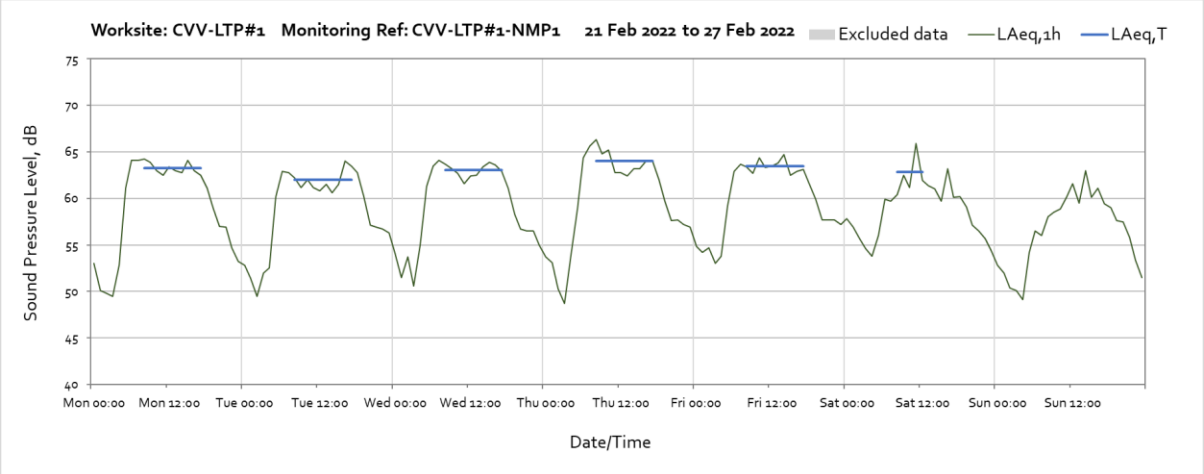
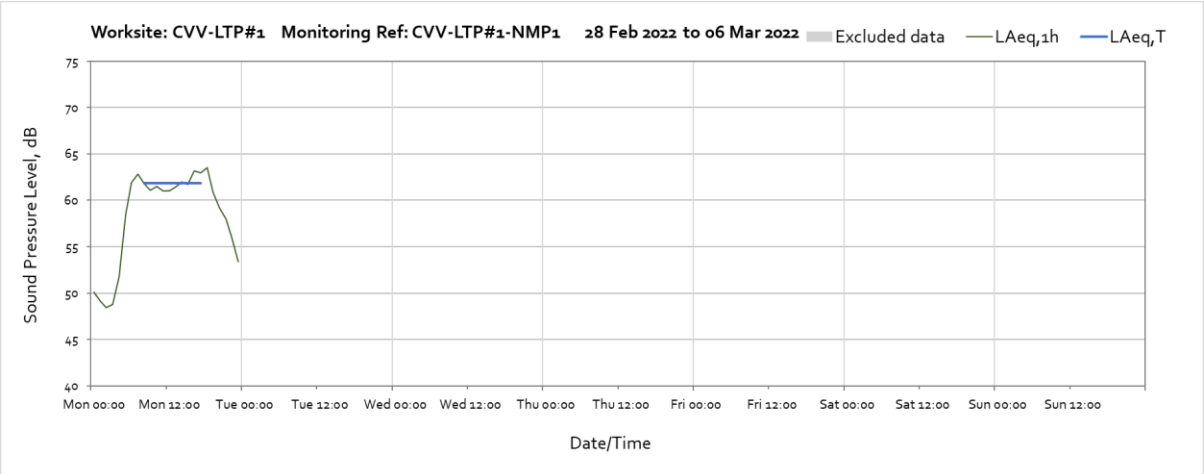
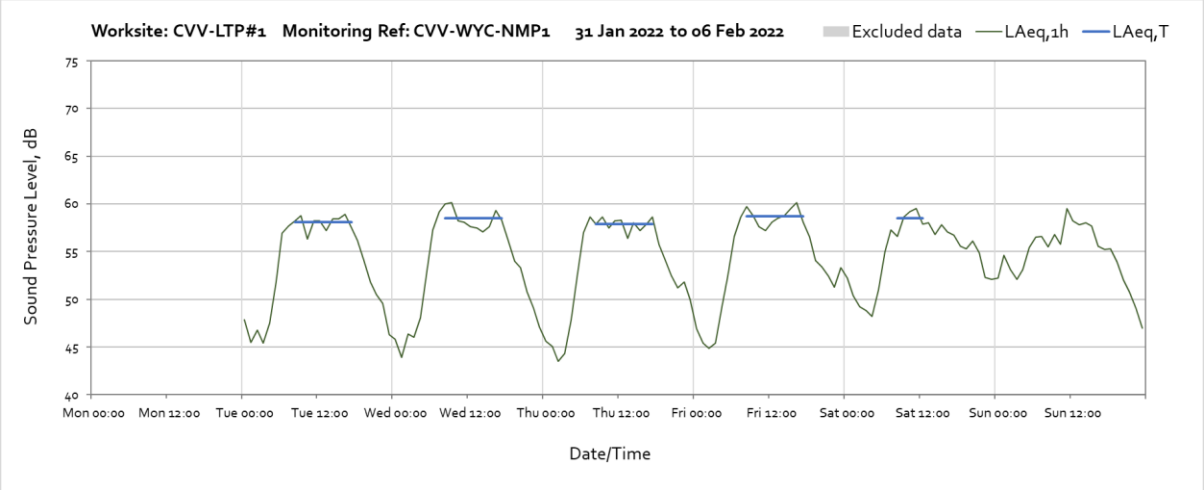
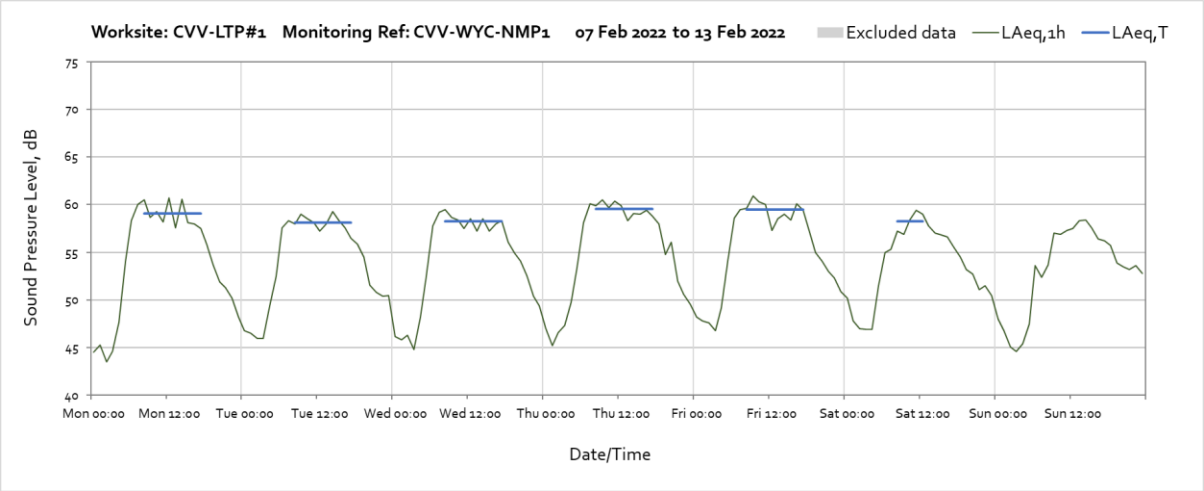
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

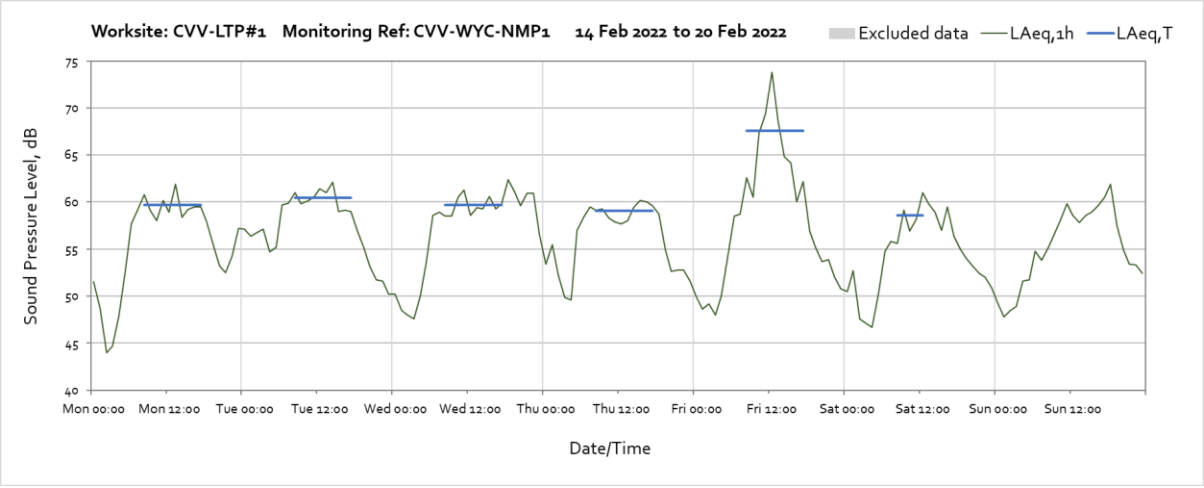

Worksite: CVV-LTP#1 Monitoring Ref: CVV-LTP#1-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

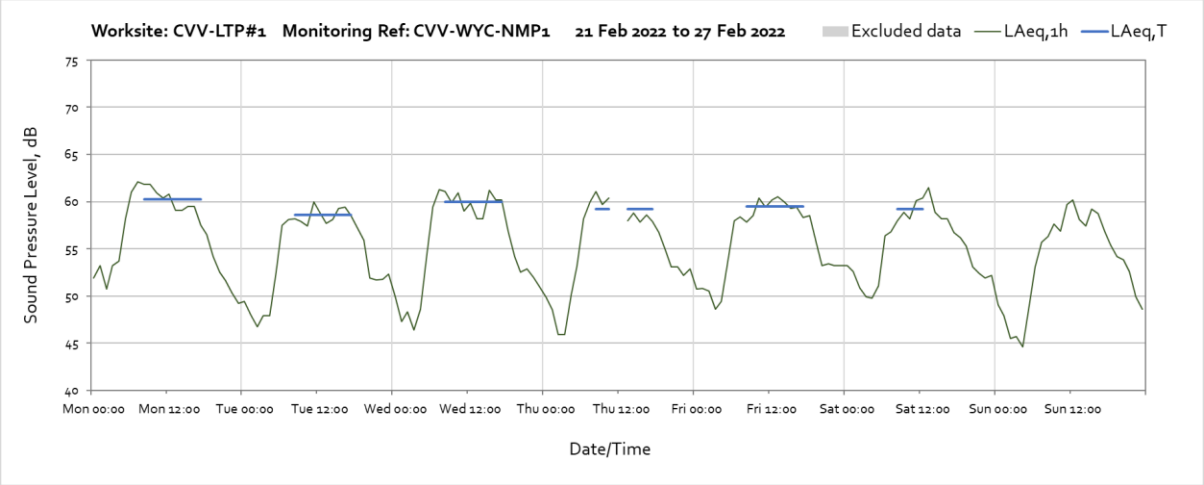

Worksite: CVV-LTP#1 Monitoring Ref: CVV-LTP#1-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Worksite: CVV-LPT#1 – Monitoring Ref: CVV-WYC-NMP1

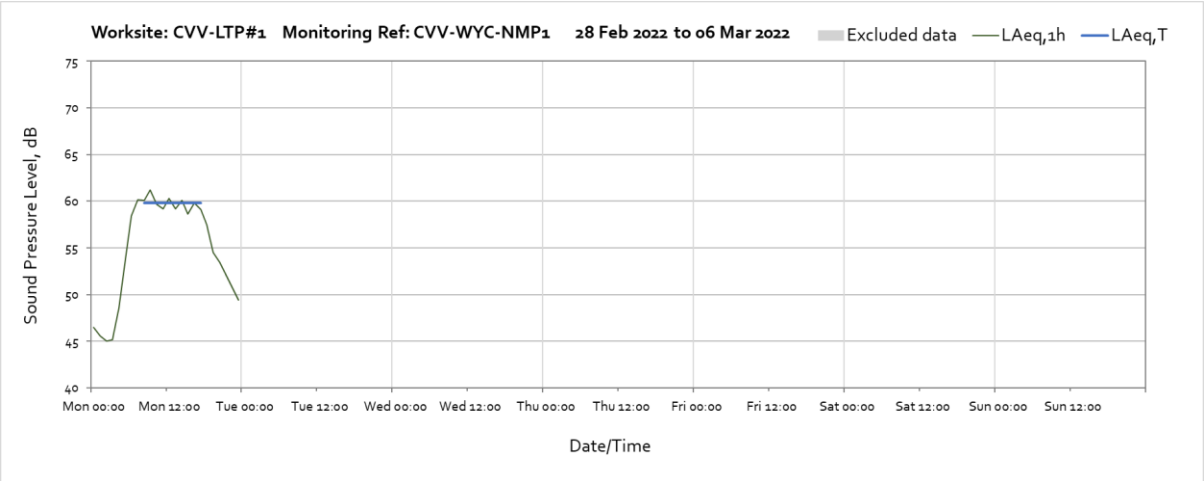




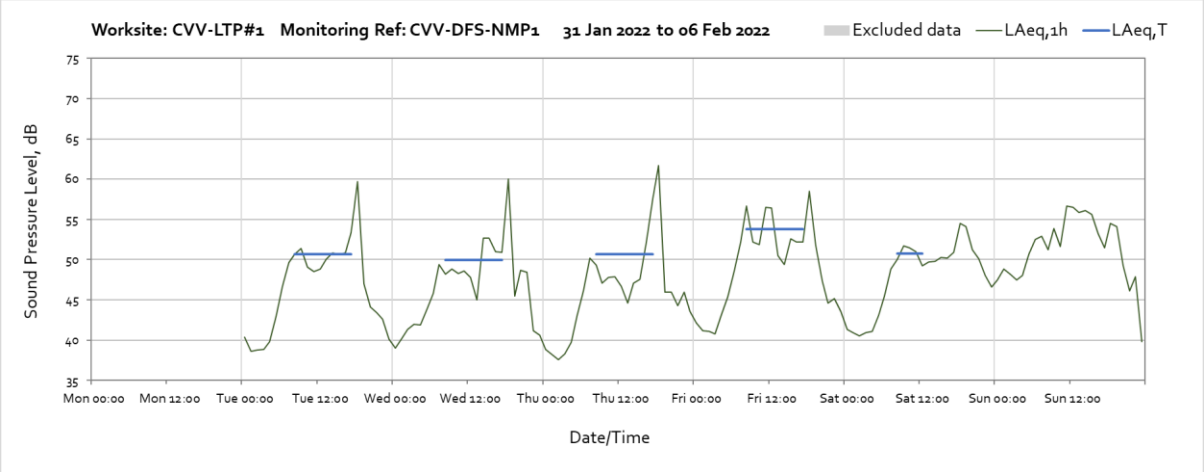


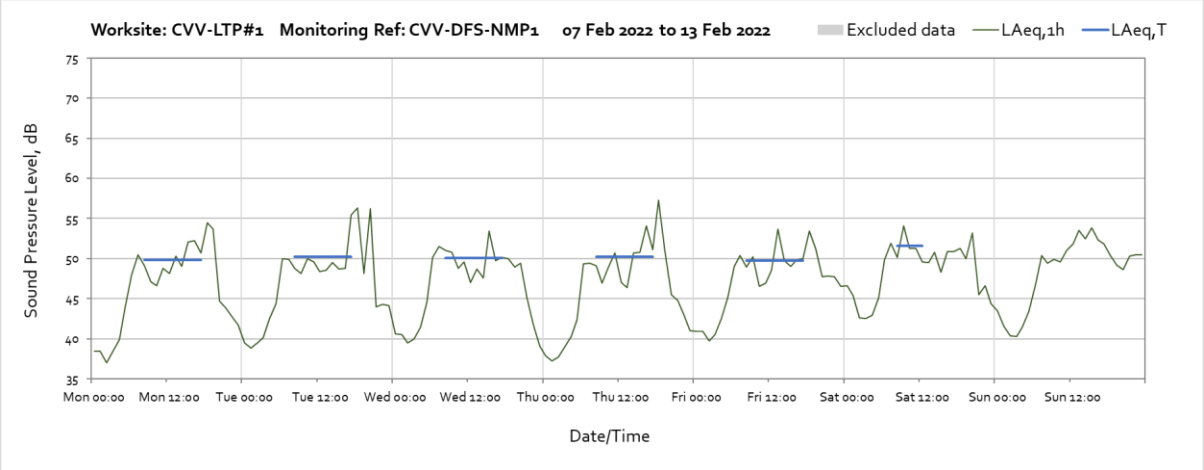


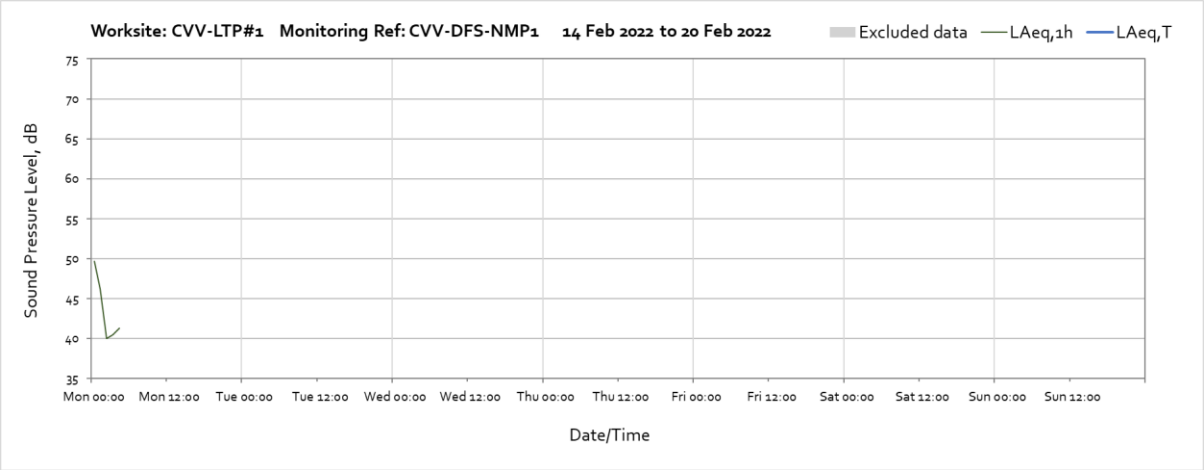
Note: Data excluded between 11:00 and 13:00 on the 24th February due to monitor maintenance.



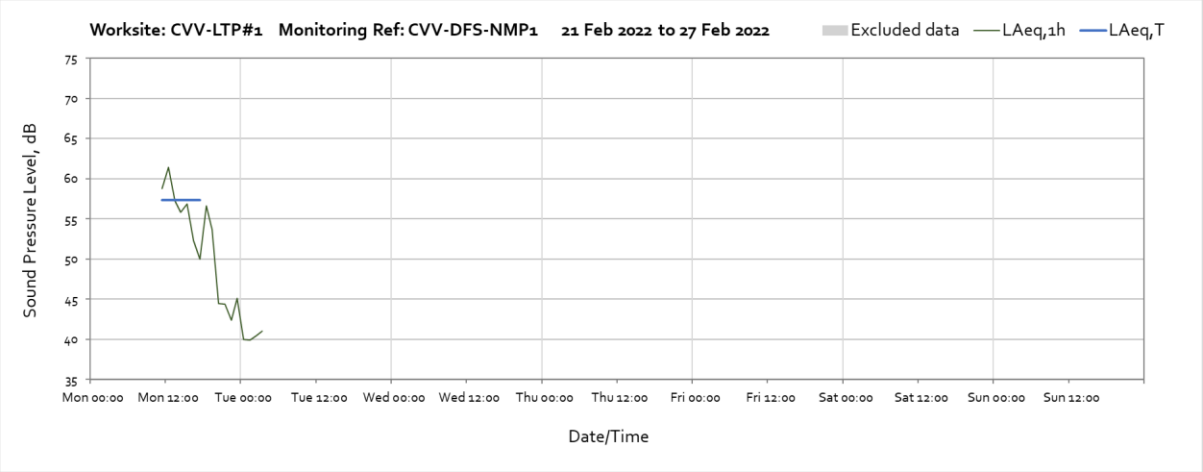
Worksite: CVV-LTP#1 – Monitoring Ref: CVV-DFS-NMP1





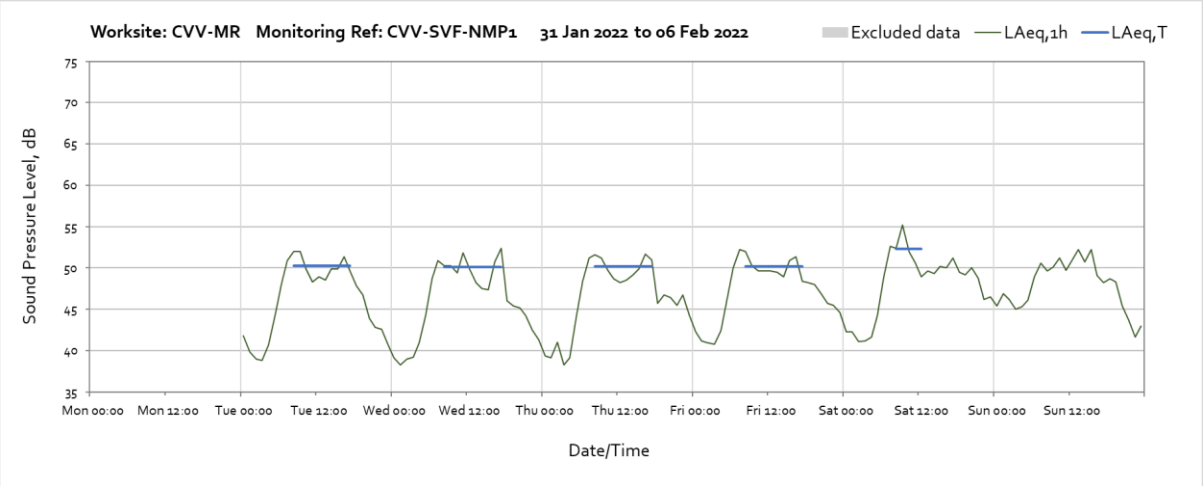


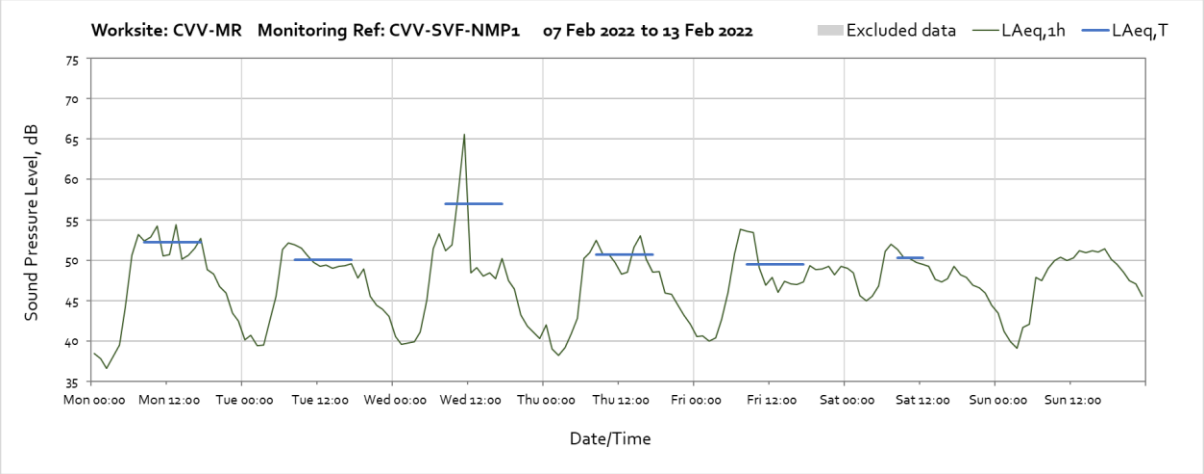
Note: Missing data throughout the week was due to loss of power to the equipment.



Note: Missing data between 00:00 and 11:00 on 21st of February was due to loss of power to the equipment. Missing data from 04:00 on the 22nd of February till the end of the month was due to remote connection issues.

Worksite: CVV-MR – Monitoring Ref: CVV-SVF-NMP1




Worksite: CVV-MR Monitoring Ref: CVV-SVF-NMP1 07 Feb 2022 to 13 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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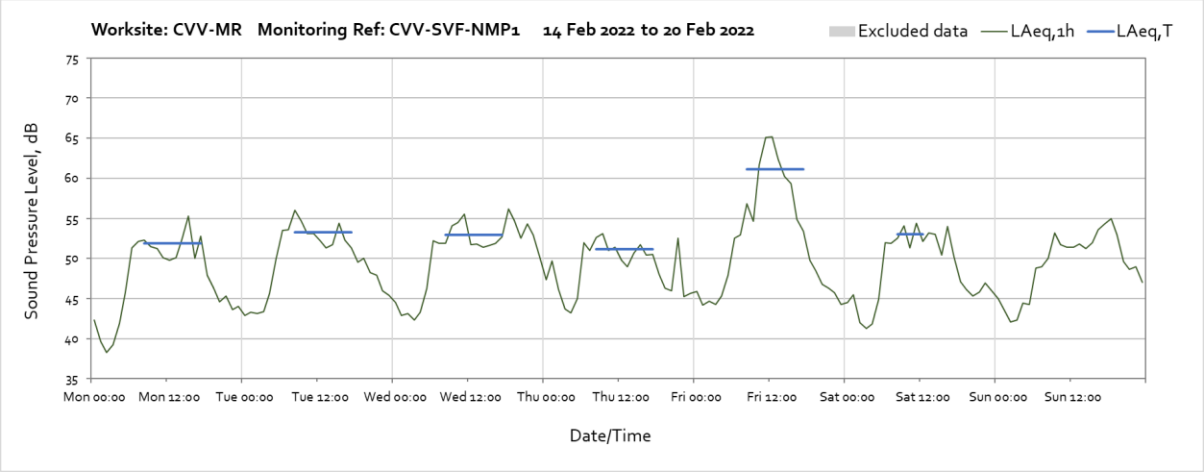
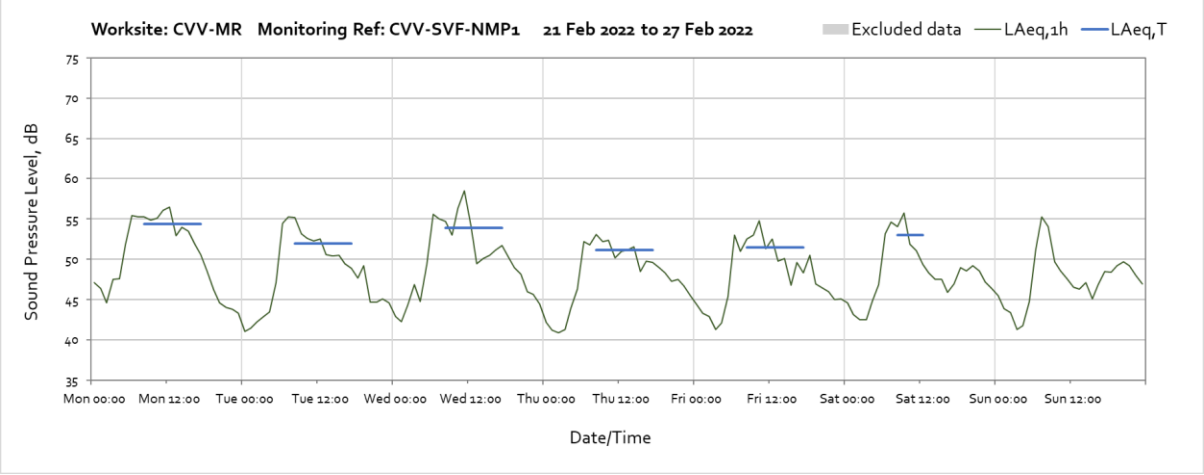
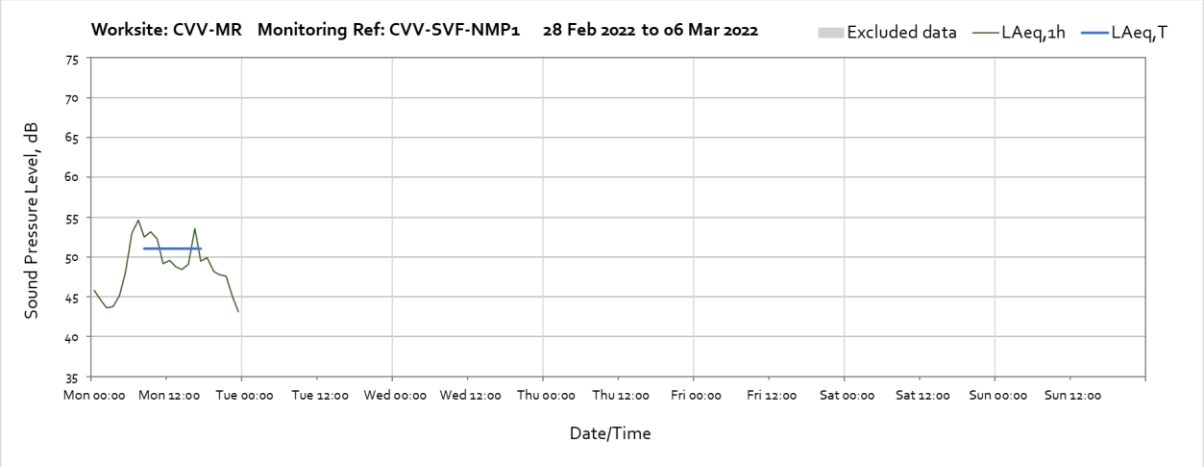
Sun 00:00
Sun 12:00
Date/Time


Worksite: CVV-MR Monitoring Ref: CVV-SVF-NMP1 14 Feb 2022 to 20 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
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

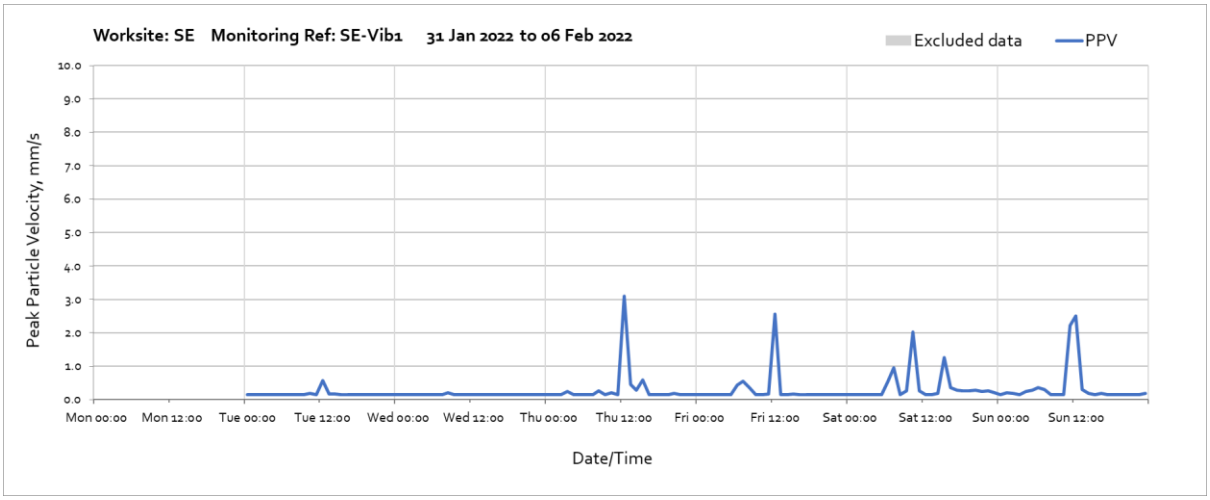

Worksite: CVV-MR Monitoring Ref: CVV-SVF-NMP1 21 Feb 2022 to 27 Feb 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CVV-MR Monitoring Ref: CVV-SVF-NMP1 28 Feb 2022 to 06 Mar 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
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

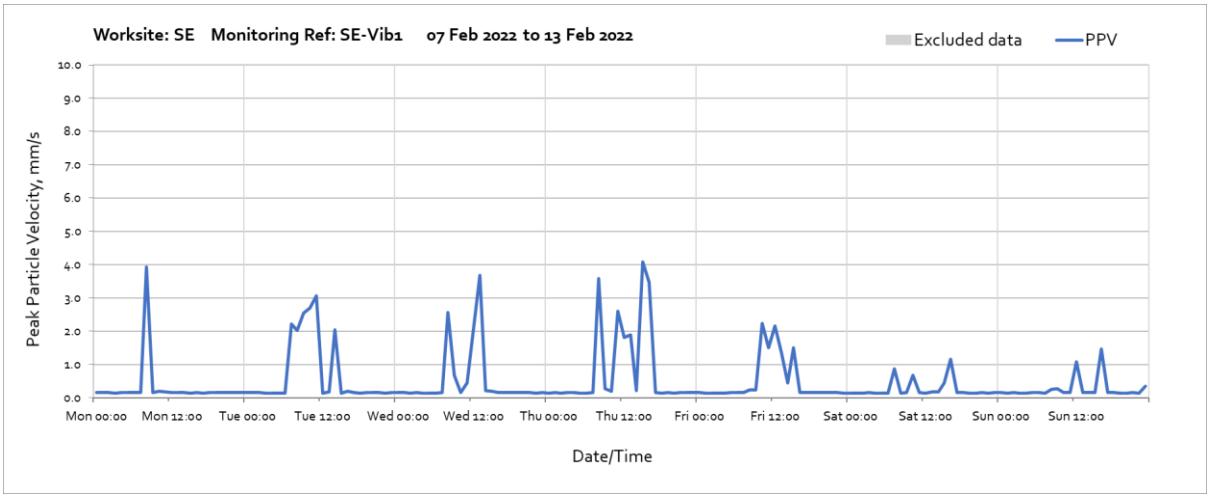
Vibration

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 axes 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.

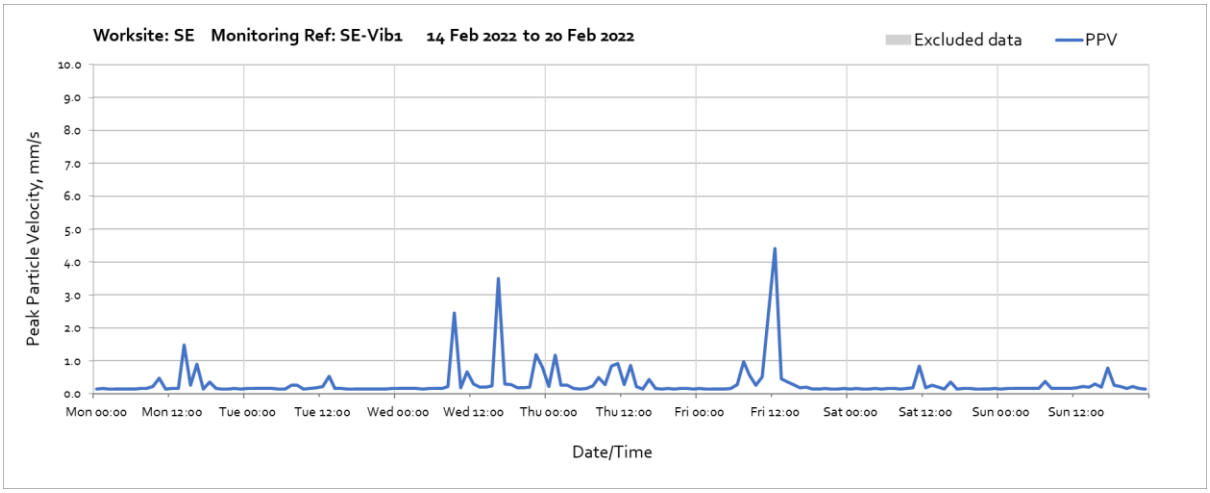
Worksite: SE – Monitoring Ref: SE-Vib 1



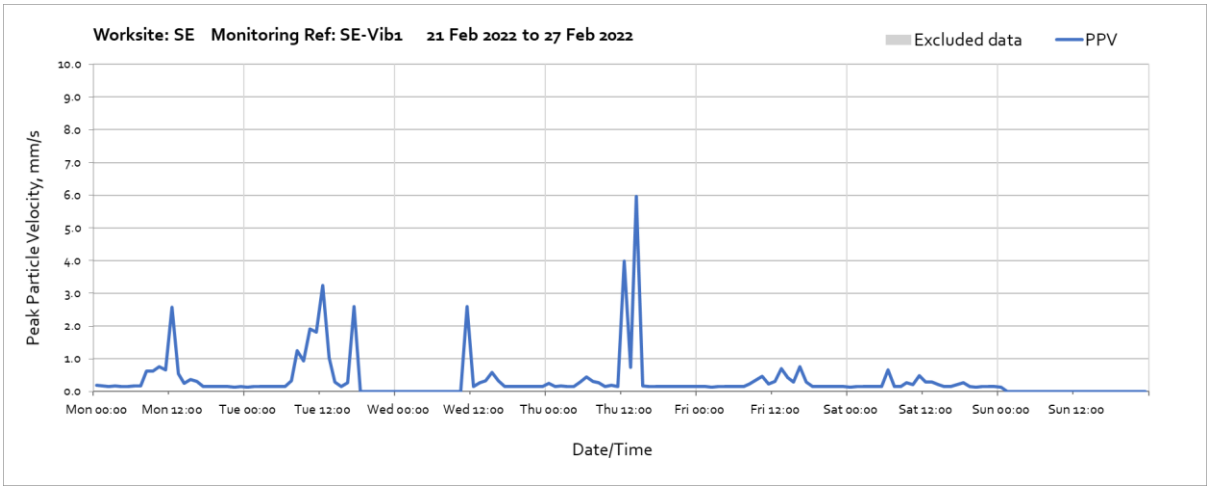
Note: High noise levels throughout the week were due to HS2 related construction traffic on Site Access Road.



Note: High noise levels throughout the week were due to HS2 related construction traffic on Site Access Road.

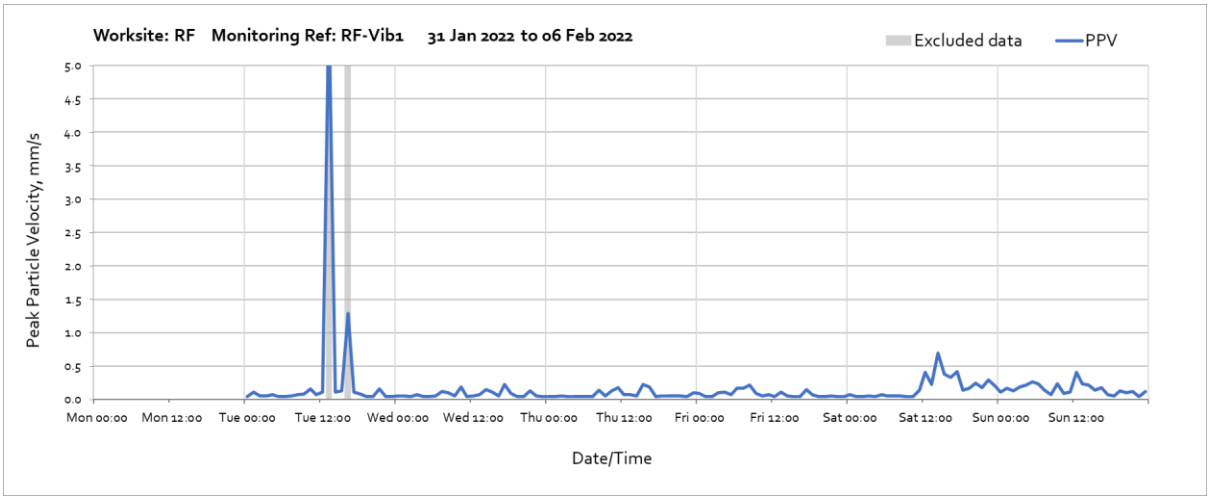


Note: High noise levels throughout the week were due to HS2 related construction traffic on Site Access Road.

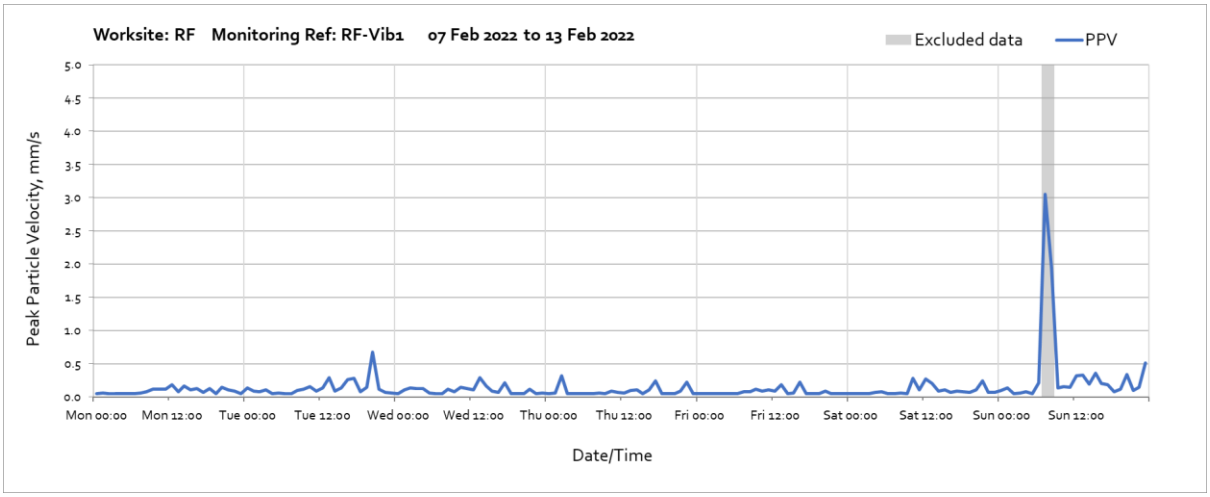


Note: High noise levels throughout the week were due to HS2 related construction traffic on Site Access Road. Missing data on 27th and 28th of February is being investigated.

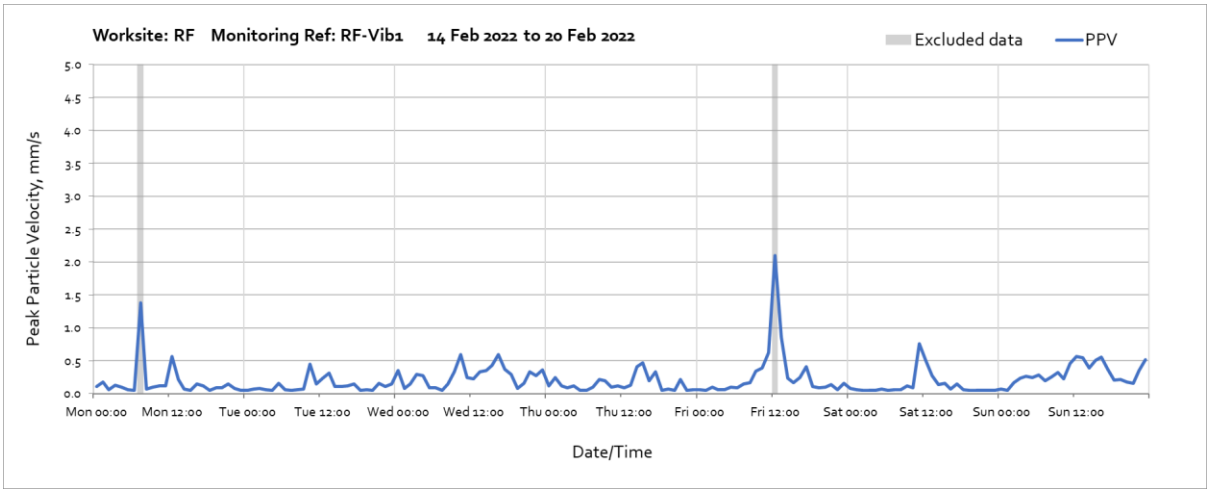
Worksite: RF – Monitoring Ref: RF-Vib 1



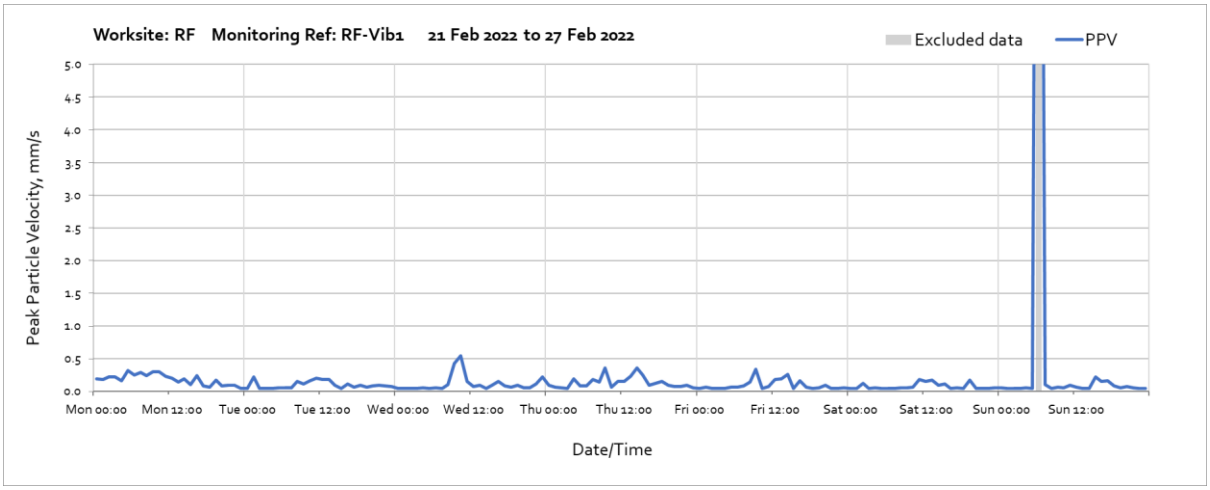
Note: High noise levels at 13:00 and 16:00 on 1st of February was due to a local disturbance and is not representative of HS2 vibration levels on the nearest sensitive receptor.



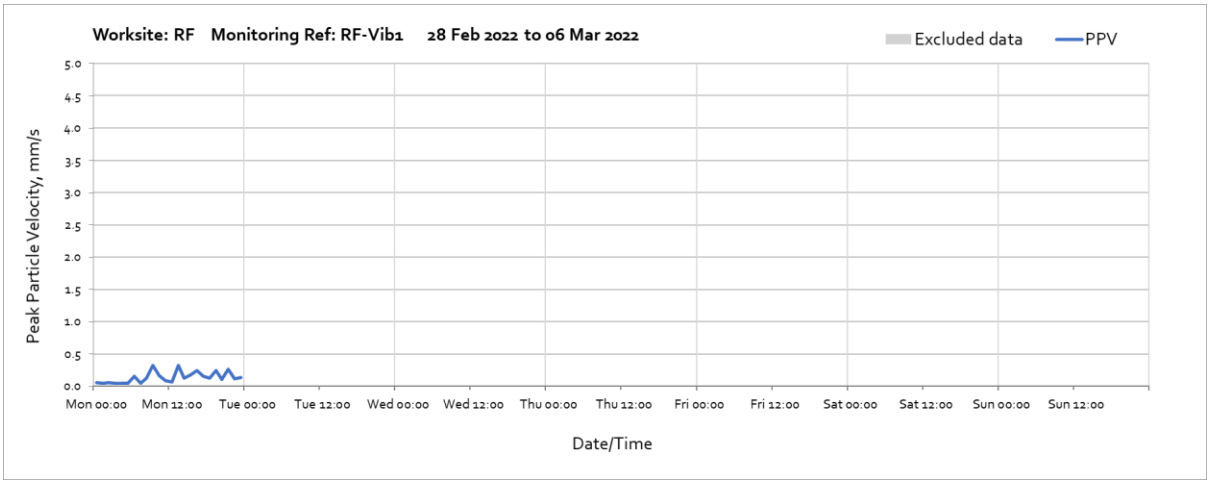
Note: High noise levels at 07:00 on 13th of February was due to a local disturbance and is not representative of HS2 vibration levels on the nearest sensitive receptor.



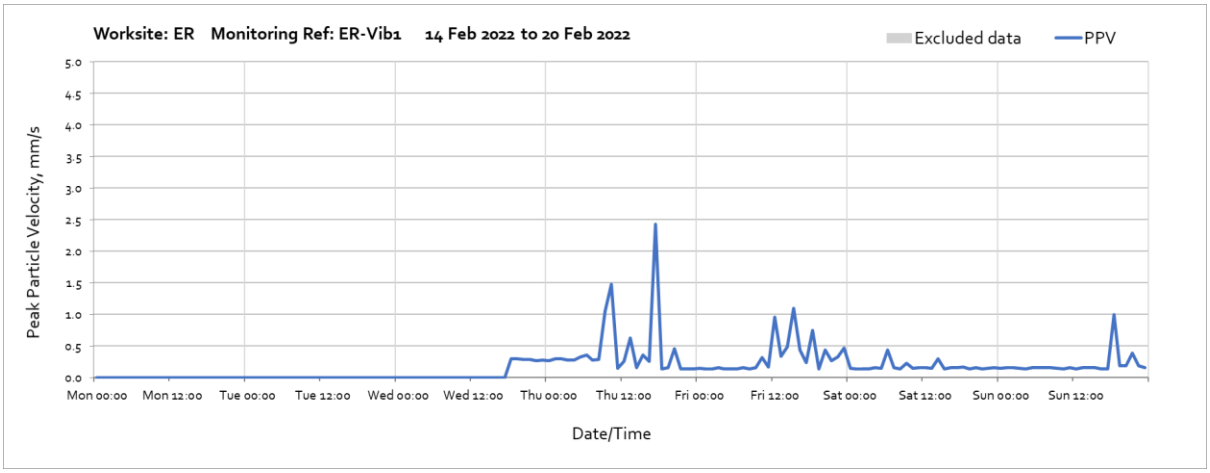
Note: High noise levels at 07:00 on 14th of February and 12:00 on18th of February was due to a local disturbance and is not representative of HS2 vibration levels on the nearest sensitive receptor.



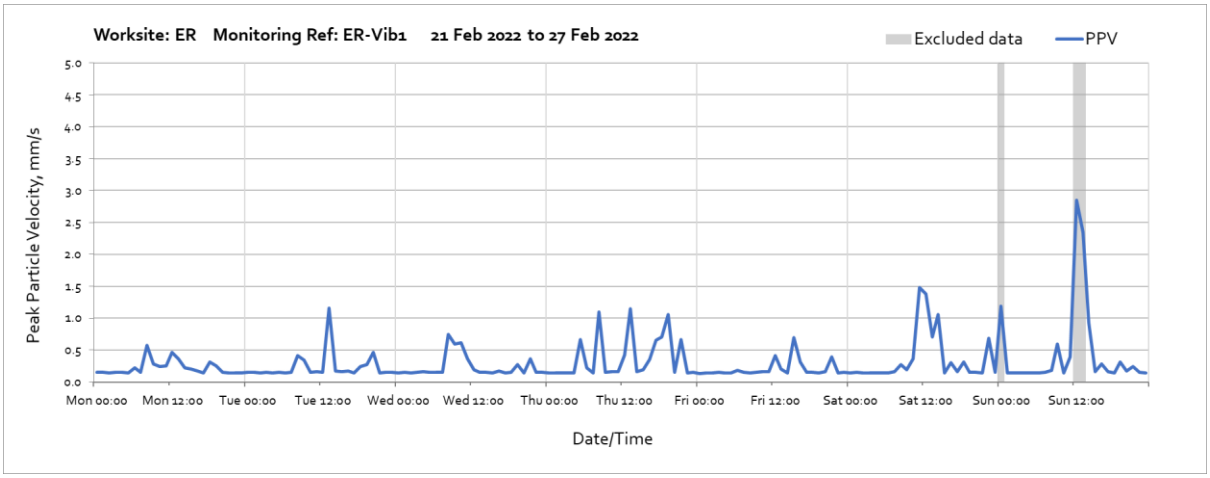
Note: High noise levels at 06:00 on 27th of February was due to a local disturbance and is not representative of HS2 vibration levels on the nearest sensitive receptor.



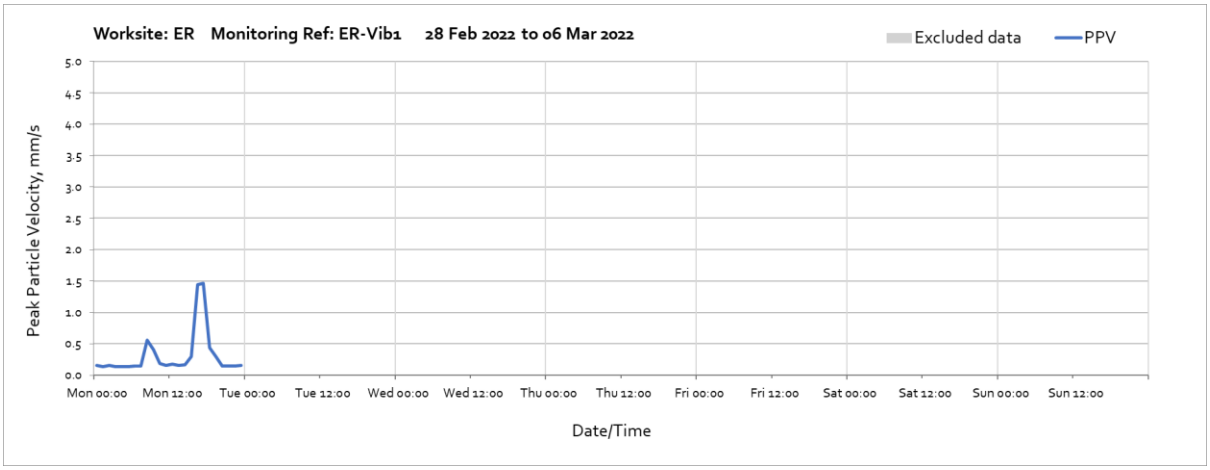
Worksite: ER – Monitoring Ref: ER-Vib 1



Note: The noise monitor was installed on 16th of February 2022.



Note: High noise levels at 12:00 on 27th of February was due to a local disturbance and is not representative of HS2 vibration levels on the nearest sensitive receptor.


Worksite: ER Monitoring Ref: ER-Vib1 28 Feb 2022 to 06 Mar 2022
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