

Construction Noise and Vibration Monthly Report – February 2023

Buckinghamshire

Non-Technical Summary	1
Abbreviations and Descriptions	5
1 Introduction	6
1.2 Measurement Locations	14
2 Summary of Results	18
2.1 Summary of Measured Noise Levels	18
2.2 Exceedances of the LOAEL and SOAEL	25
2.3 Exceedances of Trigger Level	30
2.4 Complaints	30
Appendix A Site Locations	32
Appendix B Monitoring Locations	49
Appendix C Data	64

List of tables

Table 1: Table of Abbreviations	5
Table 2: Monitoring Locations	15
Table 3: Summary of Measured dB L_{Aeq} Data over the Monitoring Period	19
Table 4: Summary of Measured PPV Data over the Monitoring Period	25
Table 5: Summary of Exceedances of LOAEL and SOAEL	26
Table 6: Summary of Exceedances of Trigger Levels	30
Table 7: Summary of Complaints	30

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 2023.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of the A422 Turweston North worksite (ref.: A422 TN) where road diversion works, aggregate deliveries, excavation, utilities mobilisation and water management works were underway.
- Noise monitoring was undertaken in the vicinity of the School End (ref.: SE), Rosehill Farm (ref.: RF), and Hermitage Chetwode (ref.: HC) worksites where haul road construction and maintenance, vegetation removal, excavation works, drainage works, stockpiling, top soil stripping, piling platform works and vehicle movements were underway.
- Noise monitoring was undertaken in the vicinity of the Twyford worksite (ref.: TW) where access and haul road maintenance works, vehicle movements, drainage works, material and vehicle movements, topsoil stripping and stockpiling were underway.
- Noise monitoring was undertaken in the vicinity of the West Street Overbridge worksite (ref.: WSO), where utility works, deliveries, concrete works, bridge assembly, platform construction, site mobilisation, bulk excavation, waterproofing, delivery and installation of culvert units and precast headwall works were underway.
- Noise monitoring was undertaken in the vicinity of the Addison Road worksite (ref.: AR) where assembly of steel deck, embankment works, drainage works and reinforced concrete works were underway.
- Noise monitoring was undertaken in the vicinity of the School Hill Compound worksite (ref.: SHC) where piling platform works, drainage works and operation of concrete batching plant was underway.
- Noise monitoring was undertaken in the vicinity of the Woodlands worksite (ref.: WDL) where bulk excavation, installation of pre-cast units and concrete works were underway.
- Noise monitoring was undertaken in the vicinity of the Quanton worksite (ref.: QAR) where installation of chambers, construction of the electricity substation and utility works were underway.

- Noise monitoring was undertaken in the vicinity of the Meadoway and Glebe House worksite (ref: MW&GH) where earthworks, piling works, piling platform construction, stockpiling and site haul road construction were underway.
- Noise monitoring was undertaken in the vicinity of Oat Close worksite (ref: OC) where stockpiling, piling works, drainage works, Brook diversion works, utility diversion works, vegetation clearance, haul road construction and earthworks were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane worksite (ref.: NLL) where excavation works, installation of bridge foundations, backfilling, silt fencing, site access road widening, instrumentation and monitoring installation, stockpiling and fuel station commissioning was underway.
- Noise monitoring was undertaken in the vicinity of Wendover Green Tunnel worksite (ref.: WGT) where archaeological works, surface water management works, topsoil stripping, stockpiling, fuel slab construction, drainage works, bridge installation, site access road extension and concrete works were underway.
- Noise monitoring was undertaken in the vicinity of Grove Farm worksite (ref: GF) where temporary surface water management works, trial trench construction, v-ditch excavation and installation of hard standing works were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref: RLE) where excavation works, access road construction, platform installation works, material movements, trial hole construction, drainage works and utility works were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Dean Viaduct worksite (ref: WDV) where compound construction works, piling cropping and capping installation, and concrete works were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref: LL) where drainage maintenance works, topsoil stripping and archaeological works were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref: SHCW) where surface water management system works were underway.
- Noise monitoring was undertaken in the vicinity of North Portal worksite (ref: NP) where site access and haul road works, piling works, piling platform works, site and plant operations, platform works and drainage works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road worksite (ref.: CHSM), where site operation, concrete works and construction of internal structure and superstructures were undertaken.

- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site operation, collar construction, shaft base slab construction, internal structures construction, capping beams, excavation works and basement construction works were undertaken.
- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site operation, construction of internal structure and small basement construction works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where site operation, road maintenance works, reinforced concrete works, tunnel connection works and basement construction works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where site operation, excavation works, road maintenance and concrete works were underway.
- Noise monitoring was undertaken in the vicinity of the Colne Valley Viaduct - Load Test Pile 1 worksite, which is partly located in the London Borough of Hillingdon (LBH), (ref.: CVV, formerly CVV-LTP #1), where piling works, jetty piling construction relocation, construction of a cofferdam, compound operation, maintenance of haul roads, ground investigation works, pier construction, pumping water management, satellite compound welfare operation, generator farm operation, north abutment works, concrete drilling, gas crossing emergency dismantling works, material storage, fencing, utility diversion works, environmental maintenance, base slab construction, River Colne crossing, girder and deck works were underway.

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

- Godington where construction of the site access road, topsoil stripping and vegetation clearance were underway.
- Grovill Embankment – Westbury where excavations were underway.
- North of School End where excavations, vegetation clearance, pond excavation, fencing, vehicle movements, stockpiling and drainage works were underway.
- Turweston along the A422 where compound development works and temporary bridge and road diversion works were underway.
- East West Rail (EWR) interfaces where backfilling, rebar fixing and formwork lifting works were underway.
- Charndon Lodge where backfilling, concrete works, including rebar fixing, formworks lifting, concrete pours and reinforced concrete works were underway.

- Infrastructure Maintenance Depot (IMD) where backfilling and platform and landscape filling were underway.
- Hills Farm where stockpiling and maintenance works were underway.
- Edgcott Road Overbridge where piling works were underway.
- Doddershall Culvert where concrete and waterproofing works were underway.
- Along the bat mitigation structure in Calvert area where sheet piling was underway.
- Aylesbury Golf Course where construction of site haul road, stockpiling, earthworks, compound setup and pond construction were underway.
- Thame Valley Viaduct Causeway where temporary bridge construction, piling, aggregate laying, cofferdam construction and compound setup were underway.
- Fleet Marston where earthworks, stockpiling, drainage works, habitat site maintenance works and pond construction were underway.
- Along A41 where concrete batching works, aggregate placement, geogrid installation, embankment works, stockpiling and earthworks were underway.
- Waddesdon Embankment and North Cutting where earthworks, stockpiling, compound setup, drainage works and construction of site haul road were undertaken.
- Bowood Lane where excavation works and concrete works including, blinding, shutting and steel fixing were underway.
- Nash Lee Road Diversion where completion of ballast walls, fencing works and pond construction works were underway.

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

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

Six (6) 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 7 of this report.

Abbreviations and Descriptions

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

Table 1: Table of Abbreviations

Acronym/Term	Definition
$L_{Aeq,T}$	See equivalent continuous sound pressure level
Ambient sound	A description of the all-encompassing sound at a given location and time which will include sound from many sources near and far. Ambient sound can be quantified in terms of the equivalent continuous sound pressure level, $L_{pAeq,T}$
Decibel(s), or dB	Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal (Pa)). Because of this wide range, a level scale called the decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement. Audibility of sound covers a range of approximately 0-140dB.
Decibel(s) A-weighted, or dB(A)	The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and is written as 'dB(A)'.
Equivalent continuous sound pressure level, or $L_{Aeq,T}$	An index used internationally for the assessment of environmental sound impacts. It is defined as the notional unchanging level that would, over a given period of time (T), deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating sound levels can be described in terms of an equivalent single figure value, typically expressed as a decibel level.
Exclusion of data	Measurement of noise levels can be affected by weather conditions such as prolonged periods of rain, winds speeds higher than 5m/s and snow/ice ground cover. Noise levels measured during these periods are considered not representative of normal noise conditions at the site and, for the purposes of this report, are excluded from the assessment of exceedances and calculation of typical noise levels and are also greyed out in charts. Identifiable incongruous noise and vibration events not attributable to HS2 construction noise are also excluded.
Façade	A facade noise level is the noise level 1m in front of a large reflecting surface. The effect of reflection, is to produce a slightly higher (typically +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 31st February 2023.

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

- A422 Turweston North worksite, reference A422 TN (see Plan 1 in Appendix A), where works activities included:
 - Road diversion.
 - Aggregate deliveries.
 - Excavation works.
 - Utilities mobilisation works.
 - Water management works.
- School End worksite, reference SE (see Plan 2 in Appendix A), Rosehill Farm worksite reference RF (see Plan 2 in Appendix A), and Hermitage Chetwode Worksite reference HC (see plan 2 in Appendix A), where works activities included:
 - Haul road construction and maintenance, including concreting, widening and maintenance.

- Vegetation removal.
- Excavation works.
- Drainage works including pond maintenance works.
- Stockpiling.
- Vehicle movements.
- Construction of piling platform.
- Topsoil stripping.
- Twyford worksite, reference TW (see Plan 2 in Appendix A), where works activities included:
 - Access and haul road maintenance.
 - Vehicle movements.
 - Drainage works, including culvert installation.
 - Topsoil stripping.
 - Stockpiling.
 - Material and vehicle movements.
- West Street Overbridge worksite, reference WSO (see Plan 3 in Appendix A), where works activities included:
 - Utility works including trenching, duct laying, utility connection works and installation of connection chambers.
 - Concrete works including rebar fixing, formwork lifting and concrete pours.
 - Material deliveries.
 - Bridge assembly.
 - Platform construction.
 - Site mobilisation.
 - Bulk excavation.
 - Waterproofing.
 - Delivery and installation of culvert units.
 - Precast headwall works.

- Addison Road worksite, reference AR (see Plan 3 in Appendix A), where works activities included:
 - Assembly of steel deck.
 - Embankment works, including earthworks and capping layers.
 - Drainage works.
 - Formwork reinforce concrete works, including capping beams, cheek walls, approach slab bases, electricity substation.
- School Hill Compound worksite, reference SHC (see Plan 3 in Appendix A) where works activities included:
 - Piling platform works, including topsoil stripping and stone laying.
 - Drainage works including pond construction.
 - Operation of concrete batching plant.
- Woodlands worksite, reference WDL (see Plan 4 in Appendix A) where works activities included:
 - Bulk excavation.
 - Installation of pre-cast units.
 - Concrete works, including rebar fixing for headwalls and chambers.
- Quanton worksite, reference QAR (see Plan 4 in Appendix A) where works activities included:
 - Installation of chambers.
 - Construction of the electricity substation.
 - Utility works including connections and testing.
- Meadoway and Glebe House worksite, reference MW&GH (see Plan 5 in Appendix A), where works activities included:
 - Earthworks.
 - Piling works.
 - Construction of piling platform.
 - Stockpiling.
 - Site haul road construction.

- Oat Close worksite, reference OC (see Plan 5 in Appendix A), where works activities included:
 - Stockpiling.
 - Piling works.
 - Drainage works.
 - Brook diversion works.
 - Utility diversion works.
 - Vegetation clearance.
 - Earthworks.
 - Haul road construction.

- Nash Lee Lane worksite, reference NLL (see Plan 6 in Appendix A), where works activities included:
 - Excavation works.
 - Installation of bridge foundations.
 - Backfilling.
 - Silt fencing.
 - Site access road widening.
 - Instrumentation and monitoring installation.
 - Stockpiling.
 - Fuel station commissioning.

- Wendover Green Tunnel worksite, reference WGT (see Plan 6 in Appendix A), where works activities included:
 - Archaeological works.
 - Surface water management works.
 - Topsoil stripping.
 - Stockpiling.
 - Fuel slab construction.
 - Drainage works.
 - Bridge installation.

- Site access road extension.
- Concrete works including v-ditch construction and concrete batching.
- Grove Farm worksite, reference GF (see Plan 7 in Appendix A), where works activities included:
 - Temporary surface water management works.
 - Trial trench construction.
 - V-ditch excavation.
 - Installation of hard standing for laydown areas.
- Rocky Lane Embankment worksite, reference RLE (see Plan 7 in Appendix A), where works activities included:
 - Excavation works.
 - Platform installation works.
 - Drainage works.
 - Trial hole construction.
 - Utilities works.
 - Material movements.
 - Access road construction.
- Wendoover Dean Viaduct worksite, reference WDV (see Plan 7 in Appendix A), where works activities included:
 - Compound construction works.
 - Pile cropping.
 - Pile capping installation.
 - Concrete works including shuttering, steel fixing, concrete pours and pre-grouting.
- Leather Lane worksite, reference LL (see Plan 8 in Appendix A), where works activities included:
 - Maintenance of the surface water management system.
 - Archaeological works.
 - Topsoil stripping.

- South Heath Cutting worksite, reference SHCW (see Plan 8 in Appendix A), where works activities included:
 - Drainage works, including pond installation.
- North Portal worksite, reference NP (see Plan 8 in Appendix A), where works activities included:
 - Site access road works including scrape formation works, installation of hardstanding and kerbing, drainage and service works, installation of signage and asphaltting.
 - Haul road dismantling works.
 - General site operation of plant and equipment.
 - Piling platform works including reinstatement and maintenance works, dismantling works, scrape formation works and installation of hardstanding.
 - Building and tracks platform works including scraping and installation of hardstanding, surfacing, services and drainage.
 - Headwall capping-beam works including excavation, reinforced concrete works and temporary propping.
 - Drainage works including excavation, drainage installation and backfilling.
- Chesham Road worksite, reference CHSM (see Plan 8 in Appendix A), where works activities included:
 - General site activities.
 - Reinforced concrete works for internal structures and superstructures.
 - Concrete works.
- Little Missenden Vent Shaft worksite reference LM (see Plan 9 in Appendix A), where works activities included:
 - General site activities including operation of plant and equipment.
 - Collar construction.
 - Shaft base slab construction, including concrete pours.
 - Internal structures construction works.
 - Capping beams.
 - Excavation works.
 - Basement construction.

- Amersham Vent Shaft worksite, reference AM (see Plan 10 in Appendix A), where works activities included:
 - General site activities including operation of plant and equipment.
 - Internal structure including concrete and floor works.
 - Small basement construction.
- Chalfont St Giles Vent Shaft worksite, reference CSG (see Plan 11 in Appendix A), where works activities included:
 - General site activities including operation of plant and equipment.
 - Road maintenance.
 - Reinforced concrete works for internal structure walls and floor.
 - Tunnel connection works, including demolition and reinforced concrete works.
 - Basement construction including excavation.
- Chalfont St Peter Vent Shaft worksite, reference CSP (see Plan 12 in Appendix A), where works activities included:
 - General site activities including operation of plant and equipment.
 - Road maintenance.
 - Excavation.
 - Concrete works, including pouring of concrete floors,
 - Excavation works to formation of basement internal and headhouse construction.
- Colne Valley Viaduct - Load Test Pile 1 worksite, which is partly located in the London Borough of Hillingdon (LBH), reference CVV (see Plan 13 in Appendix A), formerly CVV-LTP #1, where works activities included:
 - Piling works including bored piling, de-sanding pile bore, pile trimming, installation of reinforcement cage and concreting pile, grout curtain construction around viaduct pile groups, maintenance plant and clean up around piles.
 - Jetty piling platform relocation works.
 - Compound operations.
 - Maintenance and operation of haul roads.
 - Ground investigation works.

- Pier construction, including tower crane mobilisation and demobilisation.
- Pumping water management.
- Satellite compound welfare operation.
- Generator farm operation.
- North abutment works, including yard supporting activities and fibre reinforced concrete works.
- Concrete drilling.
- Gas crossing emergency dismantling works.
- Material storage.
- Fencing works.
- Utility diversion.
- Environmental maintenance.
- Construction of a cofferdam including excavation.
- Base slab construction.
- River Colne crossing including emergency removal of obstruction to reinforced concrete crossing.
- Girder and deck erection and installation including span segmental erection, grouting, steel structure erection and dismantling.
- Deck finishes including delivery of parapets, noise barriers, troughs, pipes, steel works and other minor materials to the storage yards and deck, filling of voids and secondary concrete (within deck) and supply and installation of carrier drainpipe and access ramps required within the deck.

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

- Godington where construction of the site access road, topsoil stripping and vegetation clearance were underway.
- Grovill Embankment – Westbury where excavations were underway.
- North of School End where excavations, vegetation clearance, pond excavation, fencing, vehicle movements, stockpiling and drainage works were underway.
- Turweston along the A422 where compound development works and temporary bridge and road diversion works were underway.
- East West Rail (EWR) interfaces where backfilling, rebar fixing and formwork lifting works were underway.

- Charndon Lodge where backfilling, concrete works, including rebar fixing, formworks lifting, concrete pours and reinforced concrete works were underway.
- Infrastructure Maintenance Depot (IMD) where backfilling and platform and landscape filling were underway.
- Hills Farm where stockpiling and maintenance works were underway.
- Edgcott Road Overbridge where piling works were underway.
- Doddershall Culvert where concrete and waterproofing works were underway.
- Calvert, along the bat mitigation structure, where sheet piling was underway.
- Aylesbury Golf Course where construction of site haul road, stockpiling, earthworks, compound setup and pond construction were underway.
- Thame Valley Viaduct Causeway where temporary bridge construction, piling, aggregate laying, cofferdam construction and compound setup were underway.
- Fleet Marston where earthworks, stockpiling, drainage works, habitat site maintenance works and pond construction were underway.
- Along A41 where concrete batching works, aggregate placement, geogrid installation, embankment works, stockpiling and earthworks were underway.
- Waddesdon Embankment and North Cutting where earthworks, stockpiling, compound setup, drainage works and construction of site haul road were undertaken.
- Bowood Lane where excavation works and concrete works including, blinding, shutting and steel fixing were underway.
- Nash Lee Road Diversion where completion of ballast walls, fencing works and pond construction works were underway.

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 Forty-eight (48) noise and nine (9) 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 2023.

- 1.2.2 Noise monitor ref.: SH-NMP1, within the vicinity of South Heath Cutting worksite (ref.: SHC) was offline for the duration of February 2023 due to a solar panel fault.
- 1.2.3 Vibration monitor ref.: SHC-Vib1, within the vicinity of South Heath Cutting worksite (ref.: SHC) was installed on 16th February.
- 1.2.4 Noise monitor ref.: FCC-NMP1, within the vicinity of FCC Sidings worksite (ref.: FCC) is now within the vicinity of School Hill Compound worksite (ref.: SHC).
- 1.2.5 Maps showing the positions of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
A422 TN	TN-NMP1	Turweston, Brackley
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
TW	TW-NMP1	Twyford, Buckinghamshire
WSO	WSO-NMP1	West Street, Twyford
AR	AR-NMP1	Addison Road, Rosehill Farm
SHC	SHC-NMP1	School Hill Compound, Calvert
	SHC-Vib1	School Hill Compound, Calvert
	FCC-NMP1	Calvert South
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton
QAR	QAR-NMP2	Station Rd, Quainton
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury
	MW-NMP1	Aylesbury, Buckinghamshire
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
WGT	ER-NMP1	Ellesborough Rd, Wendover
	ER-Vib1	Ellesborough Rd, Wendover

Worksite Reference	Measurement Reference	Address
	BL-NMP1	Bacombe Lane, Wendover
	WT-NMP1	A413, Wendover
GF	GF-NMP1	Grove Farm, Wendover
	GF-Vib1	Grove Farm, Wendover
RLE	SDVC-NMP1	Rocky Lane, Wendover
	NCAS7-NMP1	Rocky Lane, The Lee, Wendover
	NCAS7-Vib1	Rocky Lane, The Lee, Wendover
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS6-Vib1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover
	WDV-Vib1	Upper Wendover Dean Farm, A413, Wendover
	WVD-Vib2	Upper Wendover Dean Farm, A413, 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
NP	BFH-NMP1	Bury Farm, Great Missenden
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missenden
CHSM	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

Worksite Reference	Measurement Reference	Address
CVV*	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite, Denham Water Ski Club
	WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham, Denham Garden Village
	DFS-NMP1	Denham Film Studio, Uxbridge
	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
A422 TN	TN-NMP1	Turweston, Brackley	Free-field	50.8 (54.3)	52.8 (61.7)	49.0 (52.5)	47.4 (49.8)	46.4 (53.9)	48.2 (49.8)	49.7 (51.1)	49.8 (51.0)	47.6 (52.9)	44.0 (47.0)	47.3 (51.4)	46.0 (51.3)
SE	SE-NMP1	School End, Chetwode	Free-field	50.0 (54.9)	60.4 (65.7)	45.4 (49.3)	44.2 (50.1)	44.5 (50.7)	47.3 (52.4)	47.6 (49.8)	46.5 (49.2)	44.9 (50.0)	43.1 (45.3)	45.4 (48.6)	44.5 (46.5)
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Free-field	47.8 (50.1)	51.2 (56.2)	44.5 (46.0)	45.1 (51.9)	44.7 (52.0)	52.0 (52.2)	48.1 (49.6)	46.2 (46.2)	46.5 (53.3)	44.1 (47.3)	46.8 (52.1)	44.1 (46.4)
HC	HC-NMP1*	Hermitage, Chetwode	Free-field	51.5 (52.6)	65.6 (66.3)	43.1 (46.4)	37.5 (42.0)	42.0 (51.0)	52.3 (52.3)	45.9 (45.9)	41.7 (41.7)	40.9 (45.4)	38.1 (45.5)	43.4 (47.5)	39.1 (44.8)
TW	TW-NMP1	Twyford	Free-field	46.4 (50.0)	54.4 (67.5)	43.4 (46.8)	42.9 (48.2)	42.9 (52.7)	48.5 (56.9)	46.8 (50.7)	48.2 (52.5)	44.9 (54.5)	40.6 (45.6)	44.9 (48.6)	42.0 (45.8)
WSO	WSO-NMP1	West Street, Twyford	Free-field	49.0 (51.9)	49.8 (53.8)	42.3 (47.4)	38.7 (44.5)	39.5 (56.0)	47.6 (50.3)	51.0 (54.7)	47.6 (53.1)	46.3 (54.5)	37.6 (49.4)	46.1 (52.3)	39.6 (50.2)
AR	AR-NMP1**	Addison Road, Rosehill Farm	Free-field	57.7 (60.3)	57.7 (60.0)	54.4 (58.2)	51.8 (57.1)	47.1 (57.5)	55.4 (57.1)	56.6 (57.0)	56.4 (57.3)	55.7 (57.3)	46.9 (52.3)	55.4 (60.8)	48.1 (55.4)
SHC	SHC-NMP1	School Hill Compound, Calvert	Free-field	54.5 (61.7)	55.2 (59.2)	48.9 (52.3)	46.1 (53.0)	43.6 (54.7)	51.4 (55.1)	53.0 (56.6)	51.0 (54.5)	49.0 (56.3)	39.9 (46.7)	48.4 (57.9)	42.4 (54.4)

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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
	FCC-NMP1	Calvert South	Free-field	54.3 (60.6)	56.6 (60.5)	46.5 (51.6)	42.6 (48.2)	43.1 (54.3)	49.2 (51.4)	50.5 (54.7)	50.0 (56.4)	46.4 (55.0)	39.8 (48.9)	46.0 (50.6)	44.5 (55.1)
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Free-field	64.2 (68.9)	67.6 (70.8)	43.9 (52.0)	44.0 (50.0)	43.0 (53.5)	49.7 (53.3)	57.9 (60.5)	60.4 (72.3)	53.2 (63.7)	40.5 (51.0)	54.6 (71.3)	44.0 (49.8)
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	54.9 (76.0)	57.4 (73.3)	49.2 (61.6)	48.4 (64.2)	50.0 (76.1)	55.7 (74.3)	58.8 (71.3)	56.9 (69.9)	54.7 (70.8)	44.9 (58.1)	52.0 (66.0)	47.6 (66.9)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	55.9 (59.9)	55.8 (59.2)	55.2 (58.1)	53.7 (57.5)	50.6 (57.3)	54.7 (56.0)	56.8 (57.9)	56.2 (57.9)	55.2 (58.0)	48.0 (52.5)	53.2 (56.3)	48.9 (56.9)
	MW-NMP1	Aylesbury, Buckinghamshire	Free-field	64.3 (66.6)	63.3 (65.0)	62.6 (64.0)	60.9 (63.4)	57.4 (64.4)	61.2 (62.3)	63.5 (64.5)	63.6 (64.4)	62.1 (64.6)	55.7 (59.9)	62.0 (70.1)	57.1 (64.1)
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	Free-field	47.2 (53.2)	48.7 (53.4)	45.3 (50.6)	44.9 (49.0)	44.9 (54.2)	46.1 (50.0)	46.7 (48.8)	47.2 (50.5)	46.0 (54.4)	41.7 (45.2)	45.3 (49.1)	43.4 (48.5)
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	46.3 (54.4)	48.8 (53.5)	42.9 (46.3)	43.5 (54.0)	41.6 (54.8)	47.8 (54.8)	50.0 (54.9)	49.2 (53.5)	48.4 (60.4)	37.8 (42.8)	46.9 (61.2)	41.7 (46.9)
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville	Free-field	47.4 (55.3)	50.4 (58.0)	43.4 (53.0)	42.1 (53.4)	43.1 (66.5)	45.0 (47.7)	46.5 (48.7)	47.0 (49.0)	44.3 (50.1)	38.0 (43.4)	42.9 (48.9)	38.0 (47.0)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	57.2 (59.7)	56.4 (57.9)	56.7 (60.1)	54.6 (58.9)	53.0 (59.2)	52.1 (54.1)	53.3 (56.2)	53.7 (56.1)	53.8 (56.8)	52.3 (54.6)	54.2 (59.6)	53.5 (57.1)
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	58.2	56.9	56.4	53.4	50.1	52.6	54.9	54.9	53.3	47.1	53.6	50.5

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
				(61.5)	(58.9)	(59.1)	(58.0)	(59.8)	(54.6)	(56.8)	(57.2)	(56.9)	(51.9)	(56.4)	(57.3)
WGT	ER-NMP1	Ellesborough Rd, Wendover	Free-field	57.7 (60.2)	63.4 (70.0)	56.1 (59.0)	53.4 (58.1)	49.9 (58.2)	54.7 (56.0)	56.6 (57.7)	57.1 (58.0)	55.6 (60.7)	47.9 (54.0)	55.2 (58.1)	50.4 (58.2)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	48.8 (53.0)	49.3 (53.5)	48.7 (51.5)	47.5 (50.8)	45.8 (50.2)	47.7 (49.5)	48.3 (49.6)	48.5 (50.9)	47.5 (51.0)	43.6 (47.1)	47.8 (50.7)	46.2 (49.2)
	WT-NMP1	A413, Wendover	Free-field	67.4 (69.0)	67.2 (69.0)	66.3 (68.7)	63.3 (66.1)	60.3 (69.3)	64.5 (65.3)	65.7 (66.3)	66.3 (66.9)	64.5 (67.7)	58.4 (65.2)	64.9 (69.7)	60.0 (67.6)
GF	GF-NMP1	Grove Farm, Wendover	Free-field	51.2 (53.1)	51.9 (52.8)	49.8 (50.9)	47.7 (49.0)	45.1 (50.3)	48.4 (48.4)	50.5 (50.5)	50.6 (50.6)	48.9 (50.9)	44.0 (46.9)	48.7 (50.9)	44.6 (49.4)
RLE	SDVC-NMP1	Rocky Lane, Wendover	Free-field	65.3 (67.3)	64.6 (65.7)	63.6 (64.4)	61.7 (63.5)	59.1 (66.3)	62.8 (63.3)	64.0 (64.5)	63.9 (64.7)	62.8 (64.6)	57.2 (60.6)	62.6 (64.5)	58.5 (65.1)
	NCAS7-NMP1	Chesham Lane, The Lee, Wendover	Free-field	50.5 (55.3)	49.3 (52.4)	46.7 (50.2)	44.5 (49.3)	44.7 (55.5)	51.1 (54.8)	48.5 (50.9)	48.1 (50.1)	46.4 (51.2)	40.4 (47.3)	45.7 (49.9)	42.9 (50.7)
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	49.9 (55.5)	50.3 (56.4)	48.1 (51.9)	47.1 (52.4)	45.5 (55.4)	48.9 (55.4)	50.1 (52.9)	46.9 (49.3)	47.8 (52.5)	42.8 (49.6)	46.1 (54.0)	44.4 (52.6)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	58.4 (60.5)	59.2 (64.9)	56.3 (58.5)	54.0 (57.2)	51.2 (58.4)	54.9 (57.0)	56.8 (58.4)	56.4 (57.8)	55.0 (58.6)	48.7 (52.9)	54.1 (56.8)	50.7 (58.1)
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover	Free-field	54.0 (56.8)	57.4 (60.0)	50.5 (54.5)	48.6 (54.0)	46.8 (57.8)	49.5 (52.3)	52.6 (57.7)	49.5 (53.3)	49.0 (55.6)	42.0 (47.5)	47.3 (51.9)	44.2 (52.5)

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
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee	Free-field	51.4 (66.9)	53.4 (67.7)	48.4 (66.5)	46.3 (63.6)	47.3 (69.3)	49.6 (52.4)	53.0 (65.2)	53.0 (71.3)	49.9 (66.1)	43.3 (55.8)	49.4 (64.0)	43.8 (50.0)
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	(61.8) 51.9	(63.9) 53.4	(57.8) 46.0	(54.1) 44.2	(62.1) 45.9	(59.1) 53.4	(55.4) 51.5	(60.7) 47.6	(57.0) 47.6	(50.0) 42.4	(60.4) 46.6	(50.5) 44.6
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	(57.1) 51.4	(57.6) 53.4	(53.4) 48.4	(55.3) 46.3	(65.3) 47.3	(62.4) 49.6	(58.1) 53.0	(50.5) 53.0	(58.5) 49.9	(50.6) 43.3	(51.2) 49.4	(53.7) 43.8
NP	BFH-NMP1	Bury Farm, Great Missenden	Free-field	47.2 (52.6)	53.0 (55.6)	44.5 (51.8)	40.9 (47.1)	39.5 (52.6)	47.2 (52.2)	49.6 (51.3)	43.4 (46.5)	44.1 (52.3)	37.5 (56.1)	43.2 (49.6)	37.4 (45.2)
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	53.4 (57.1)	56.4 (59.9)	50.0 (53.3)	46.9 (52.7)	44.7 (54.6)	51.5 (53.7)	53.1 (54.3)	51.9 (52.3)	50.2 (54.2)	42.6 (47.1)	49.3 (54.0)	43.3 (51.2)
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Free-field	49.7 (53.5)	51.8 (54.2)	46.6 (53.6)	43.5 (51.9)	42.5 (51.5)	48.4 (49.2)	50.6 (51.9)	49.4 (51.7)	47.5 (52.0)	40.0 (49.7)	47.4 (52.4)	40.5 (49.1)
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	57.6 (60.5)	57.8 (63.4)	54.4 (56.9)	51.4 (55.0)	47.7 (57.0)	53.5 (54.5)	55.6 (56.3)	54.9 (55.6)	53.3 (56.6)	45.9 (50.9)	53.2 (57.3)	46.6 (56.2)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	63.2 (69.6)	67.8 (71.3)	60.5 (63.1)	58.2 (62.5)	54.2 (63.2)	58.9 (60.1)	63.4 (67.2)	61.2 (63.0)	59.2 (62.2)	52.8 (56.8)	59.5 (62.4)	53.2 (61.2)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	61.5 (62.8)	60.9 (62.0)	60.8 (62.3)	57.4 (60.3)	53.2 (60.8)	57.4 (58.6)	59.1 (60.2)	60.0 (60.7)	58.2 (60.5)	51.5 (55.7)	57.5 (60.2)	52.4 (59.5)
	PWC-NMP1		Free-field	61.8	60.6	60.3	56.8	52.9	58.0	58.7	59.9	58.1	51.2	57.6	52.2

OFFICIAL

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
		Patricia Holmes, LM Worksite, Amersham		(63.8)	(61.7)	(61.7)	(60.0)	(61.6)	(59.6)	(59.8)	(60.6)	(61.1)	(56.0)	(60.0)	(59.8)
CSG	CSG-NMP1	CSG Worksite, Bottom House Farm Lane	Free-field	46.6 (55.5)	52.8 (80.5)	43.3 (46.5)	39.0 (45.8)	41.3 (56.3)	50.2 (54.3)	49.5 (51.8)	51.0 (54.7)	43.3 (51.3)	39.1 (48.5)	46.1 (52.8)	43.3 (55.7)
	CSG-NMP2	CSG Worksite, Bottom House Farm Lane	Free-field	50.2 (57.3)	58.8 (66.5)	50.8 (53.7)	41.5 (48.3)	44.9 (54.6)	48.4 (50.8)	50.0 (51.8)	49.9 (53.0)	45.2 (54.2)	43.4 (51.1)	46.7 (51.3)	44.0 (51.6)
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles, Buckinghamshire	Free-field	56.3 (62.8)	55.0 (59.2)	53.9 (59.9)	50.9 (55.2)	47.6 (62.6)	52.7 (53.2)	54.7 (57.4)	54.7 (58.6)	53.5 (65.7)	44.8 (48.9)	53.4 (60.5)	46.9 (53.9)
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite	Free-field	58.7 (60.0)	58.2 (60.5)	55.8 (57.3)	51.9 (60.6)	48.1 (59.5)	55.0 (59.5)	57.1 (58.9)	56.8 (57.2)	54.2 (60.3)	46.6 (52.9)	54.4 (58.9)	47.8 (55.1)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	48.2 (52.2)	50.1 (52.9)	46.0 (52.2)	43.9 (52.6)	40.4 (50.0)	47.0 (50.2)	49.7 (50.6)	48.3 (51.0)	45.9 (51.5)	38.5 (46.7)	48.1 (55.8)	40.4 (47.6)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	58.5 (59.6)	57.7 (59.2)	57.3 (58.9)	54.8 (58.1)	50.6 (57.4)	55.4 (57.1)	57.7 (58.2)	57.8 (59.4)	55.8 (58.9)	48.8 (53.5)	55.6 (58.3)	49.8 (56.4)
CVV	CVV-NMP1		Free-field	64.7	63.1	62.5	58.8	57.2	60.7	62.2	62.4	60.2	54.4	60.3	56.7

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
		Northern boundary, Load Test Pile 1 Worksite		(66.5)	(64.0)	(63.8)	(63.3)	(65.4)	(61.3)	(62.5)	(63.5)	(62.9)	(57.6)	(63.3)	(63.6)
	WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham	Free-field	60.2 (61.1)	59.9 (64.5)	57.9 (59.0)	54.7 (58.2)	52.2 (59.8)	56.4 (57.3)	58.9 (60.0)	58.8 (59.5)	55.8 (59.5)	49.7 (56.5)	57.2 (61.8)	51.7 (59.0)
	DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	50.7 (56.6)	50.1 (52.4)	49.1 (54.9)	46.1 (61.1)	44.0 (53.2)	48.6 (51.0)	48.1 (48.6)	46.3 (47.7)	47.6 (56.3)	42.8 (50.1)	48.6 (54.6)	44.2 (53.4)
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	52.5 (62.0)	52.0 (57.7)	47.7 (50.1)	45.7 (55.1)	44.5 (56.8)	52.5 (55.9)	52.5 (56.9)	48.2 (48.6)	46.9 (54.3)	42.2 (50.8)	49.7 (61.4)	44.5 (53.6)

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-Vib1	School End, Chetwode	5.37 (X-axis)*
RF	RF-Vib 1	Old Stable Cottage, Rosehill Farm, Chetwode	1.31 (Z-axis)
WGT	ER-Vib 1	46, Ellesborough Rd, Wendover	3.31 (X-axis)
WDV	WDV-Vib1	Upper Wendover Dean Farm, A413, Wendover	2.02 (x-axis)
	WDV-Vib2	Upper Wendover Dean Farm, A413, Wendover	0.90 (Y-axis)
GF	GF-Vib1	Grove Farm, Wendover	3.24 (Z-axis)
RLE	NCAS7-Vib1	Chesham Lane, The Lee, Wendover	1.23 (Y-axis)
	NCAS6-Vib1	Chesham Lane, The Lee, Wendover	0.48 (Z-axis)
SHC	SHC-Vib1	School Hill Compound, Calvert	0.90 (X-axis)

*High vibration levels at SE-Vib1 are due to plant movements in the proximity of the vibration monitor. The nearest receptor is 50 meters further away and therefore the vibration levels at the receptor are 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
A422 TN	TN-NMP1	Turweston, Brackley	All days	All periods	No exceedance	No exceedance
SE	SE-NMP1	School End, Chetwode	Weekdays	0800-1800	2	No exceedance
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	All days	All periods	No exceedance	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	Weekdays	0800-1800	3	No exceedance
TW	TW-NMP1	Twyford	Weekdays	0800-1800	2	No exceedance
WSO	WSO-NMP1	West Street, Twyford	All days	All periods	No exceedance	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	Weekdays Saturdays	0700-0800 1800-1900 1400-2200	8 3 12	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
SHC	SHC-NMP1	School Hill Compound, Calvert	Weekdays	0700-0800	2	No exceedance
	FCC-NMP1	Calvert South	Weekdays	0700-0800	1	No exceedance
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Weekdays Saturdays	0800-1800 1300-1400	19 1	No exceedance No exceedance
QAR	QAR-NMP2	Station Rd, Quainton	All days	All periods	No exceedance	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance
	MW-NMP1	Aylesbury, Buckinghamshire	Weekdays Saturdays	0800-1800 0800-1300	3 1	No exceedance
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	All days	All periods	No exceedance	No exceedance
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	All days	All periods	No exceedance	No exceedance
	MF-NMP1	Moat Farm, Marsh lane, Stoke Mandeville	All days	All periods	No exceedance	No exceedance
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Saturdays Sundays	1400-2200 0700-2200	4 7	No exceedance No exceedance
	NLL-NMP2	Nash Lee Lane, Nash Lee	Saturdays Sundays	1400-2200 0700-2200	3 14	No exceedance No exceedance
WGT	ER-NMP1	Ellesborough Rd, Wendover	Weekdays Saturdays Sundays	0800-1800 1400-2200 0700-2200	10 9 26	No exceedance No exceedance
	BL-NMP1	Bacombe Lane, Wendover	All days	All periods	No exceedance	No exceedance
	WT-NMP1	A413, Wendover	Weekdays Saturdays Sundays	0800-1800 0700-0800 0800-1300 1300-1400 1400-2200 0700-2200	20 4 4 4 7 24	No exceedance No exceedance No exceedance No exceedance No exceedance No exceedance
GF	GF-NMP1	Grove Farm, Wendover	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
RLE	SDVC-NMP1	Rocky Lane, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS7-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	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	Weekdays	0800-1800	1	No exceedance
WDV	WDV-NMP1	A413, Wendover	All days	All periods	No exceedance	No exceedance
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	Weekdays	0700-0800	2	No exceedance
				0800-1800	2	No exceedance
			1800-1900	1	No exceedance	
Saturdays			0800-1300	1	No exceedance	
			1300-1400	1	No exceedance	
			1400-2200	3	No exceedance	
			Sundays	0700-2200	6	No exceedance
GD-NMP1	Grimms Ditch, The Lee, South Heath		Weekdays	0700-0800	1	No exceedance
				0800-1800	1	No exceedance
			Saturdays	0700-0800	1	No exceedance
				1300-1400	1	No exceedance
			1400-2200	2	No exceedance	
			Sundays	0700-2200	5	No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	Saturdays	0700-0800 1400-2200	1 2	No exceedance
NP	BFH-NMP1	Bury Farm, Great Missenden	All days	All periods	No exceedance	No exceedance
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	All days	All periods	No exceedance	No exceedance
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	All days	All periods	No exceedance	No exceedance
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Saturdays	1400-2200	2	No exceedance
AM	AM-NMP1*	Whielden Lane, Amersham	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
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	Weekdays	1800-1900 1900-2200	8 28	No exceedance No exceedance
Saturdays	1300-1400 1400-2200		3 23	No exceedance No exceedance		
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
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles	Saturdays	1400-2200	1	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	All days	All periods	No exceedance	No exceedance
CVV	CVV-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance
	WYC-NMP1**	Wyatt's Covert, Tilehouse Lane, Denham	Weekdays	0700-0800 0800-1800 1800-1900 1900-2200	16 1 7 21	No exceedance No exceedance No exceedance No exceedance
			Saturdays	1300-1400 1400-2200	2 17	No exceedance No exceedance
			Sundays	0700-2200	41	No exceedance
	DFS-NMP1**	Denham Film Studio, Uxbridge	Weekdays	1900-2200	1	No exceedance
Saturdays			1400-2200	3	No exceedance	
Sundays	0700-2200	7	No exceedance			
SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Weekdays	0700-0800 1900-2200	1 1	No exceedance No exceedance	
		Saturdays	1400-2200	1	No exceedance	
Sundays	0700-2200	4	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 considered to be mostly 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 twenty-two (22) monitoring locations during the month of February 2023. LOAEL exceedances were recorded during weekdays, Saturday and Sunday time periods.

2.2.7 No SOAEL exceedances were recorded due to HS2 construction works during December 2022.

2.3 Exceedances of Trigger Level

2.3.1 Table 6 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 6: Summary of Exceedances of Trigger Levels

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

2.4 Complaints

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

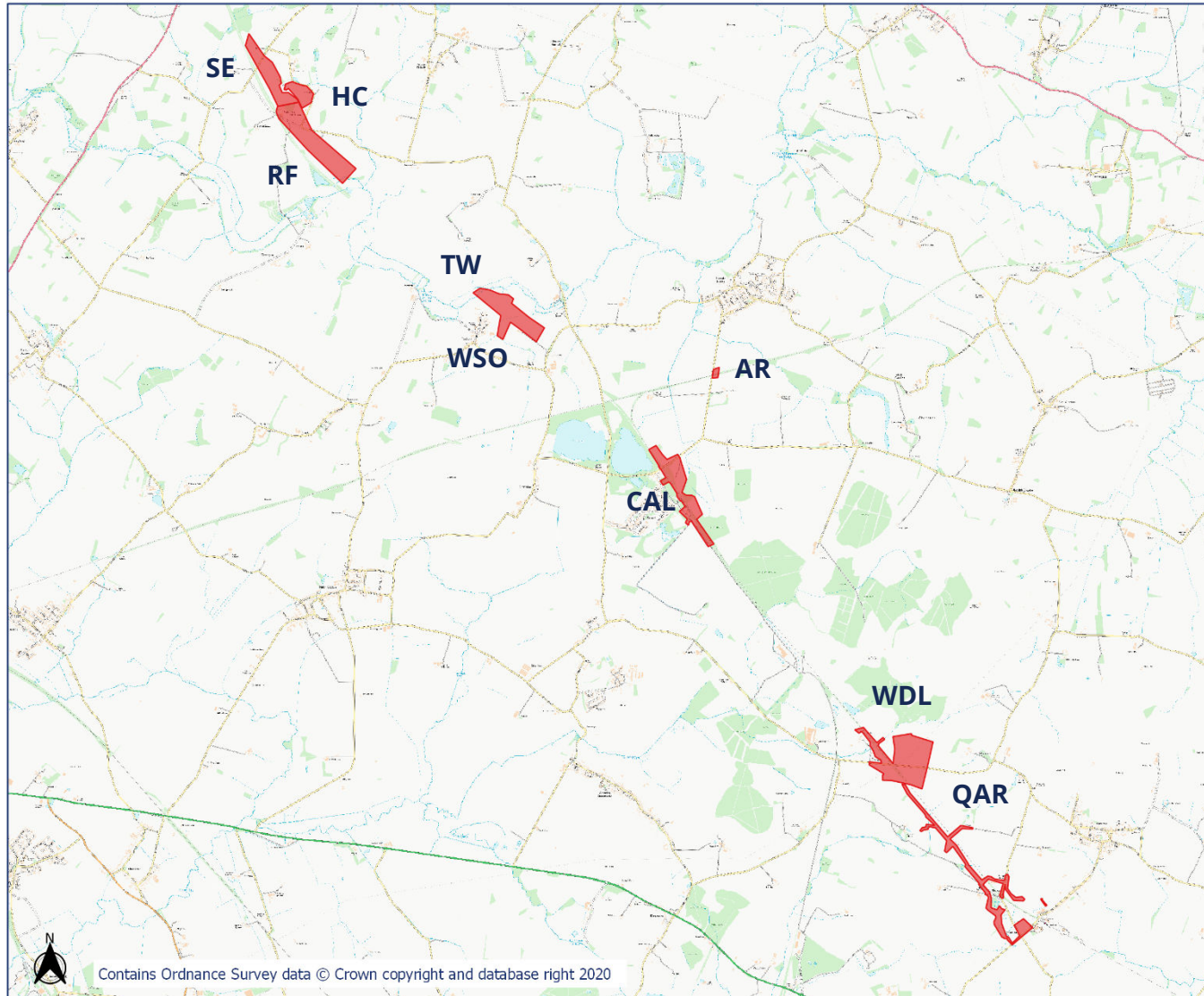
Table 7: Summary of Complaints

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-23-44324-C	WDL	Vibrational disturbance occurred across weekend of the 4 th February.	Disturbance was due to either a generator or a vibrational roller.	Stakeholder was informed of the results of the investigation; ongoing works have been discussed with them with invitation to a forthcoming drop-in session. Stakeholder confirmed disturbance has not occurred since the original incident.
HS2-23-44348-C	NLL	Complaint was submitted due to	Excess vibrations from generator were due to a	Contractor meeting with stakeholder was held.

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
		disturbance from vibrations from generators on site.	fault, this has now been fixed.	Details of complaint were passed onto the site team, ongoing engagement between contractor and stakeholder will continue.
HS2-23-44358-C	OC	Noise disturbance from Princes Risborough rail line.	Noise disturbance due to unloading of ballast from metal wagons.	Apology to stakeholder was issued, with further explanation of cause of noise disturbance. Stakeholder has been made aware of further work in May.
HS2-23-44364-C	SHU	Complaint was due to loud low frequency droning noise emanating from site at 11:00 on 14 th February onwards.	The noise disturbance was due to local works from the batching plant and new railway area. An increased noise level occurred for one minute, thereafter the noise stopped, causing no noise exceedance.	Stakeholder has been informed of the results of the investigation.
HS2-23-44389-C	CWV	Complaint due to disturbance from construction noise from 7:30 on 19 th February.	Complaint remains open and under investigation.	Stakeholder will be informed of the results of the investigation.
HS2-23-44427-C	CWV	Disturbance from reversing alarm on a site vehicle.	Complaint remains open and under investigation.	Stakeholder will be informed of the results of the investigation.

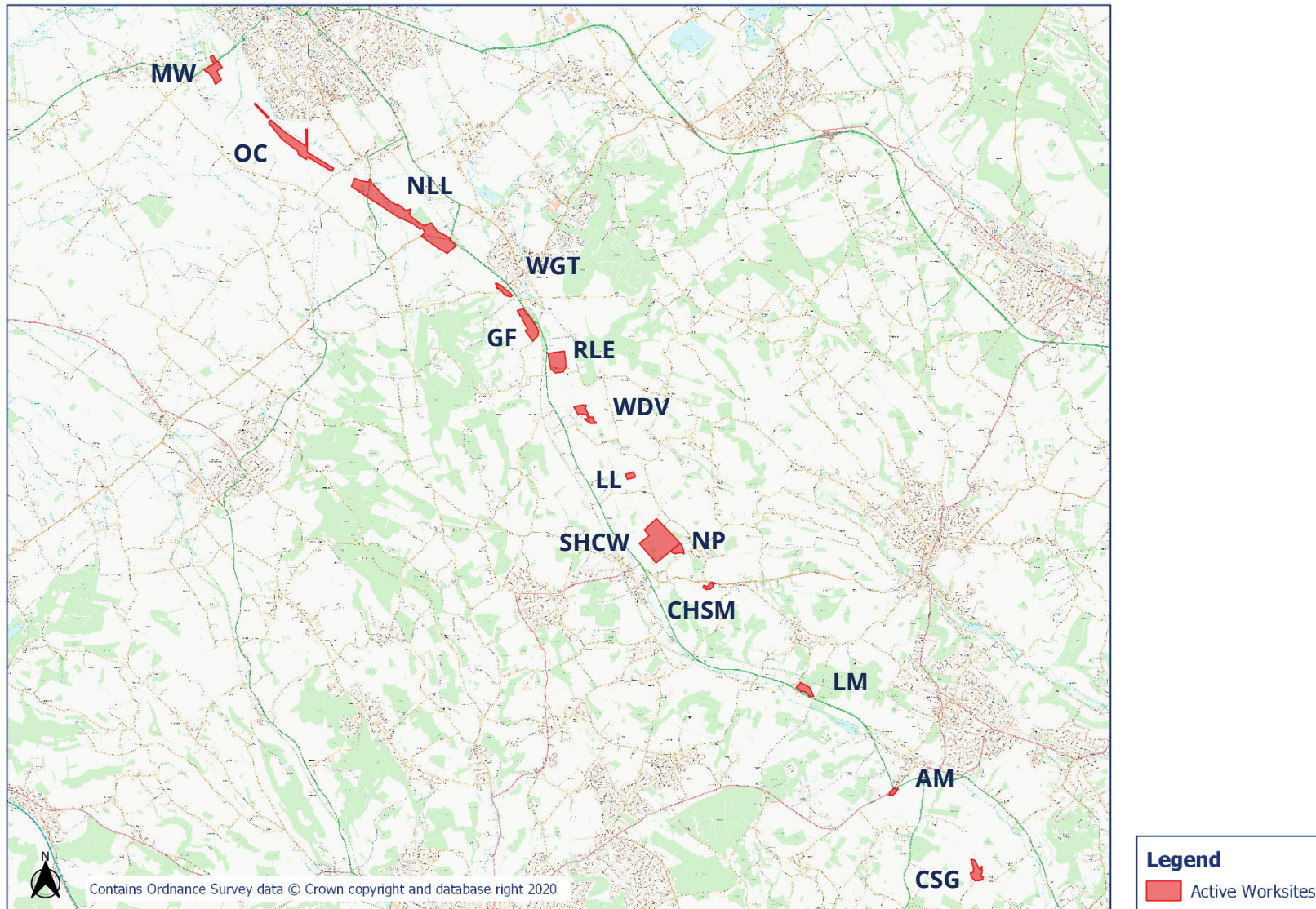
Appendix A Site Locations

HS2 Worksite Identification Plan - Overview 1



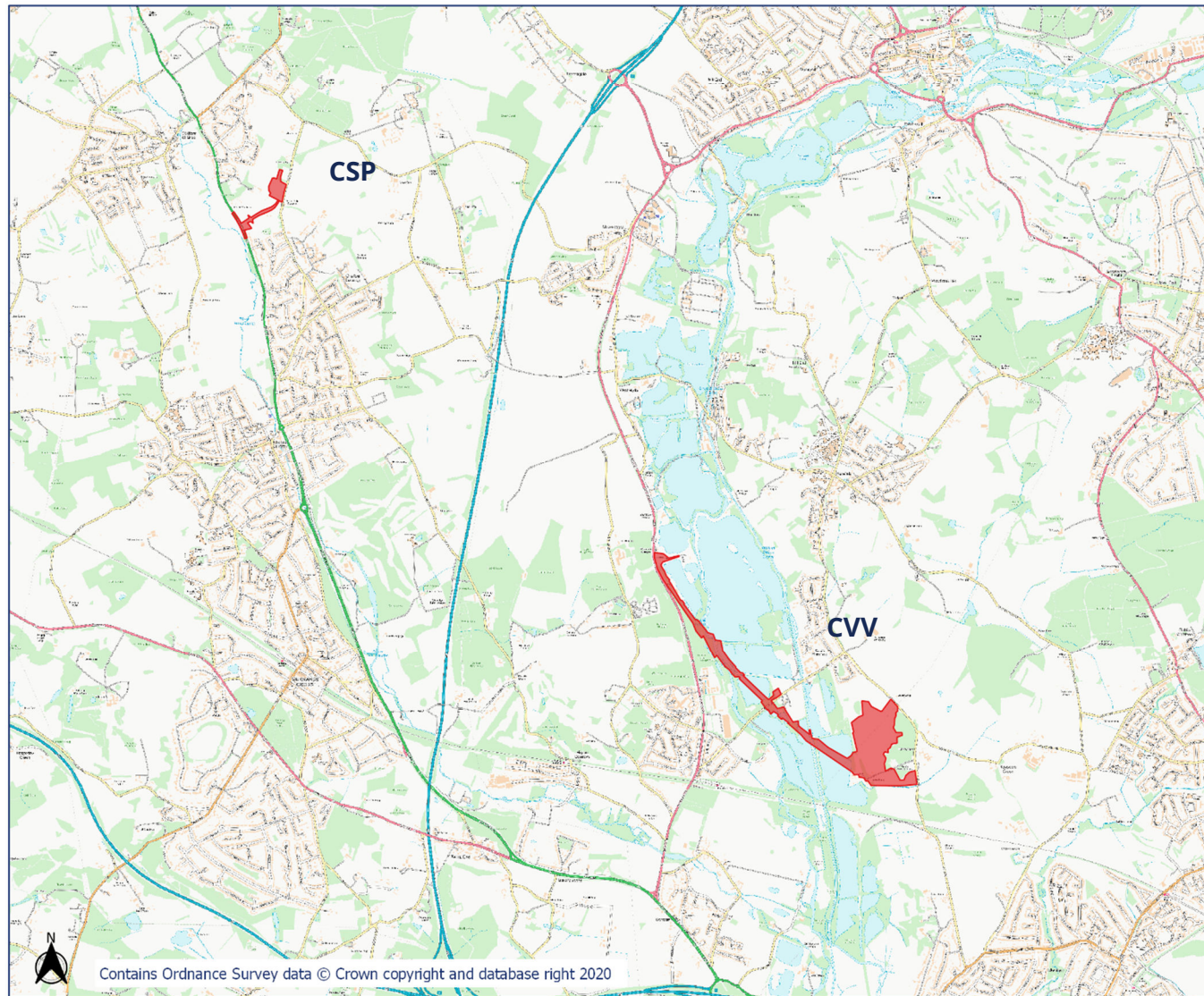
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HS2 Worksite Identification Plan - Overview 2

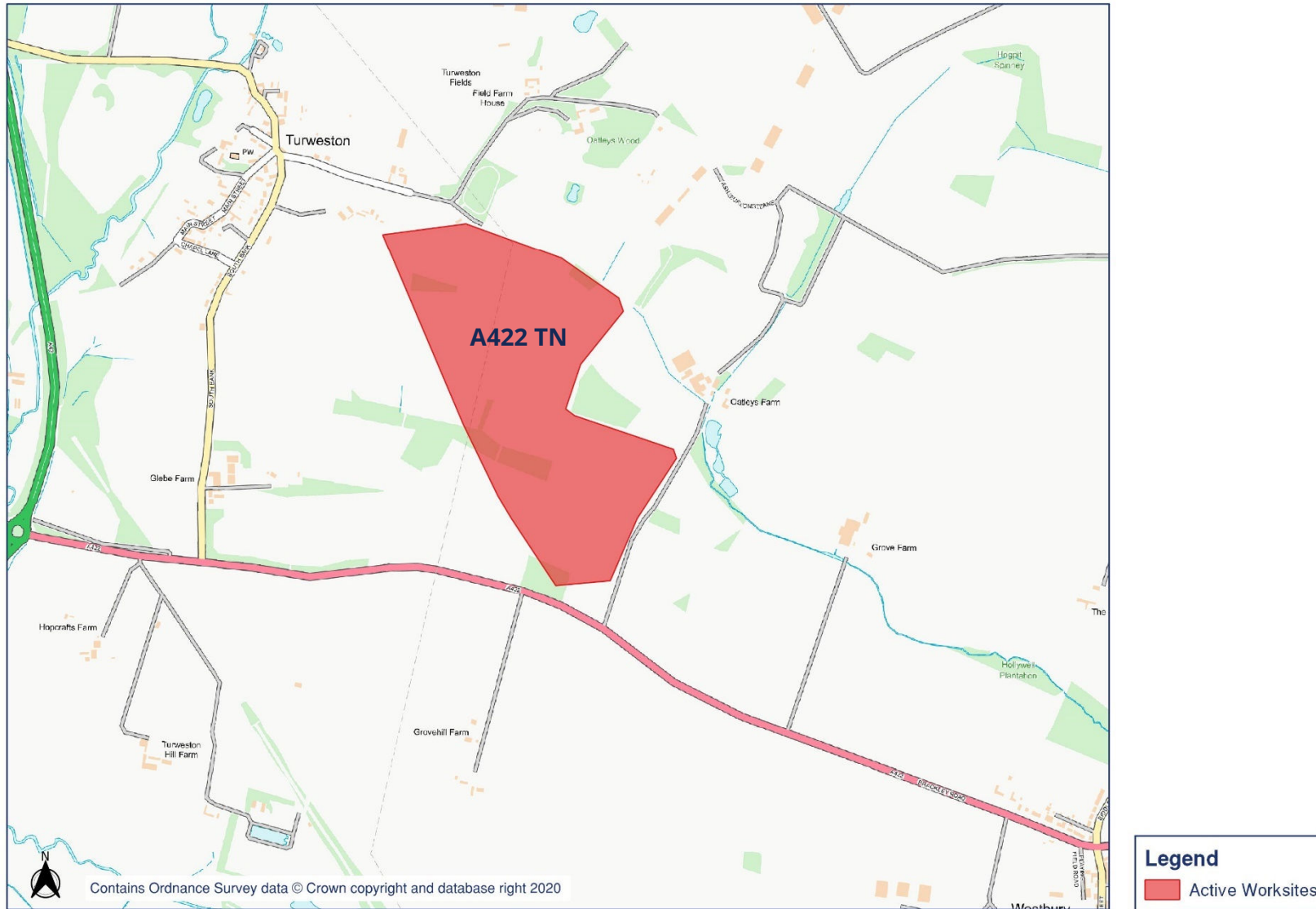


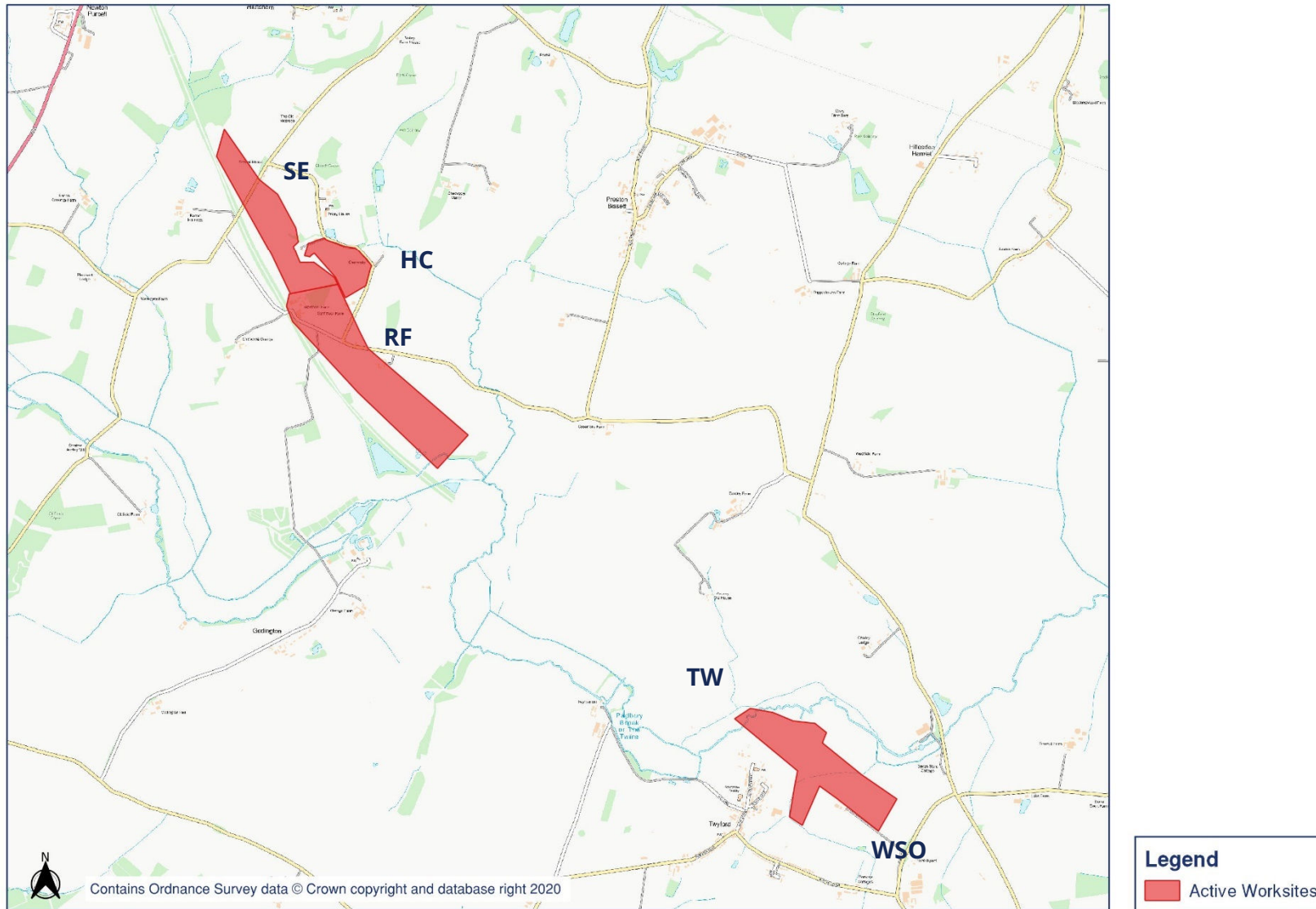
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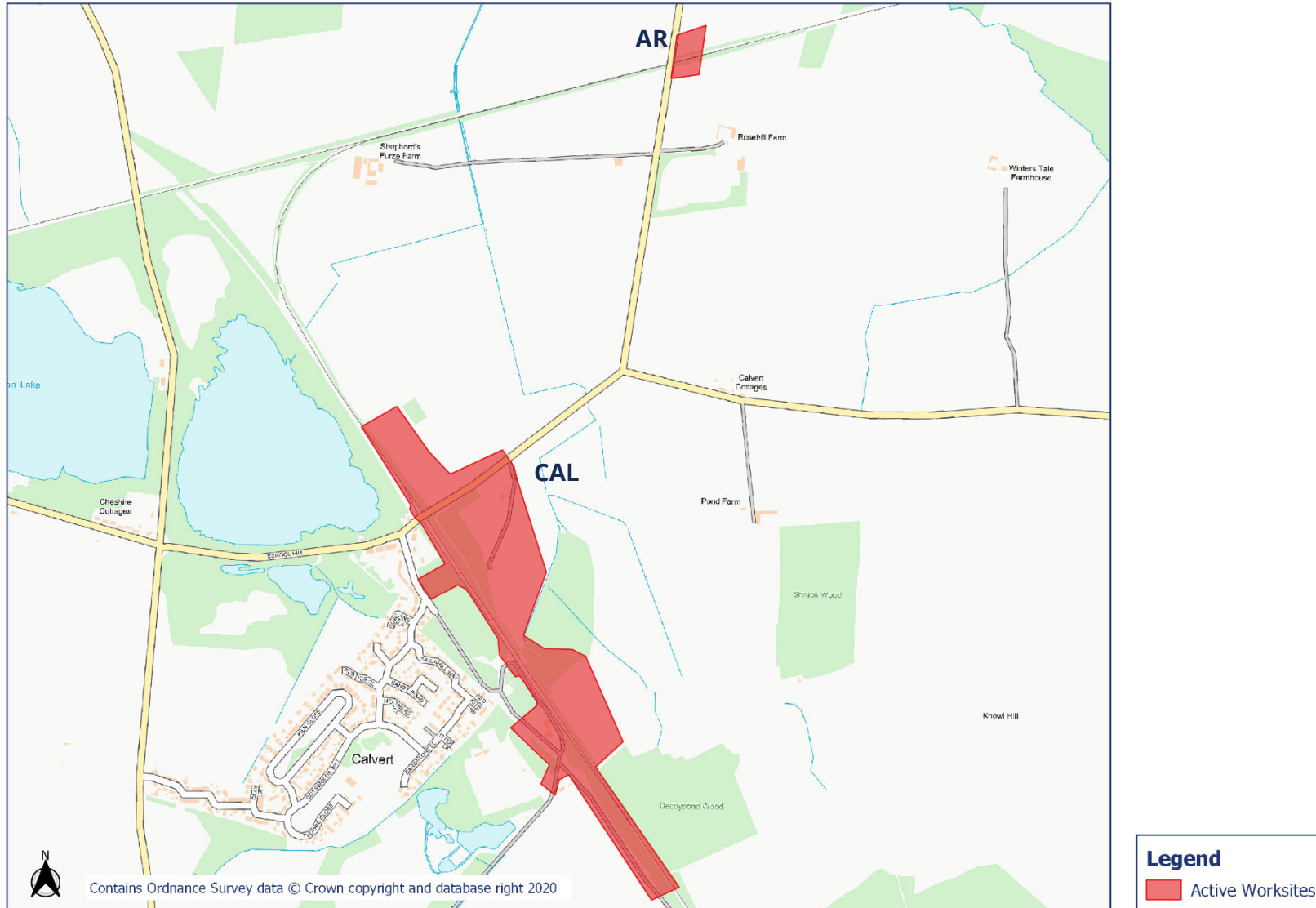
HS2 Worksite Identification Plan - Overview 3

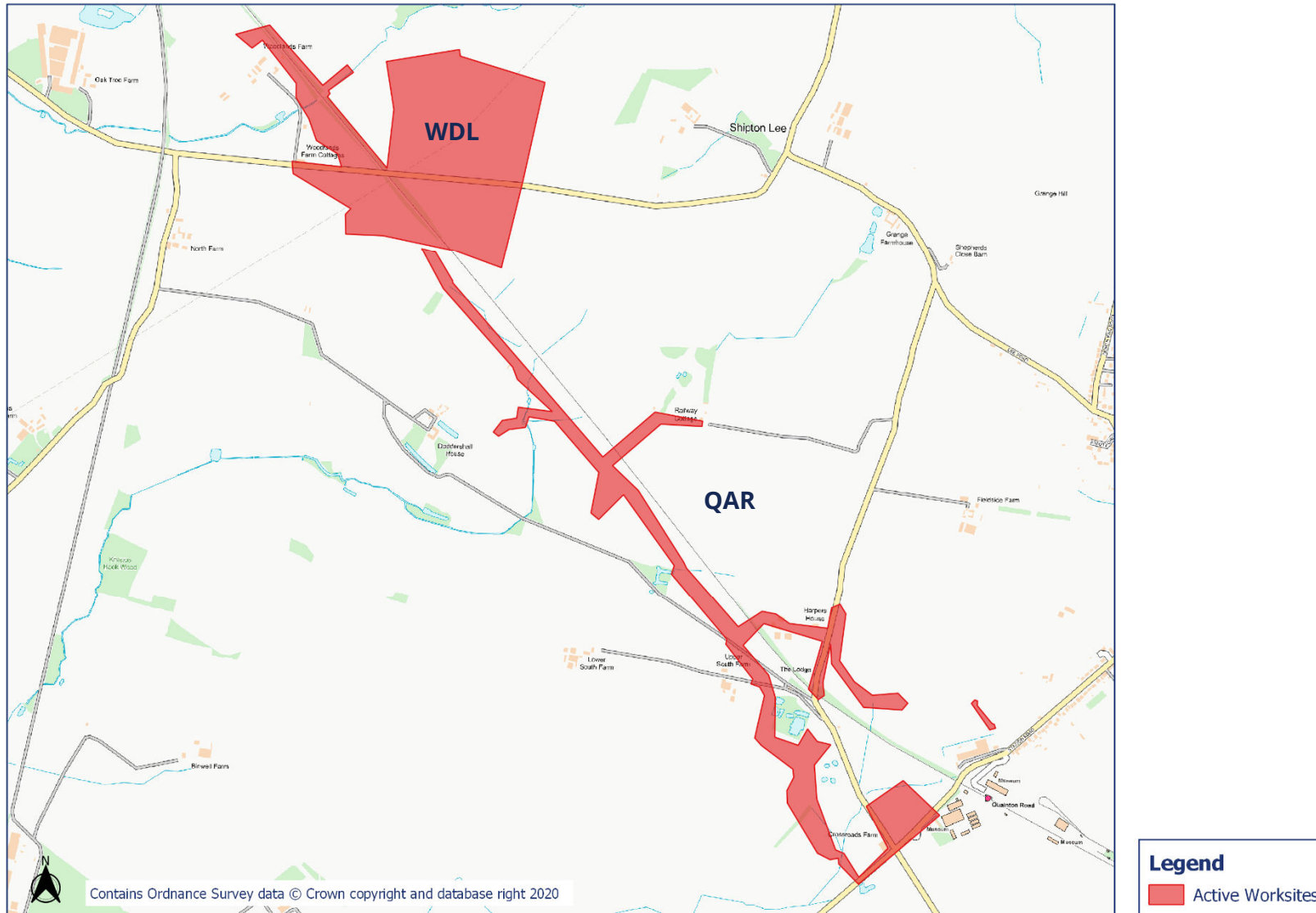


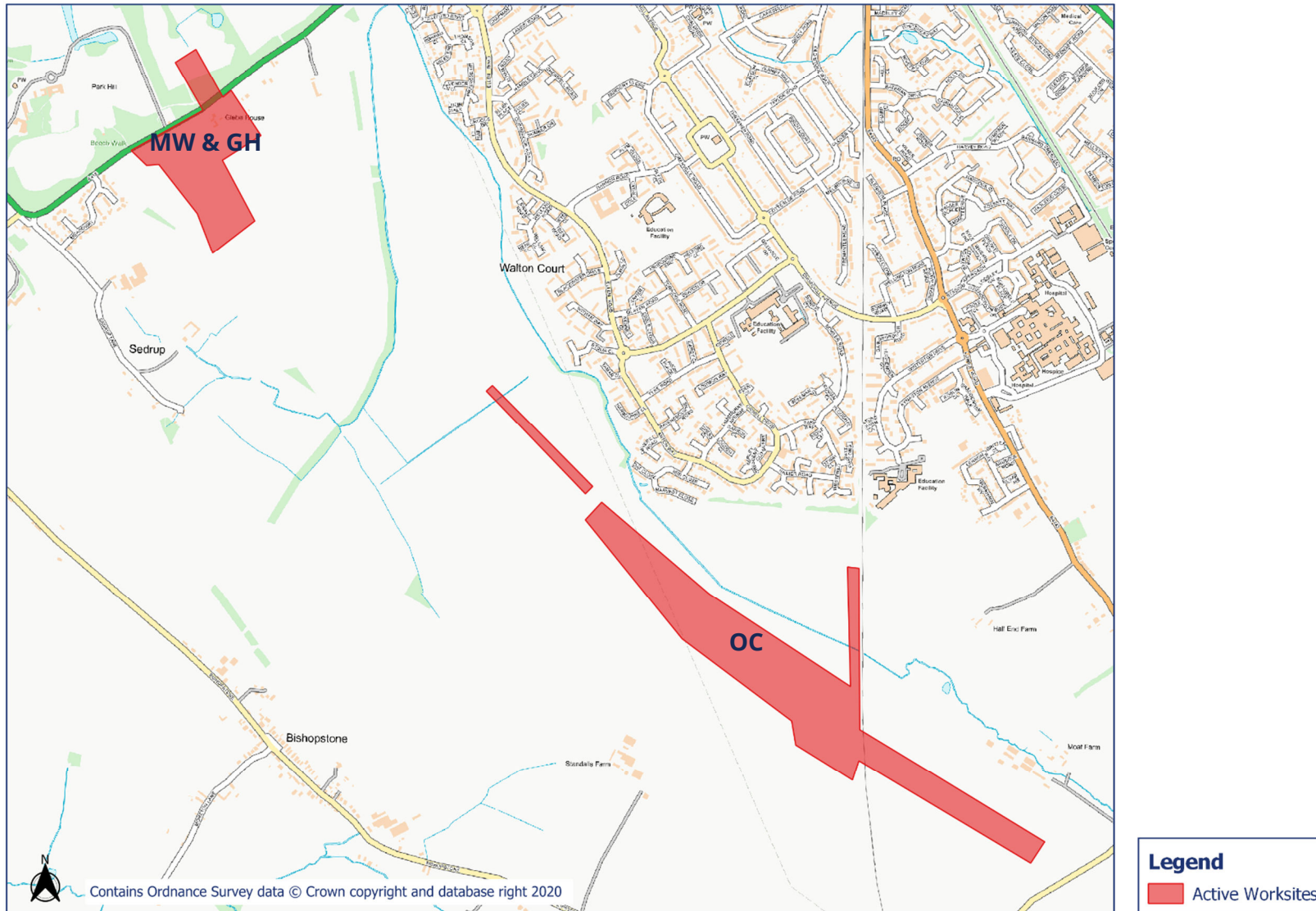
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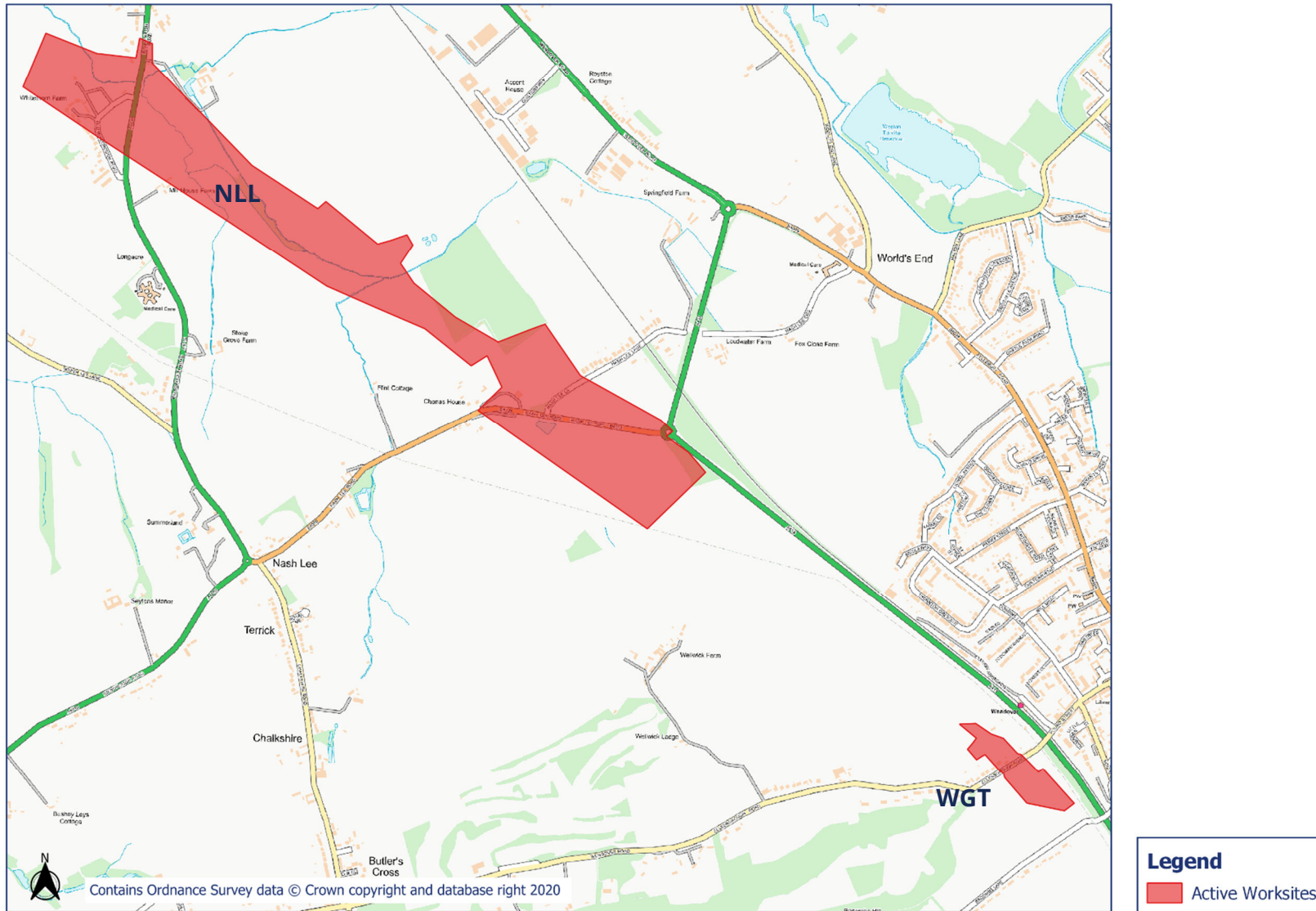


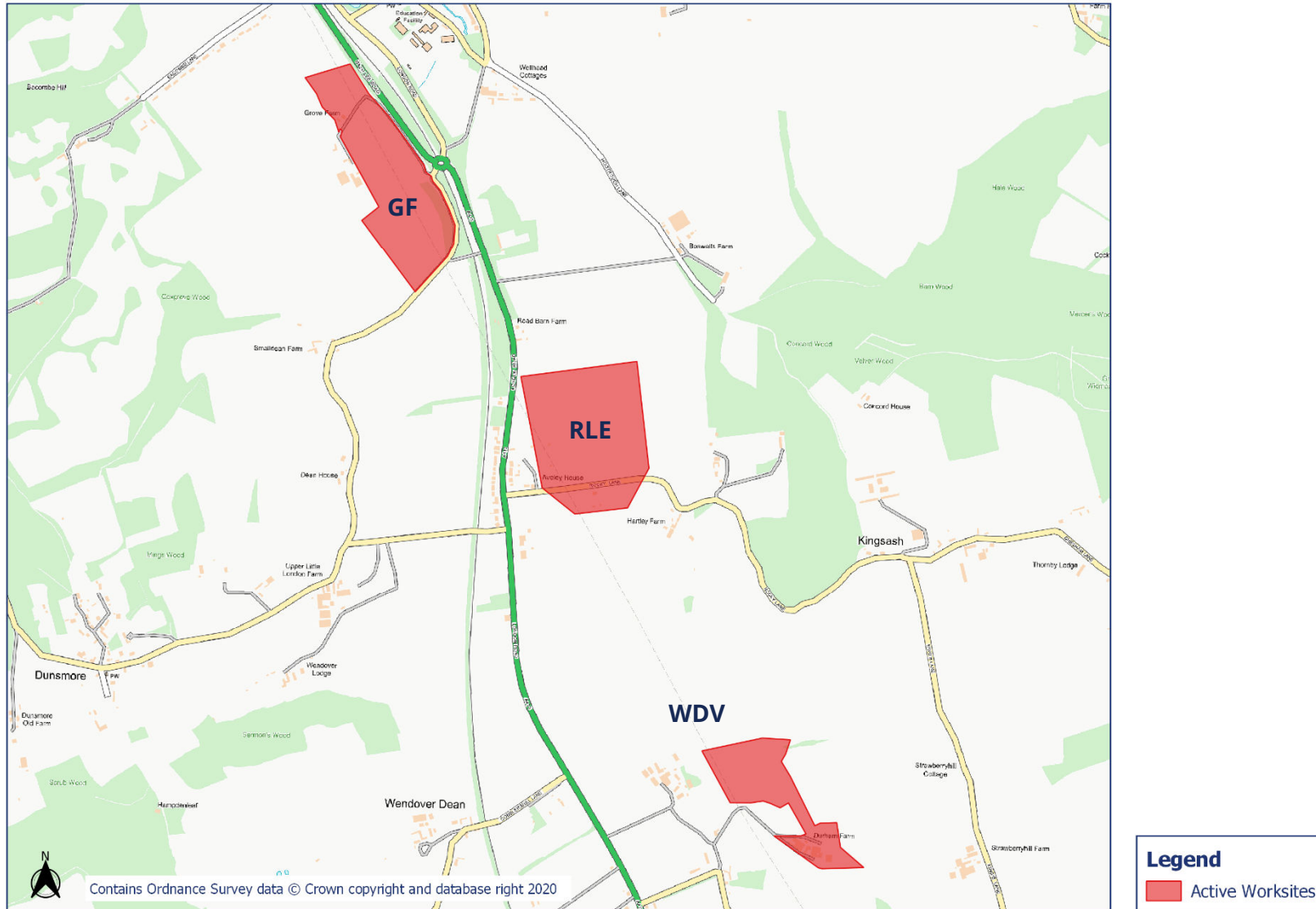


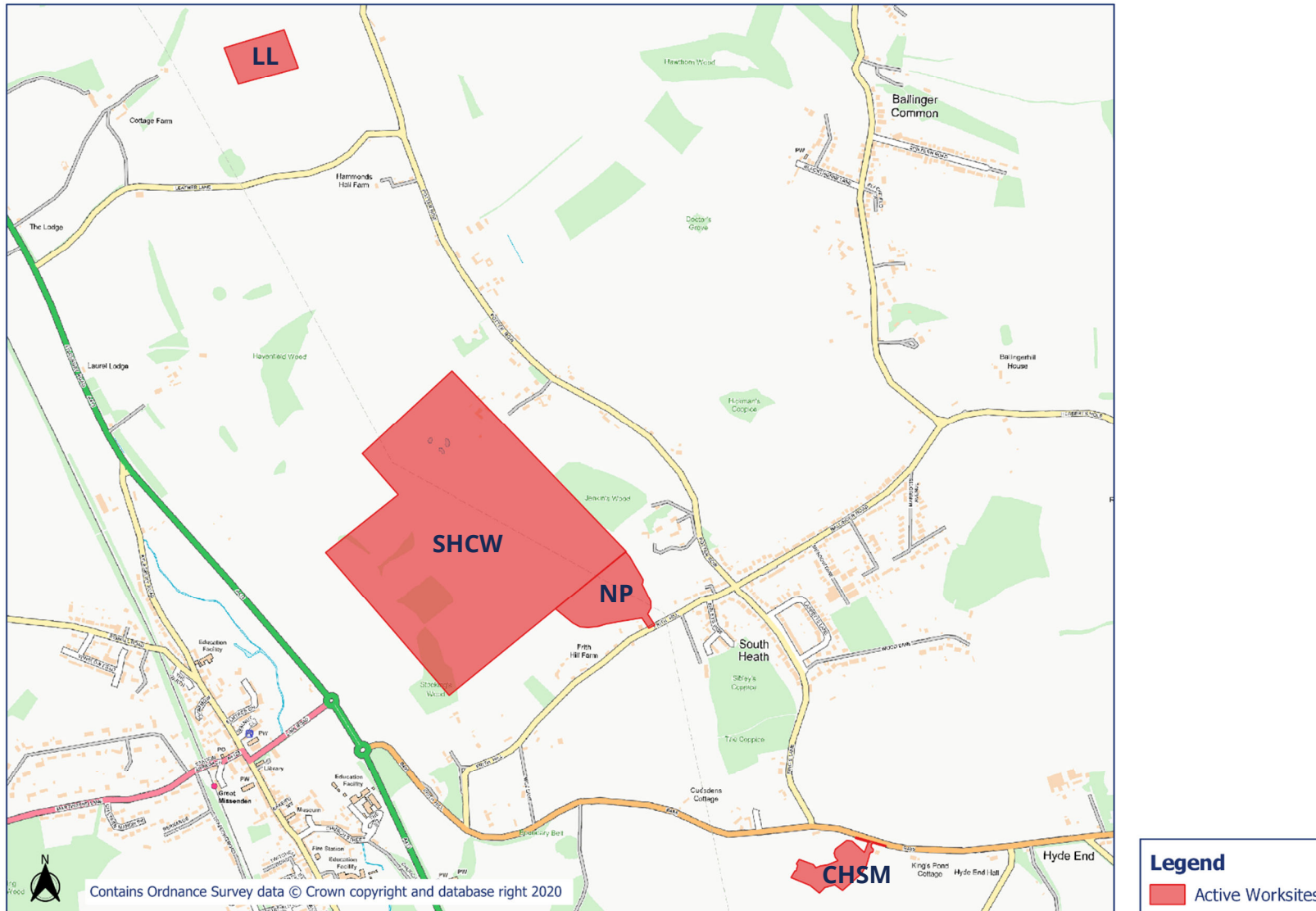




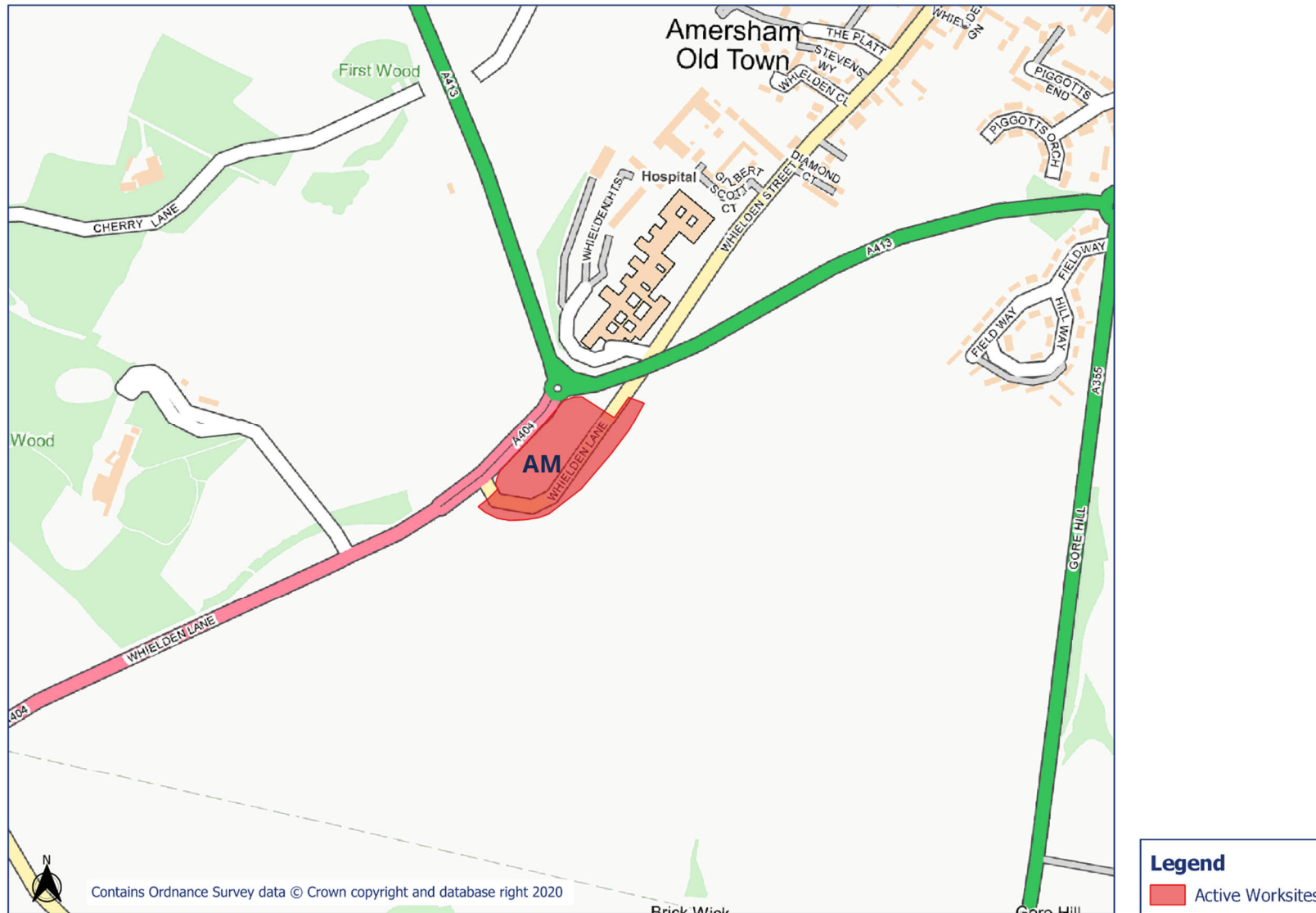


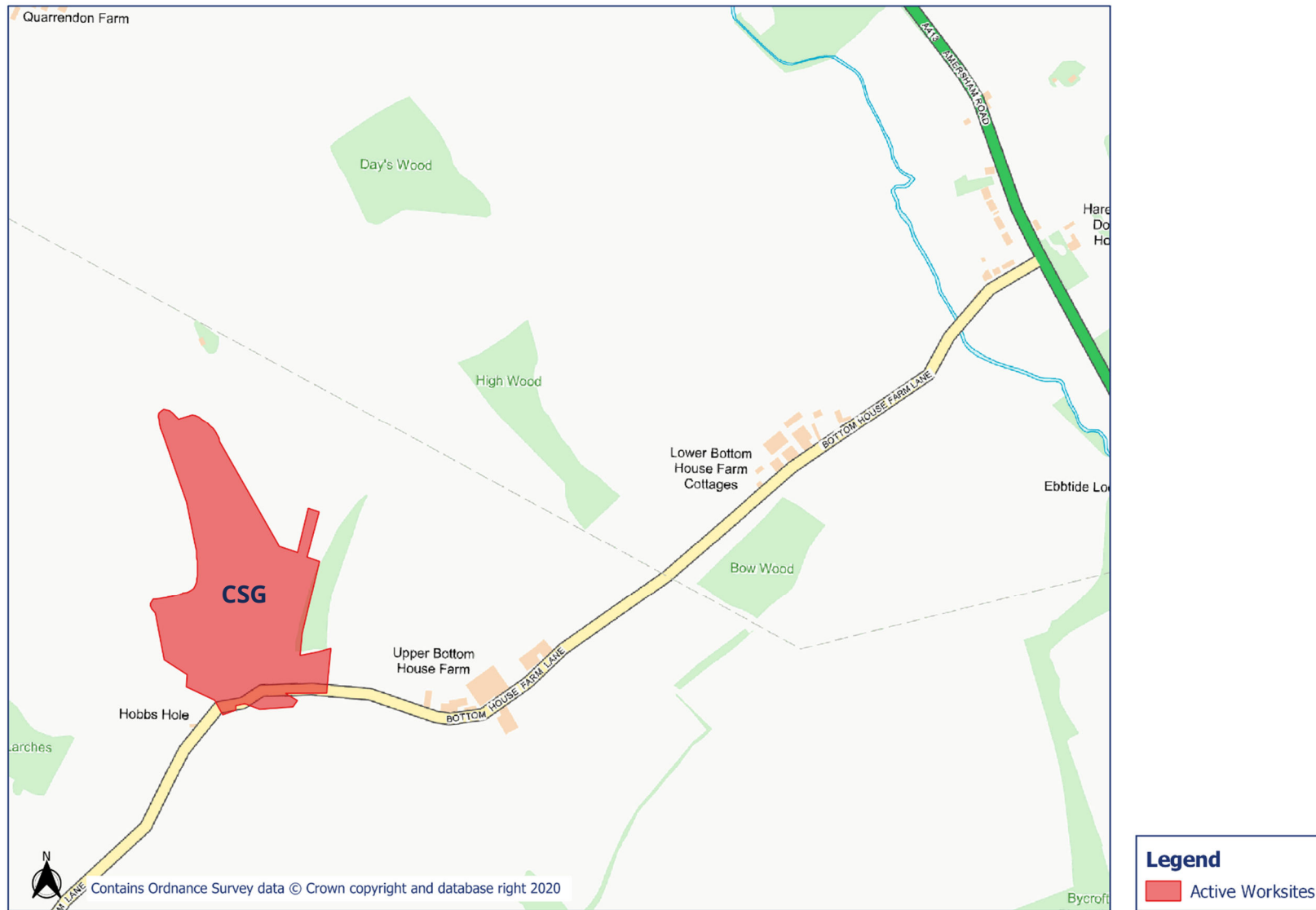




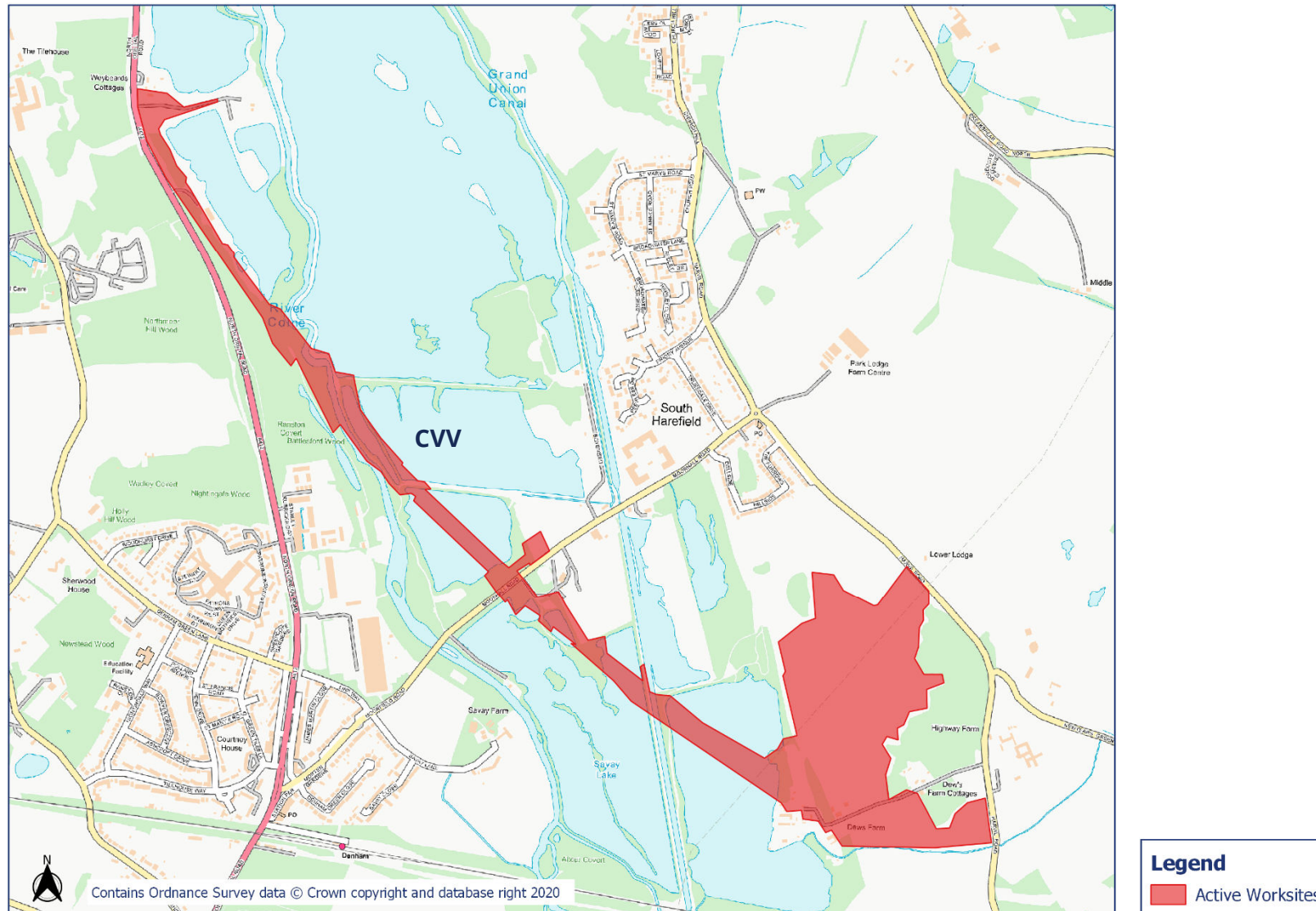




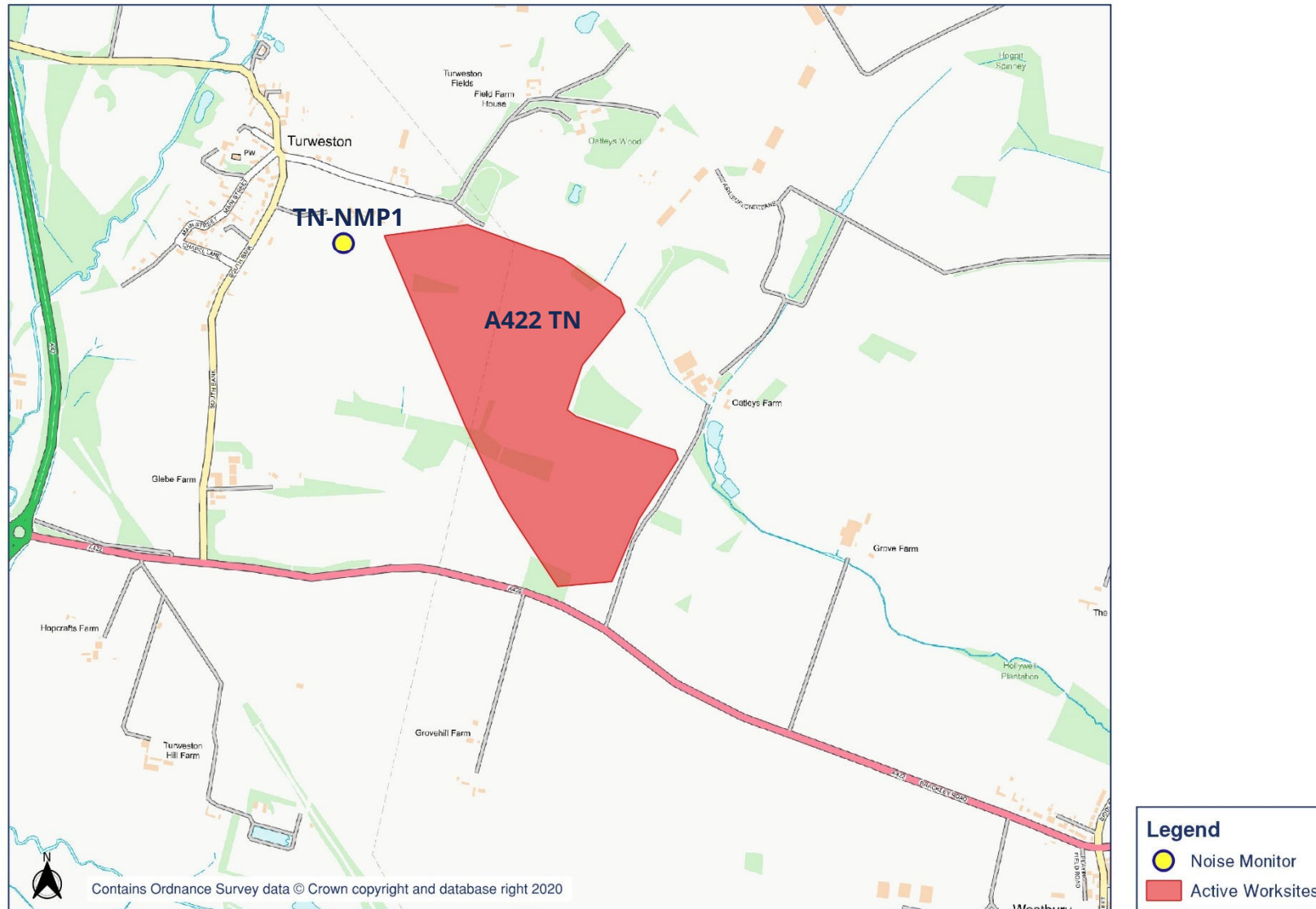


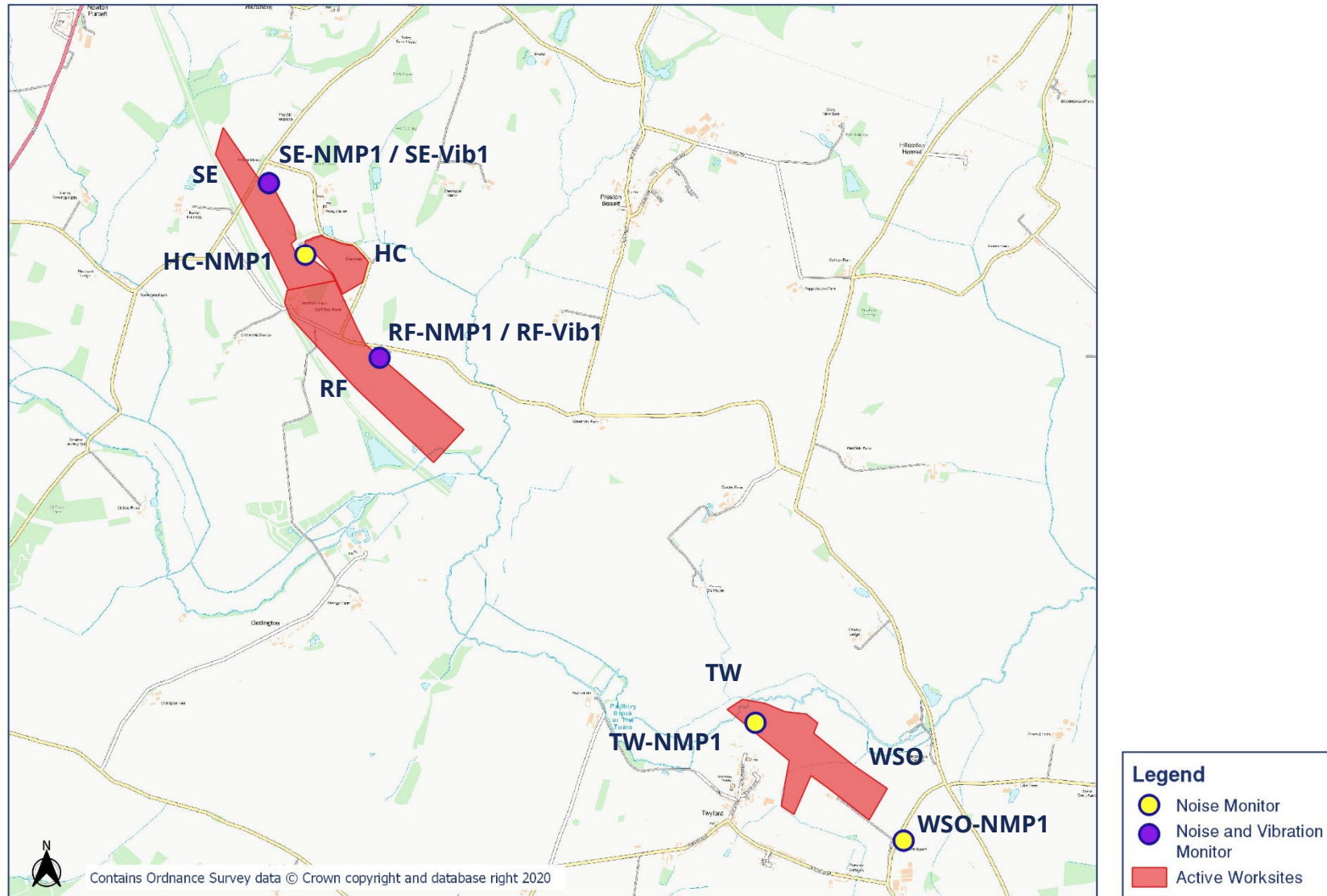




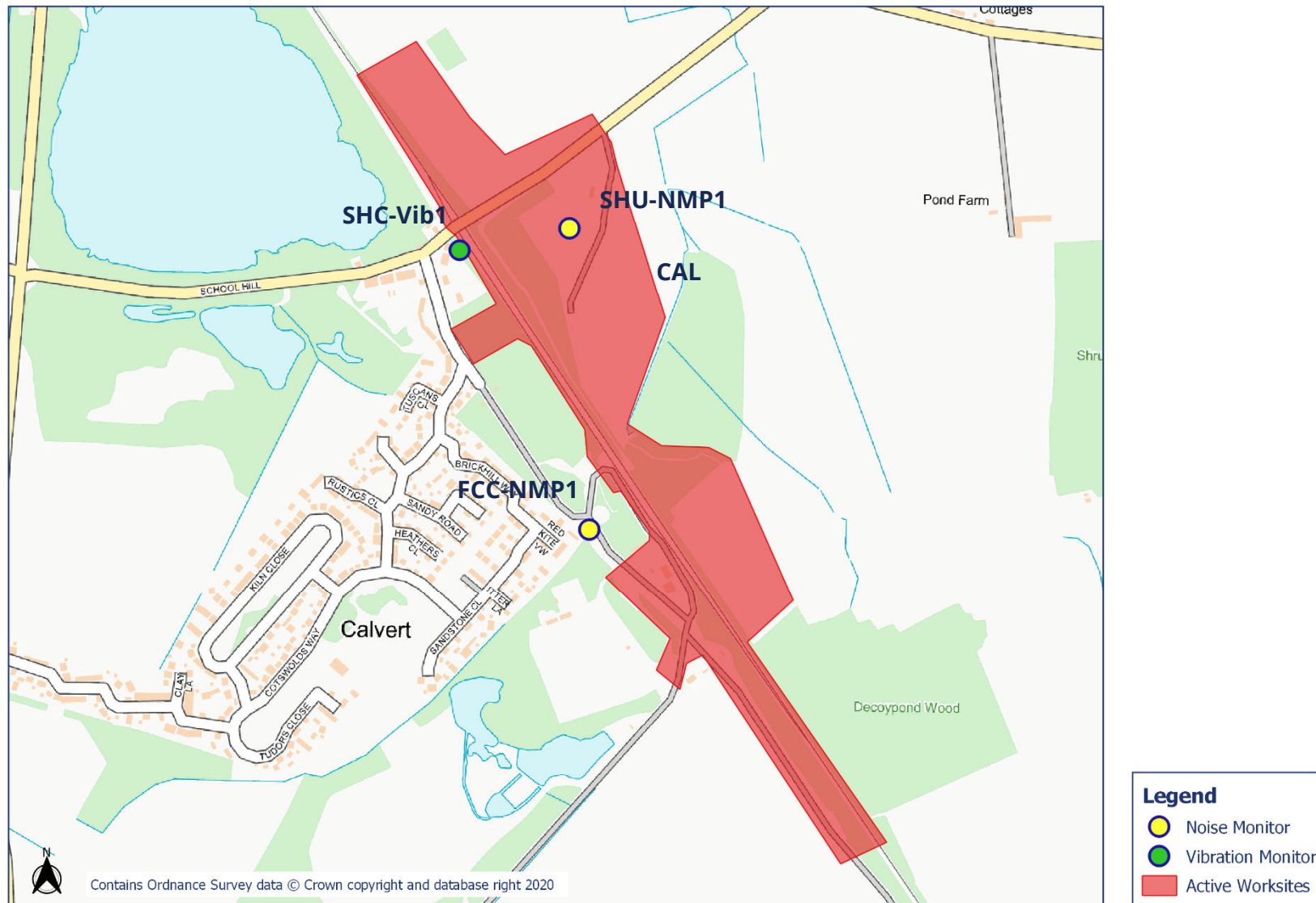


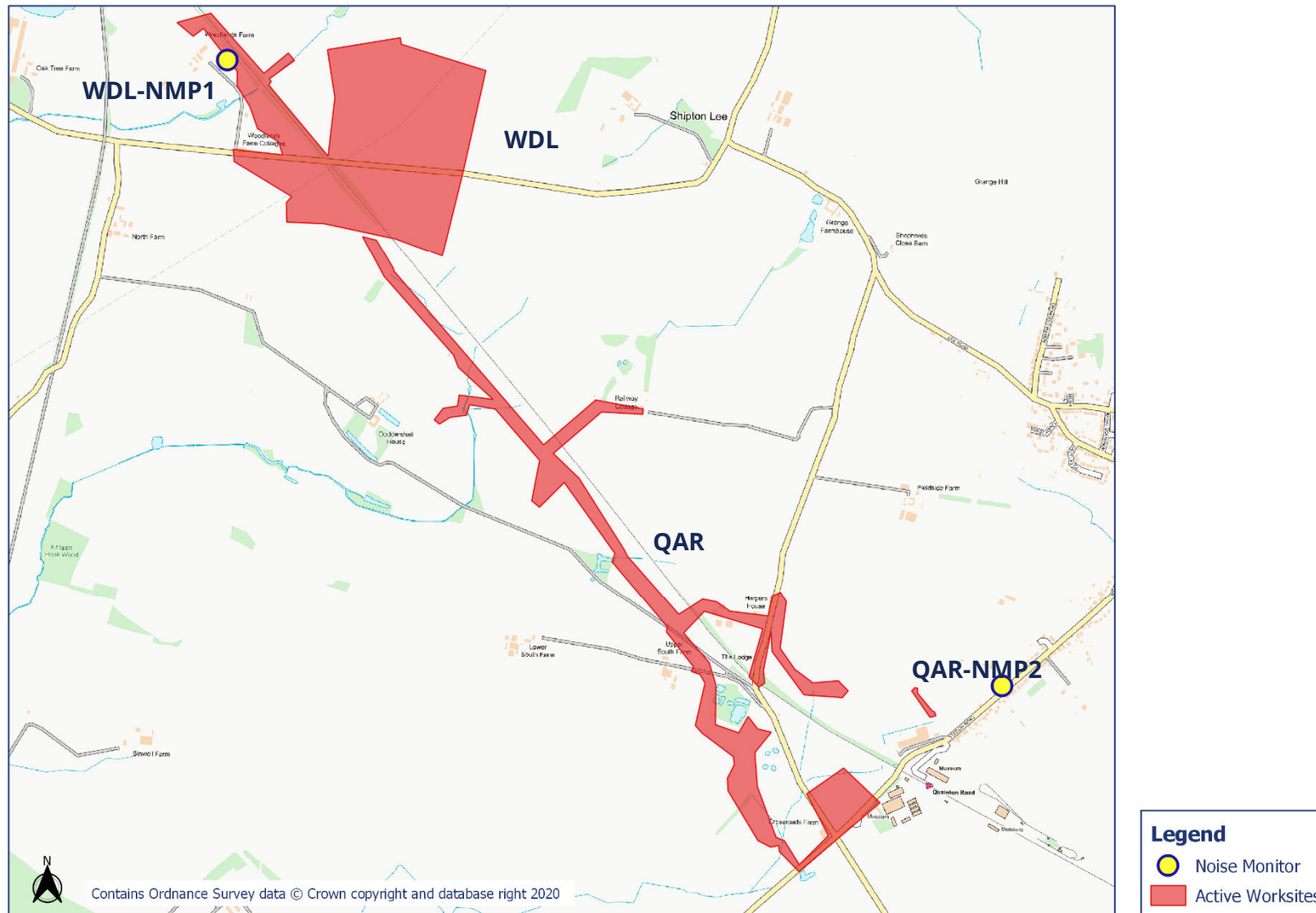
Appendix B Monitoring Locations

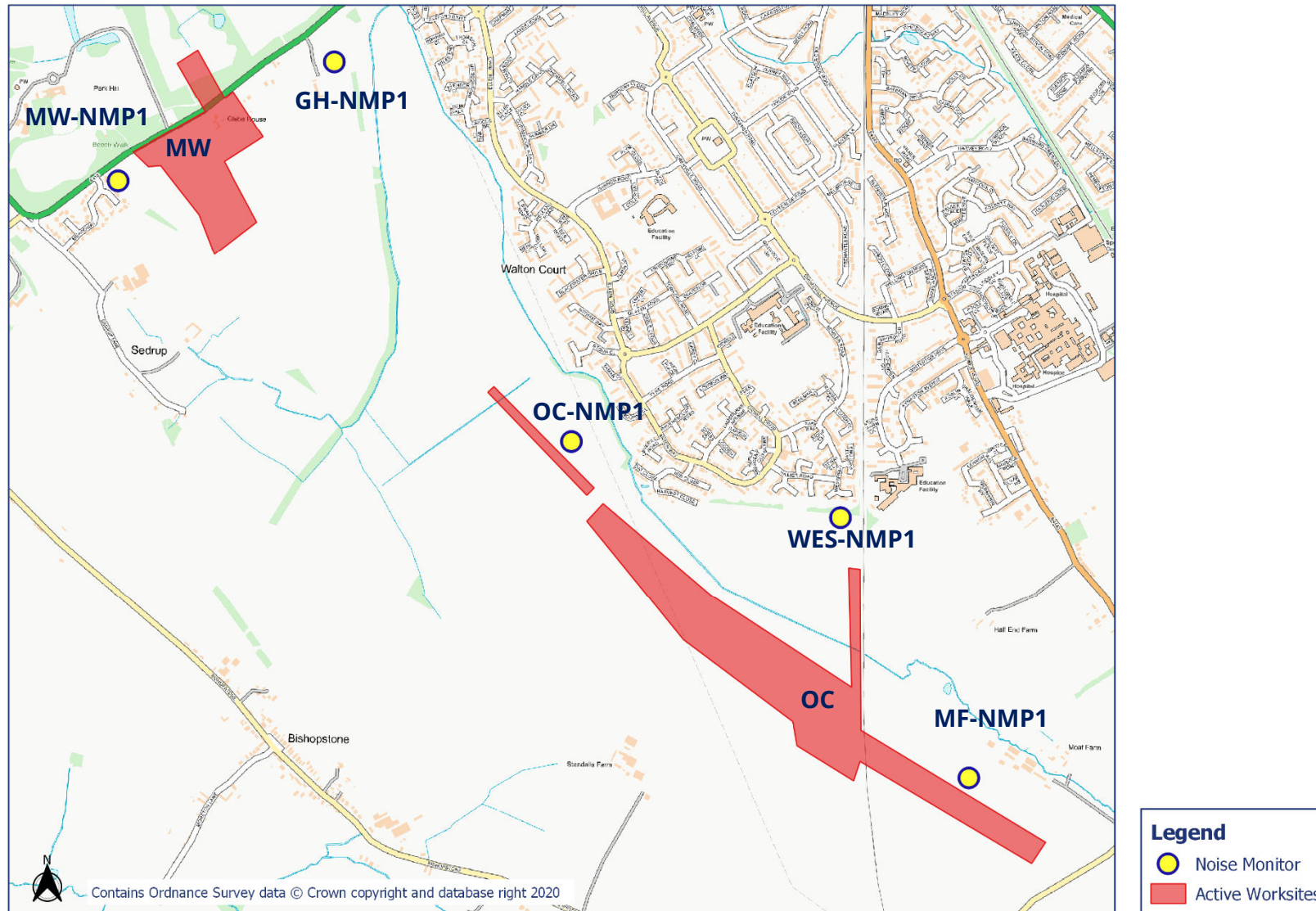


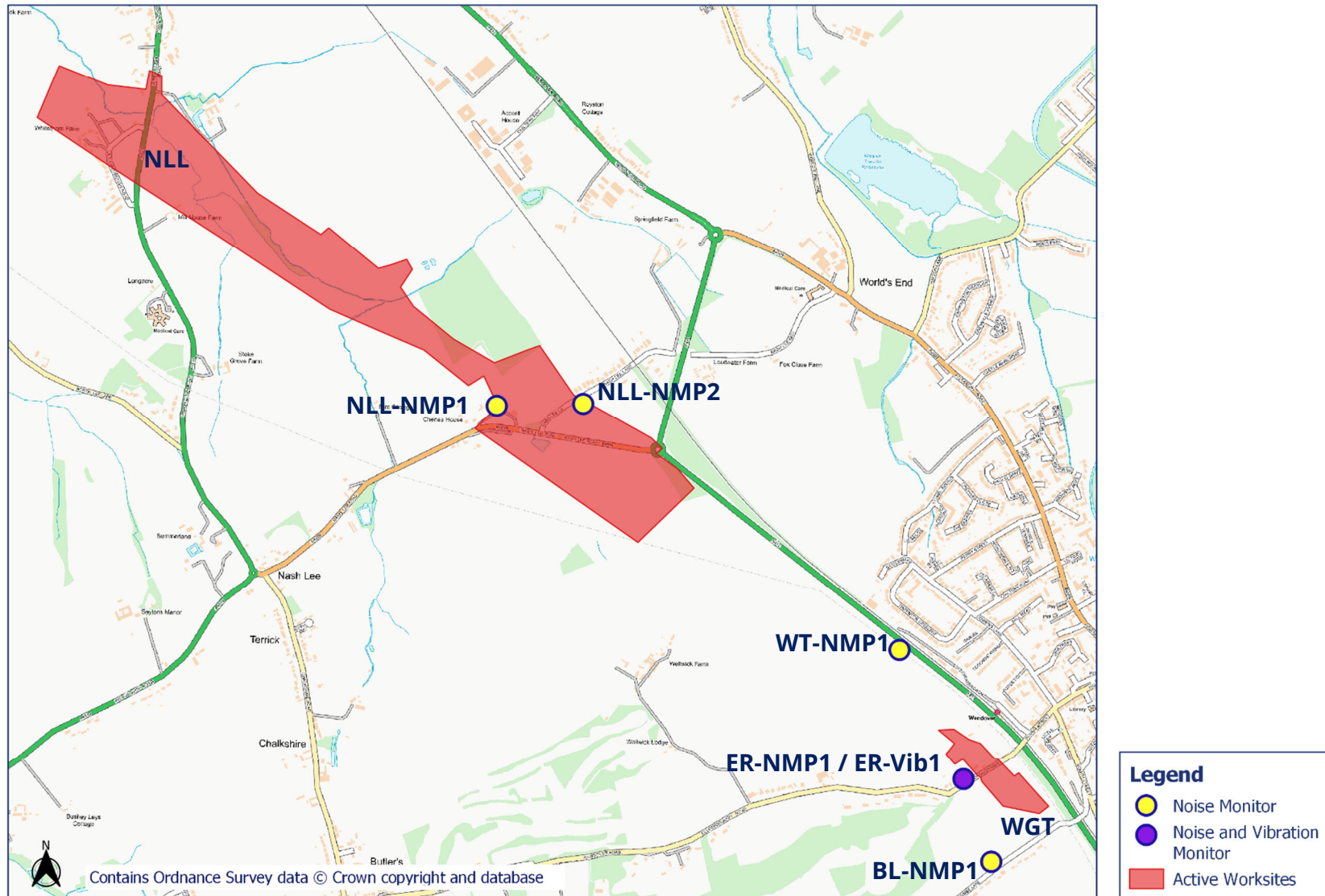


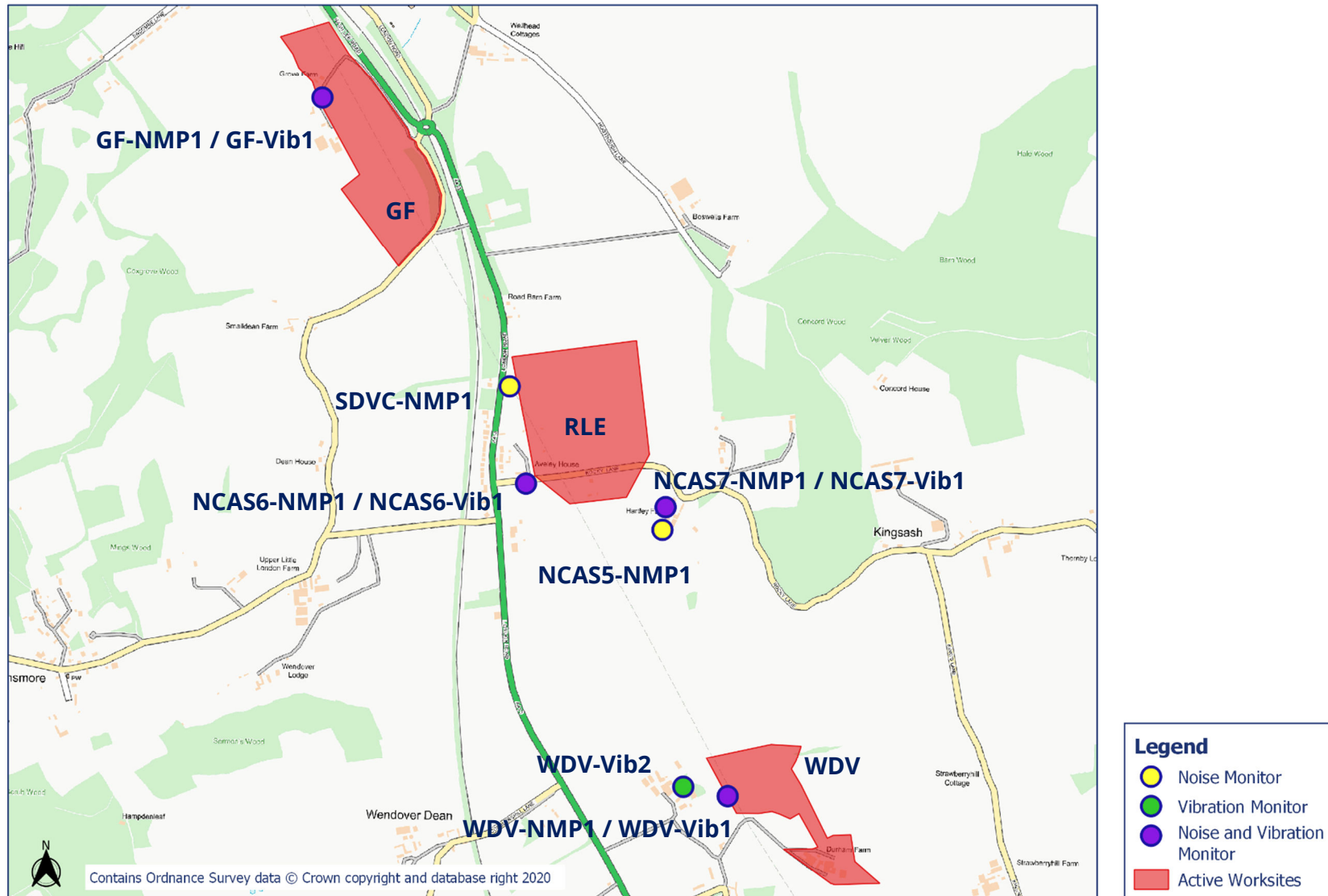


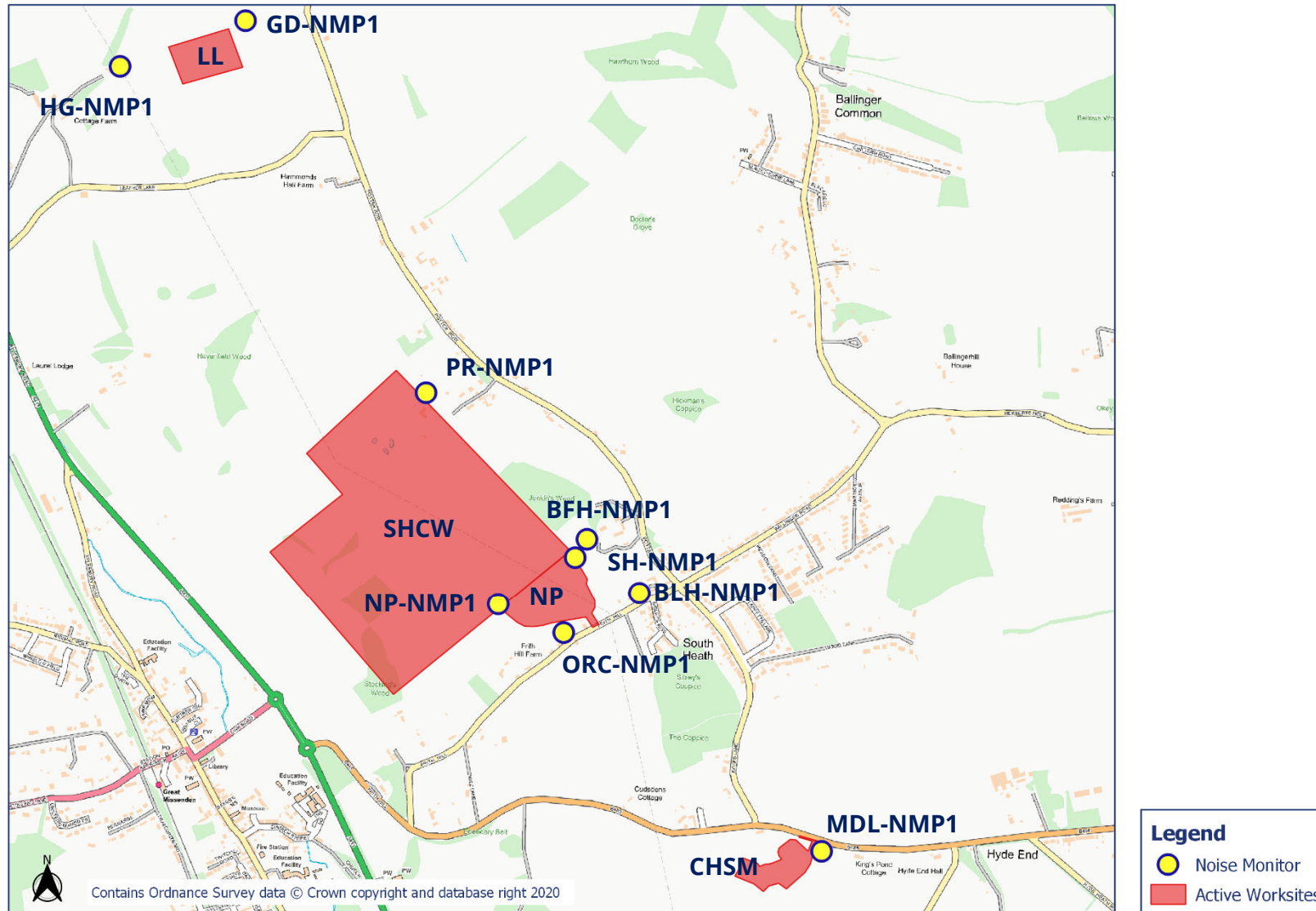




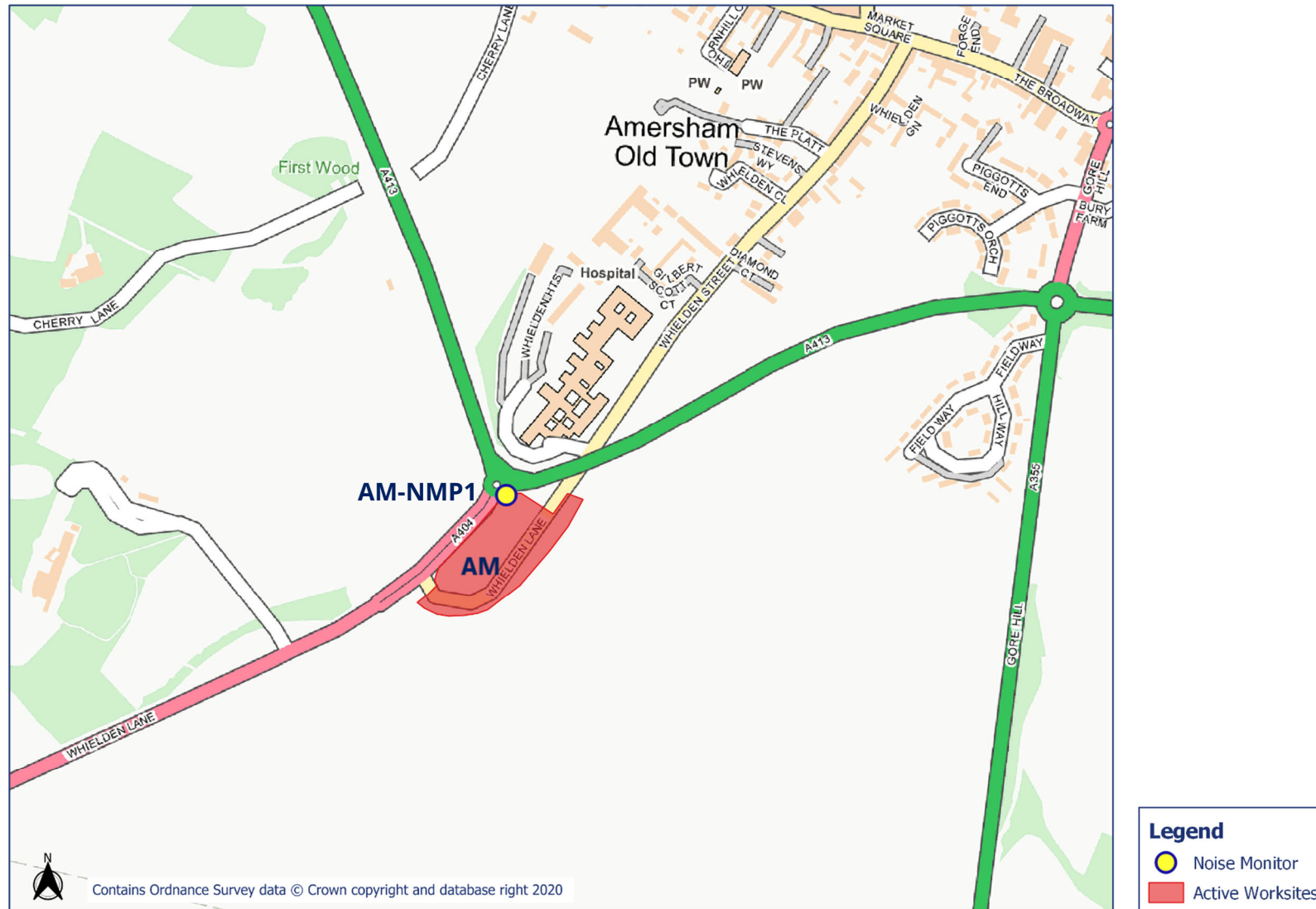


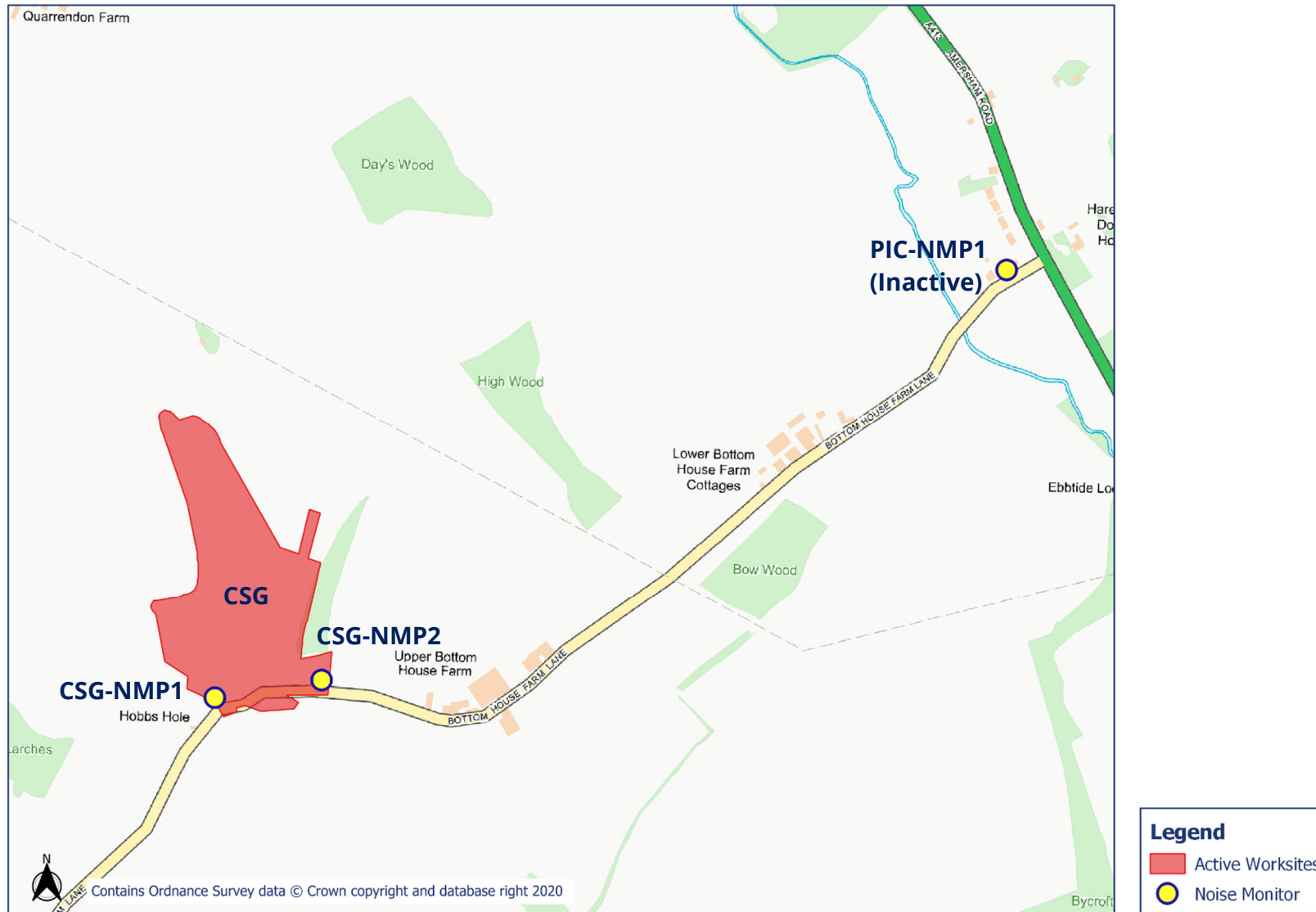




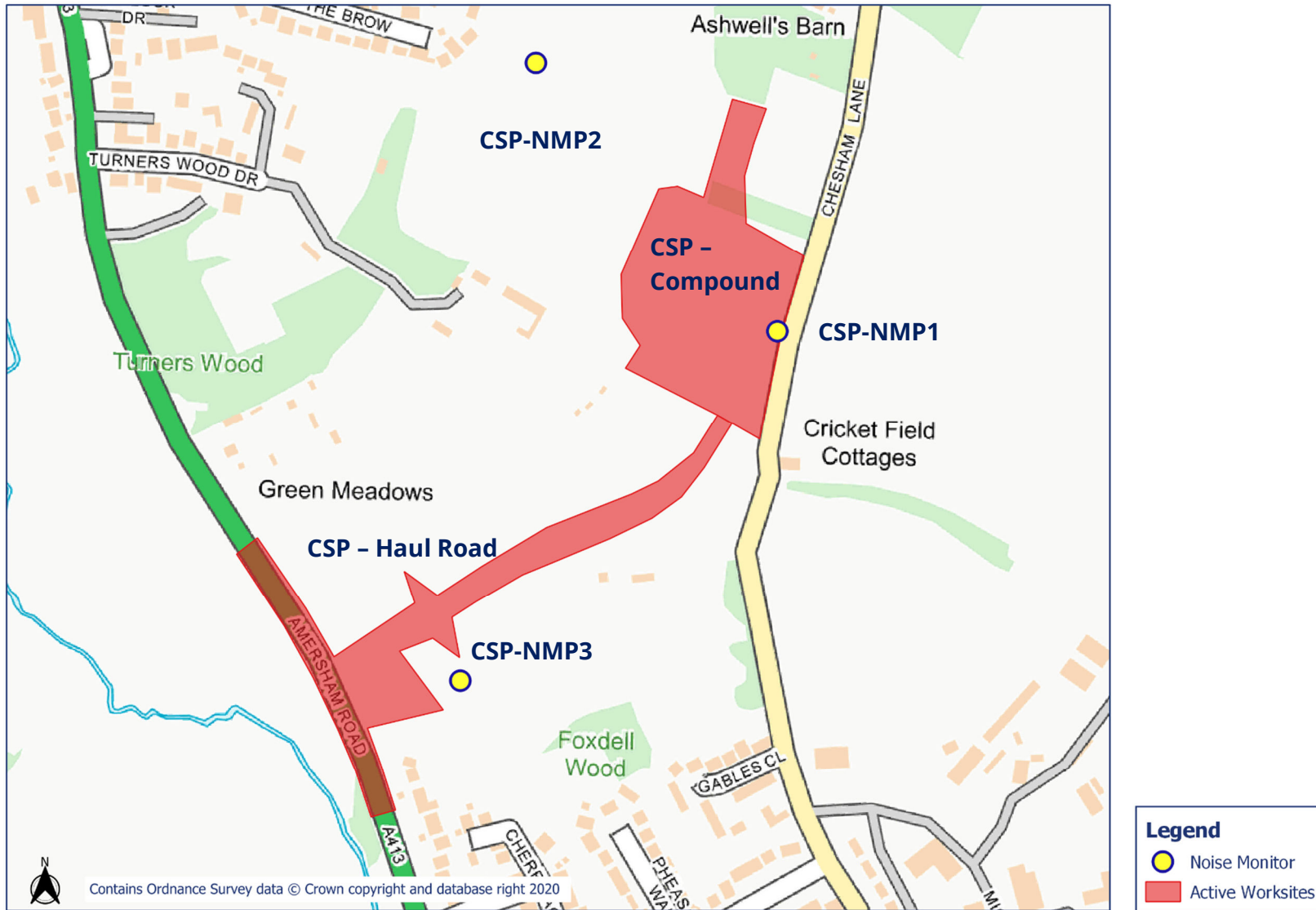


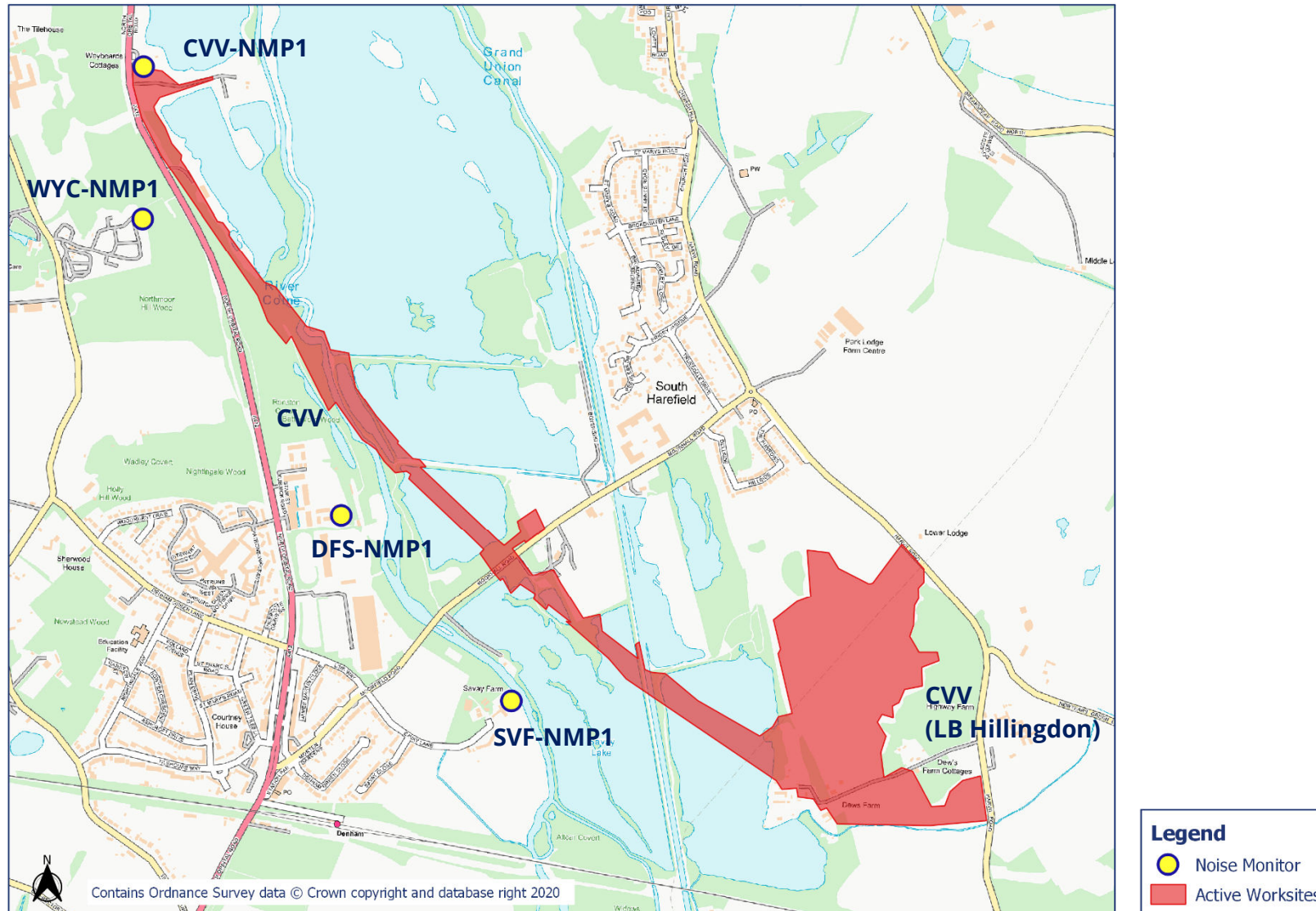






HS2 Noise and Vibration Monitoring Plan - 13



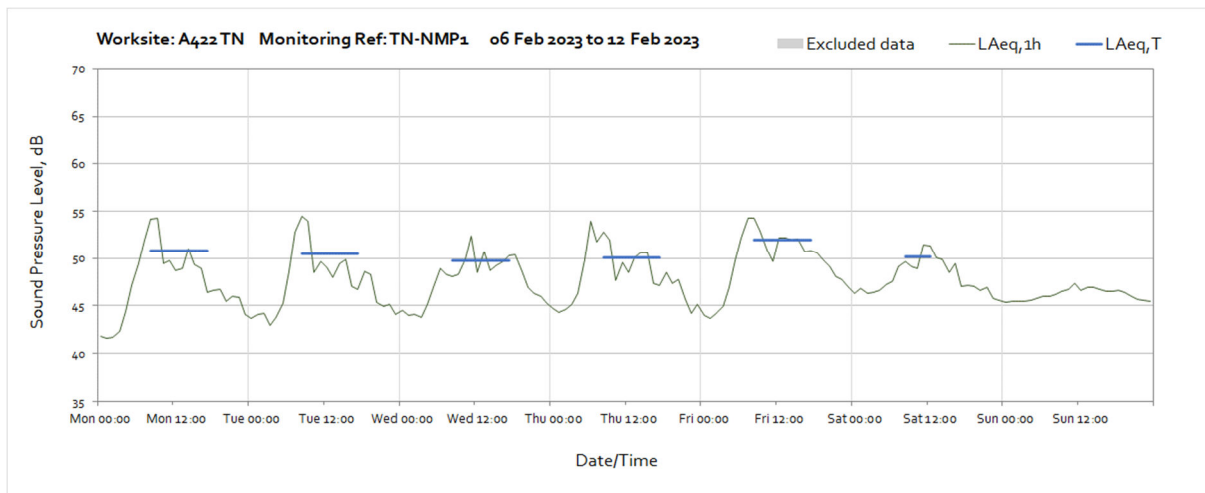
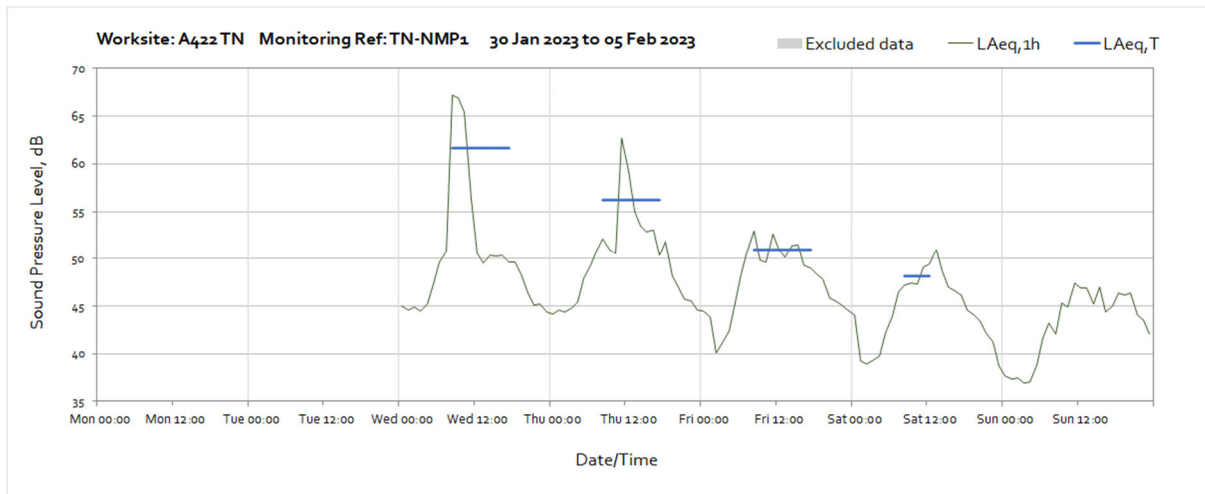


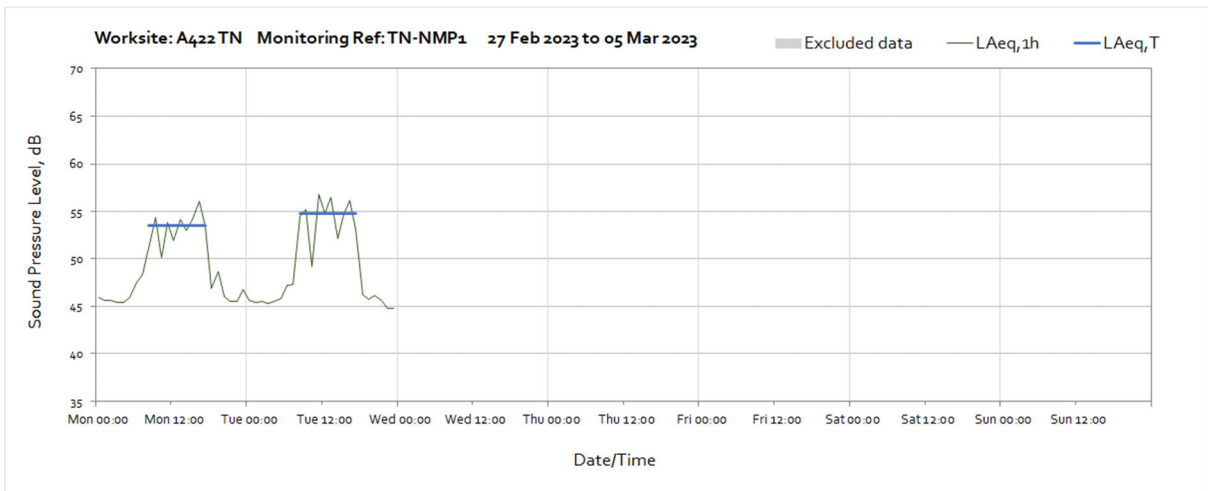
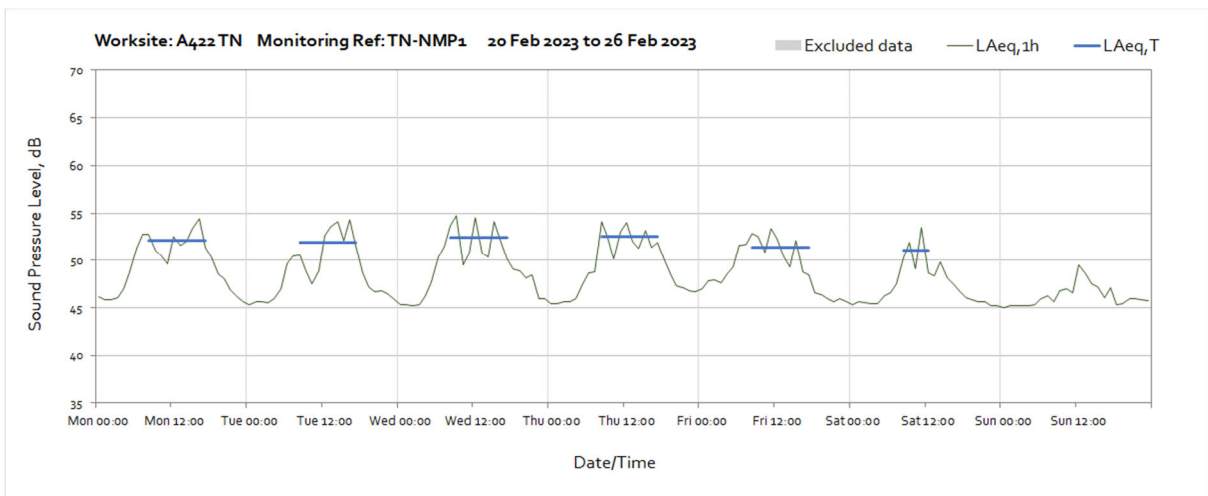
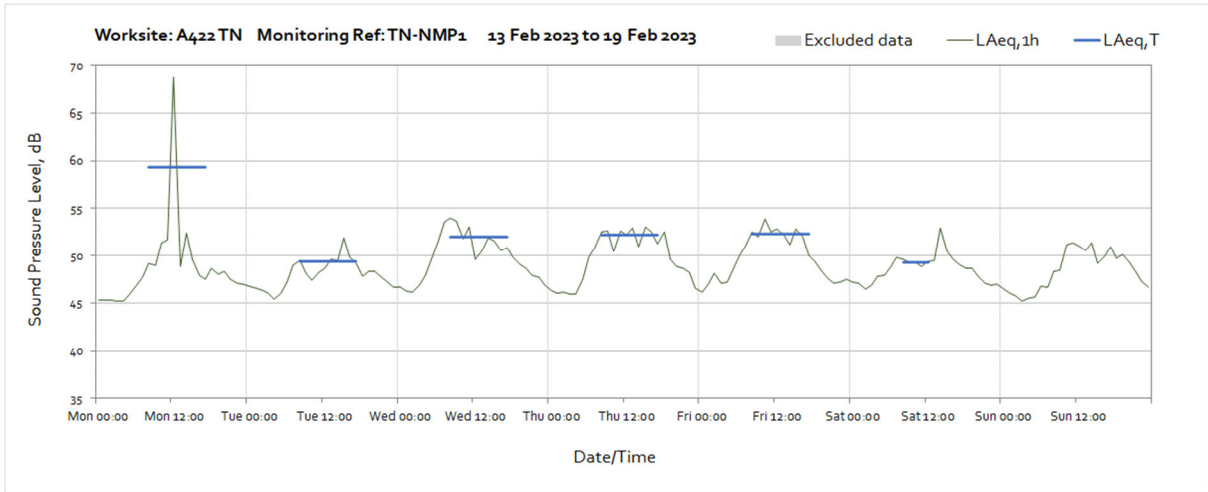
Appendix C Data

Noise

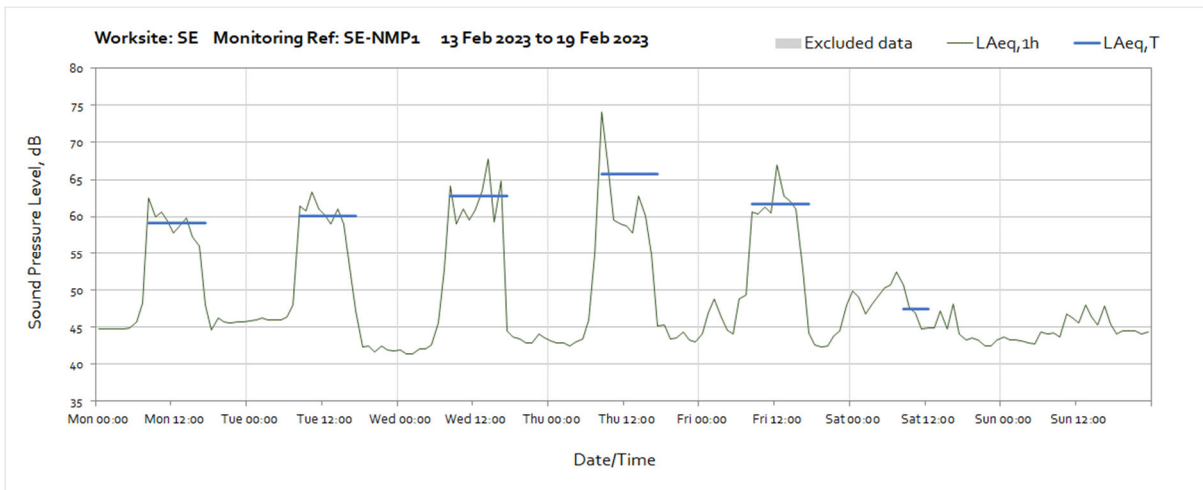
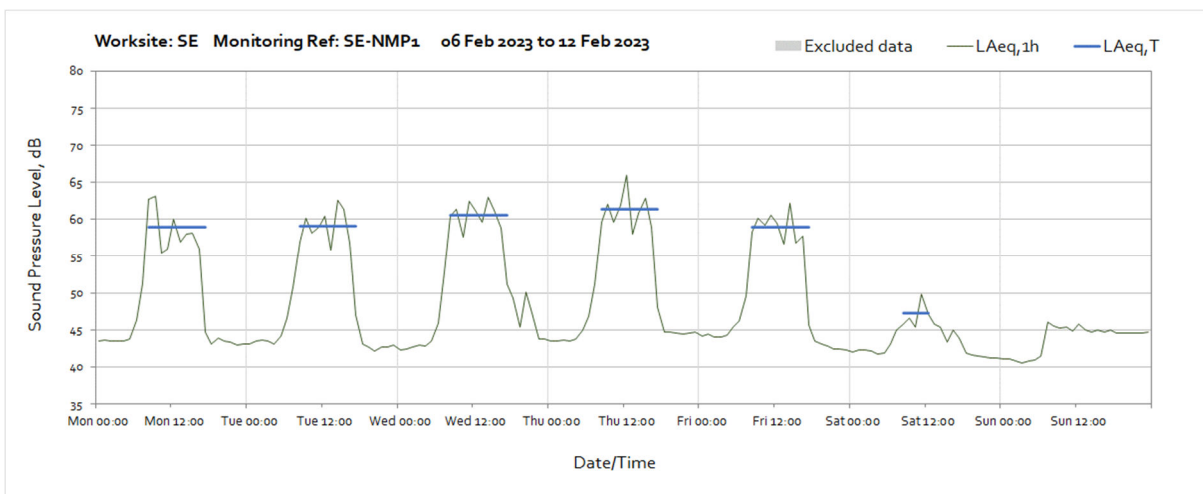
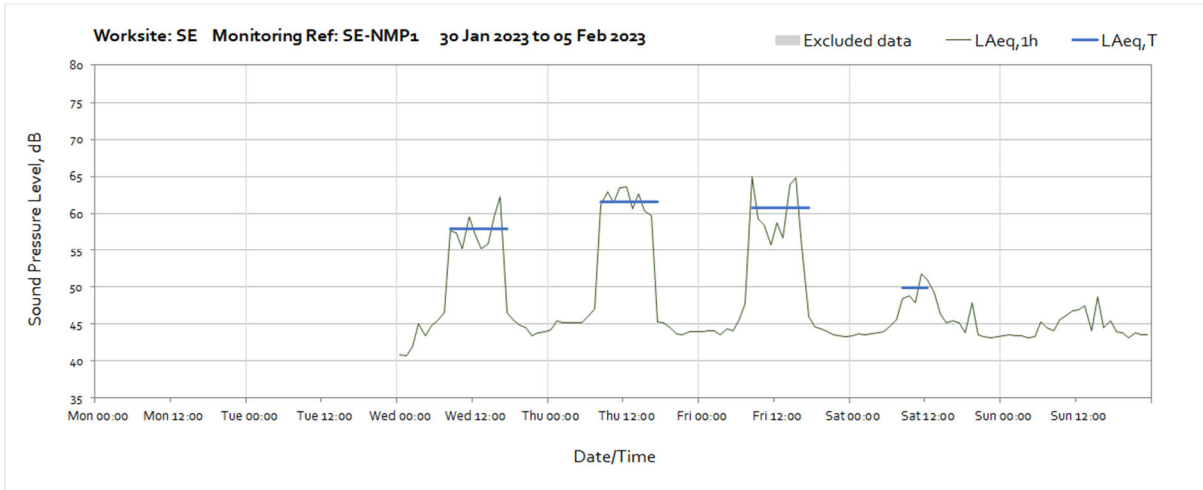
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have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

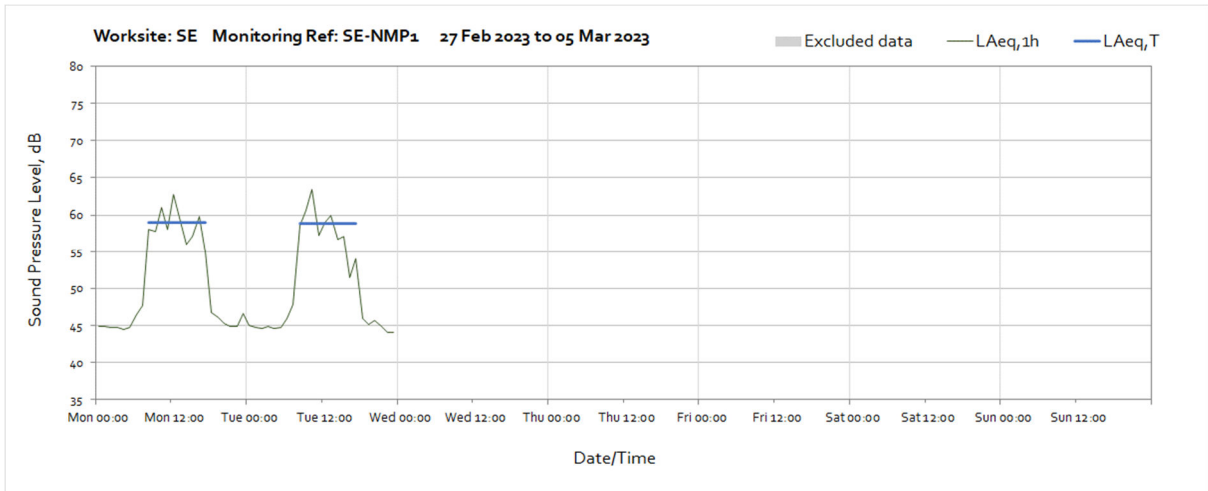
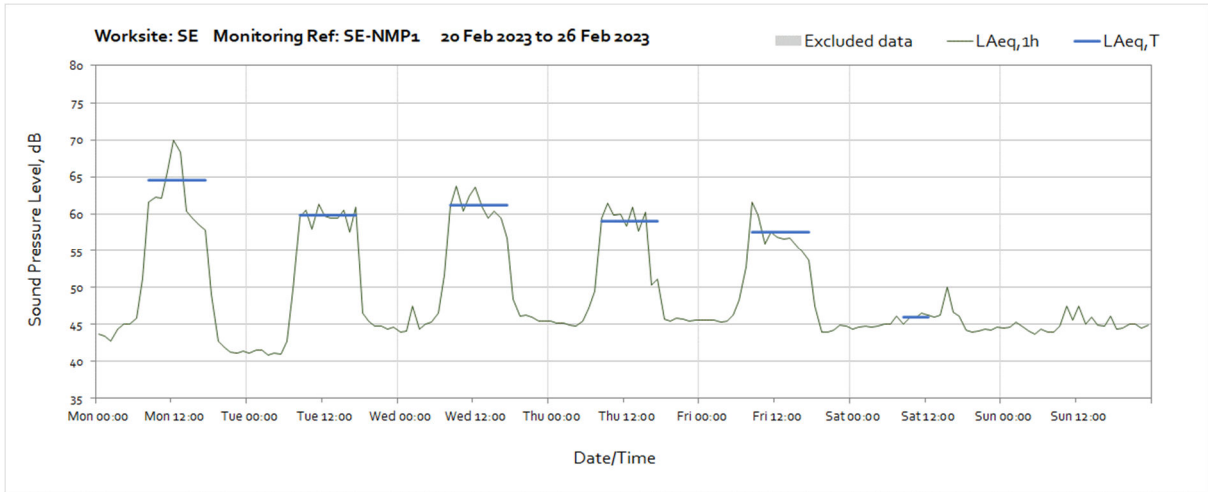
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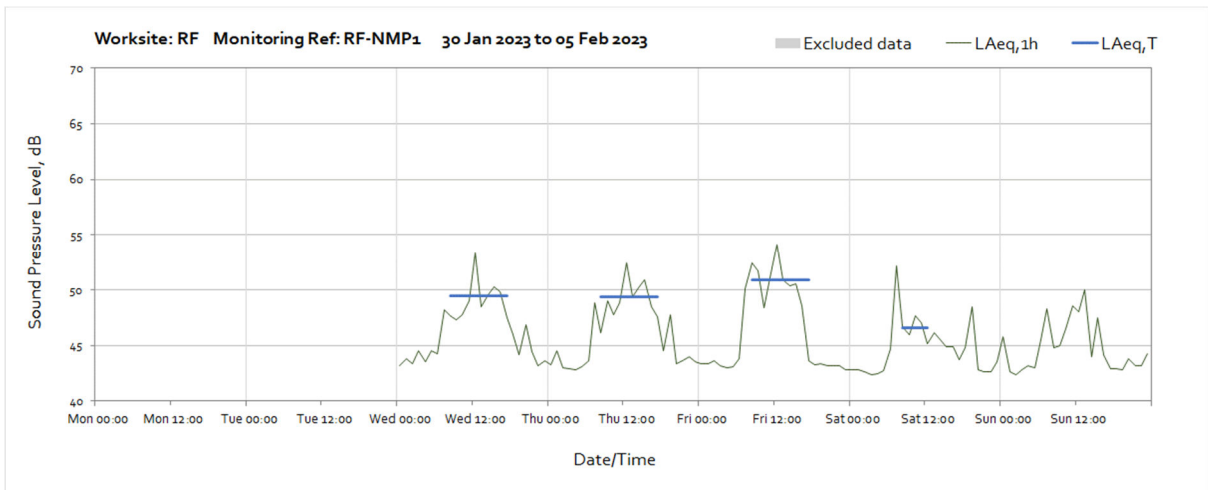


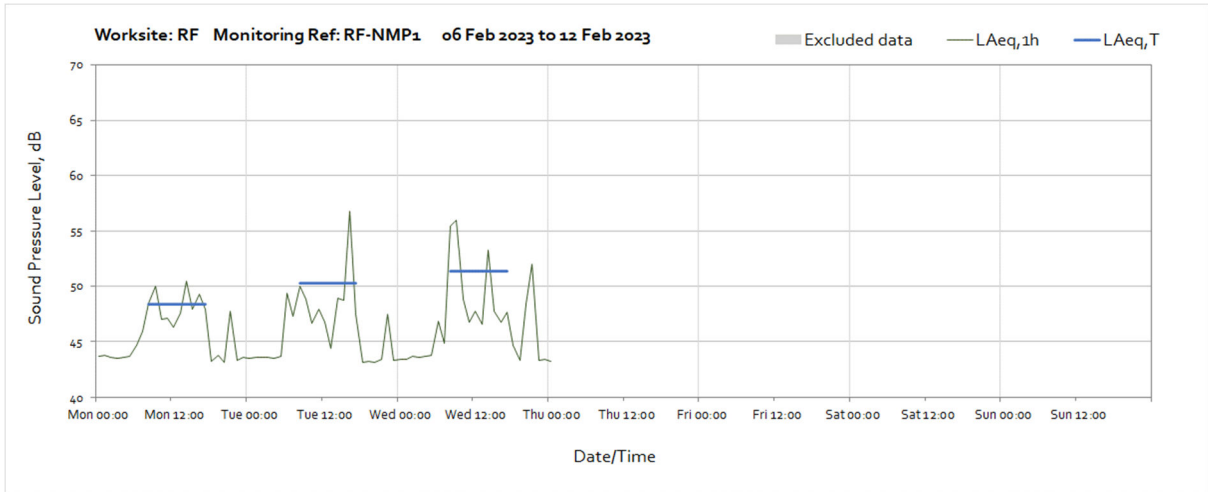
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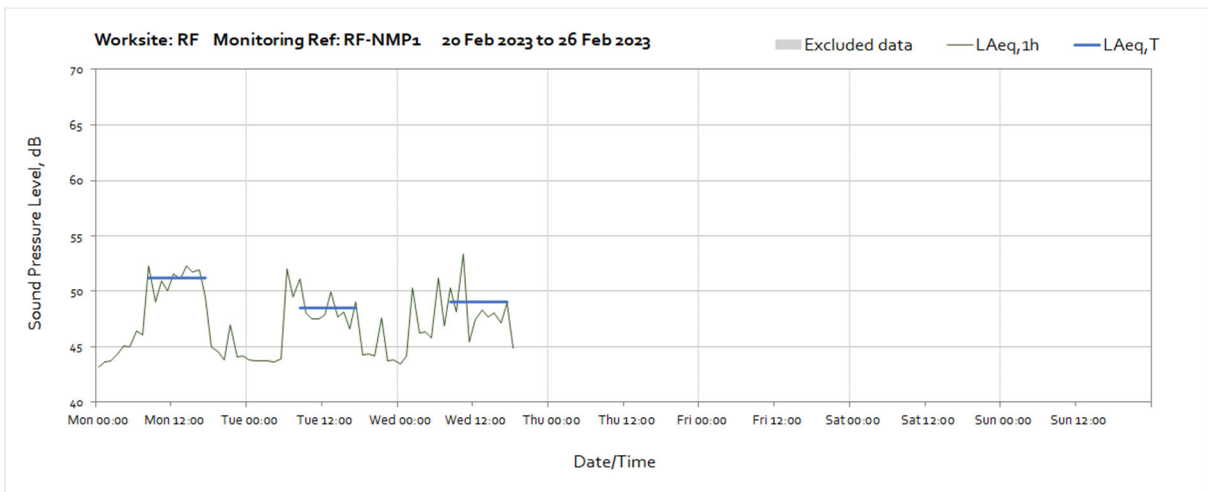
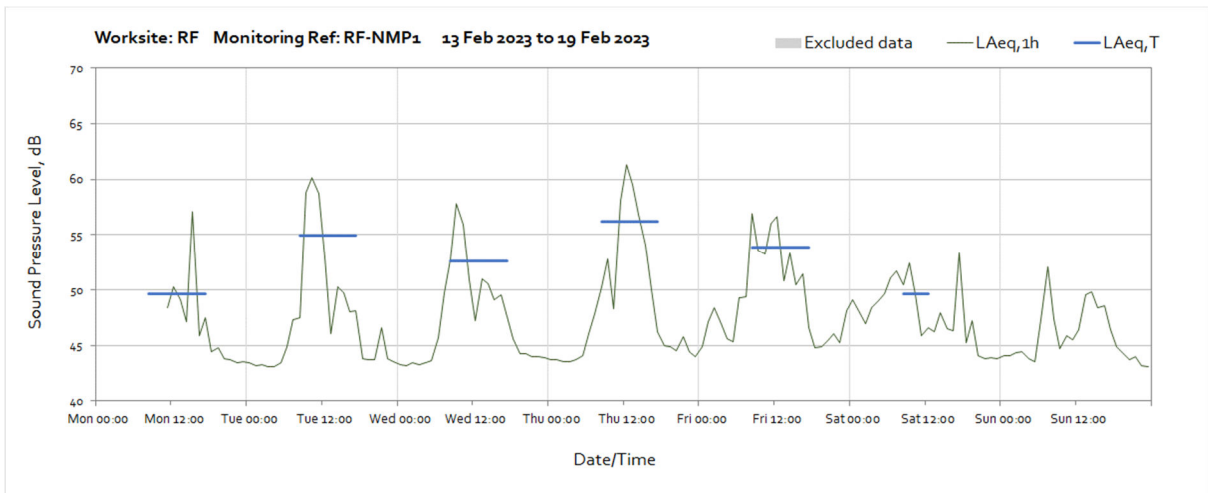


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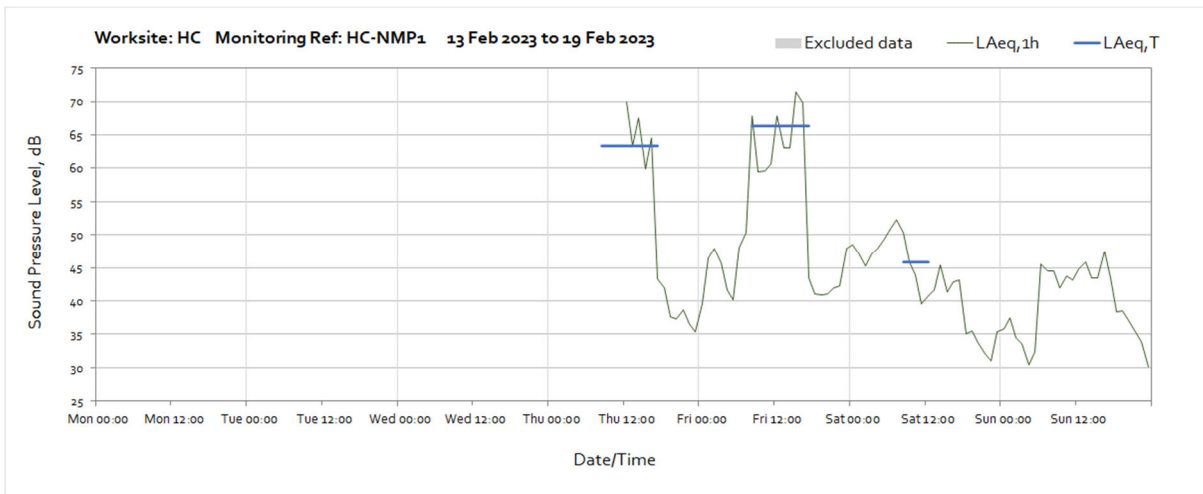


Note: Missing data between 01:00 on 9th February until 11:00 on 13th February was due to loss of monitor power.

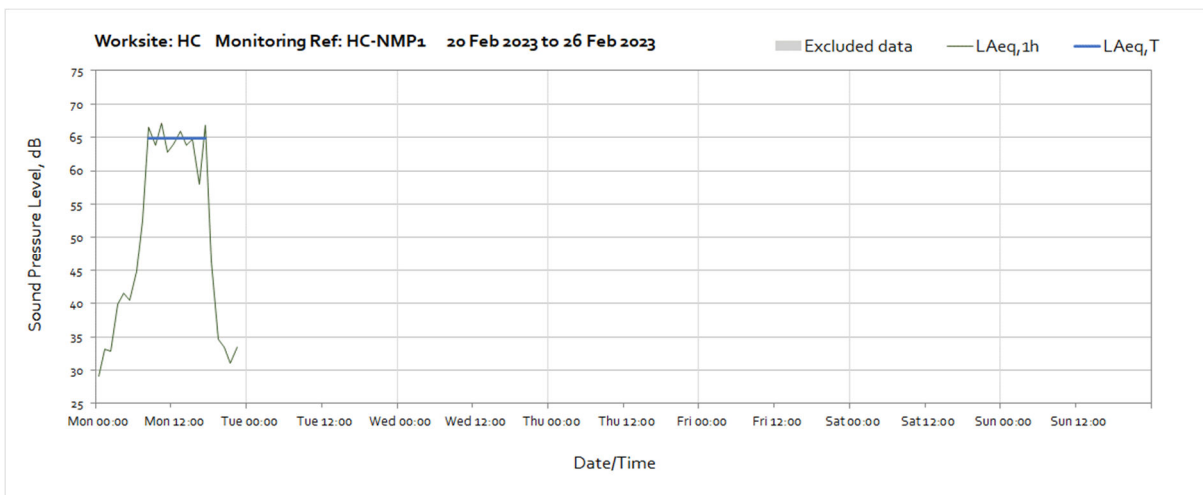


Note: Missing data between 19:00 on 22nd February until month end was due to loss of monitor power.

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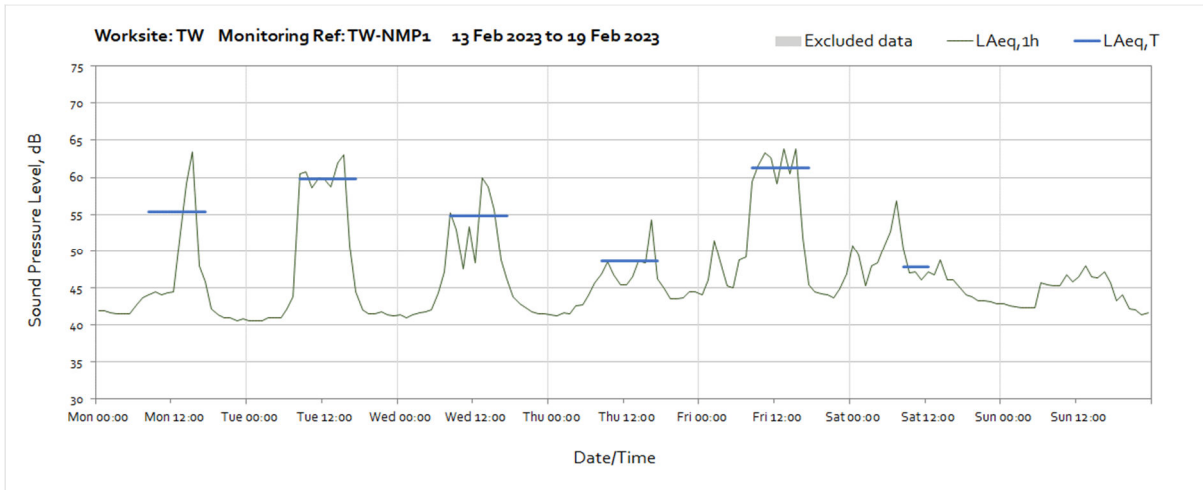
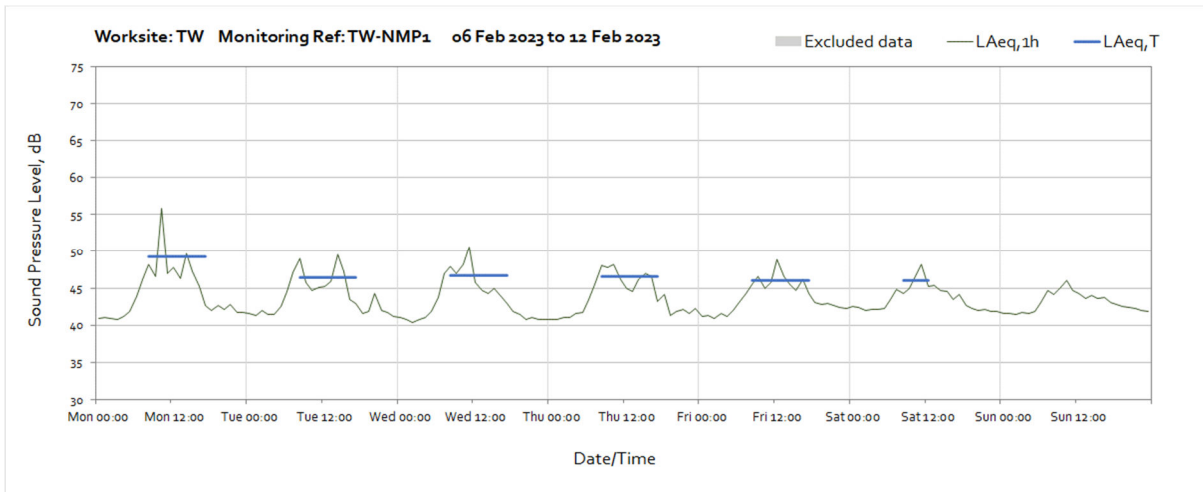
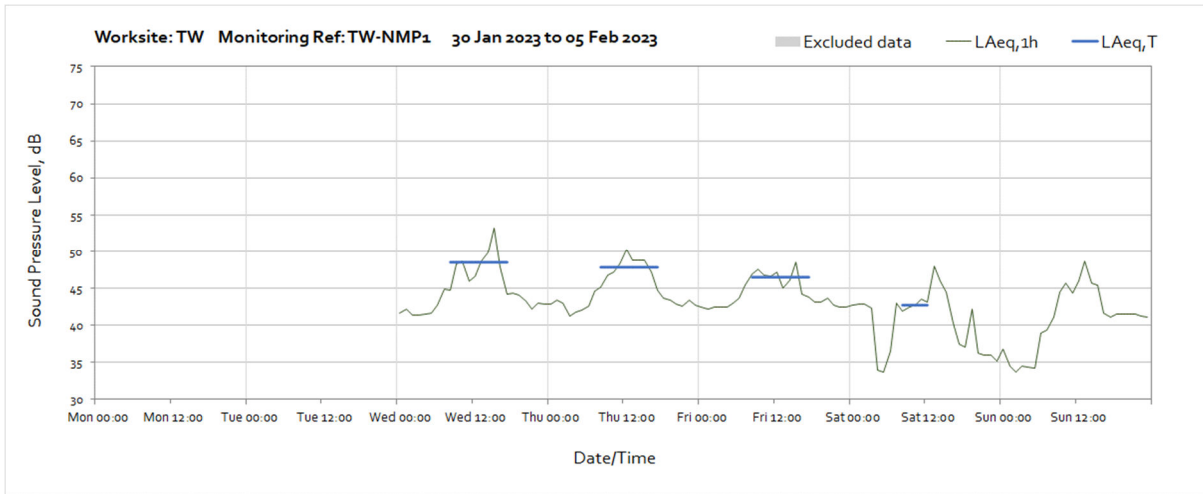


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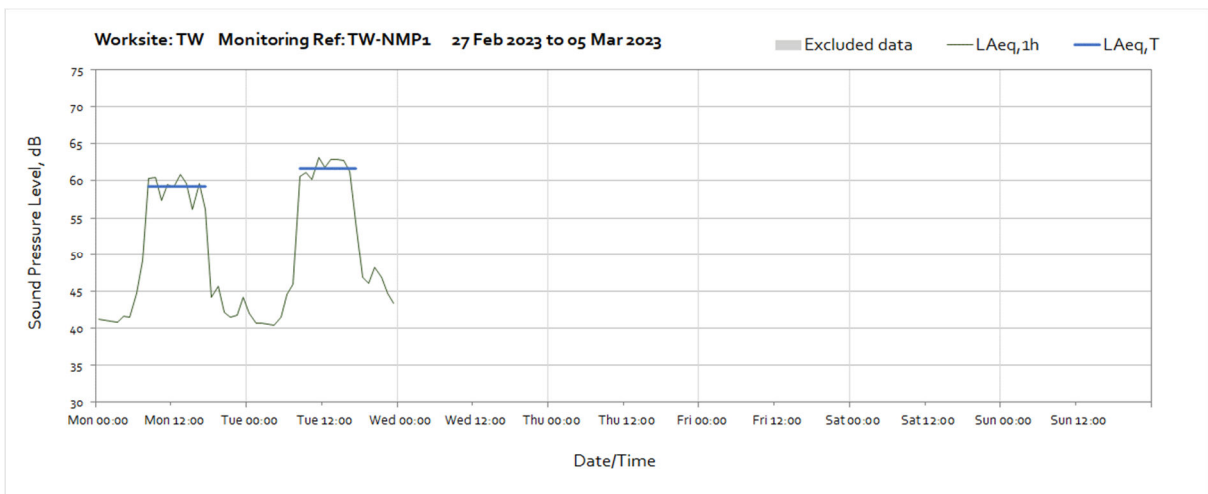
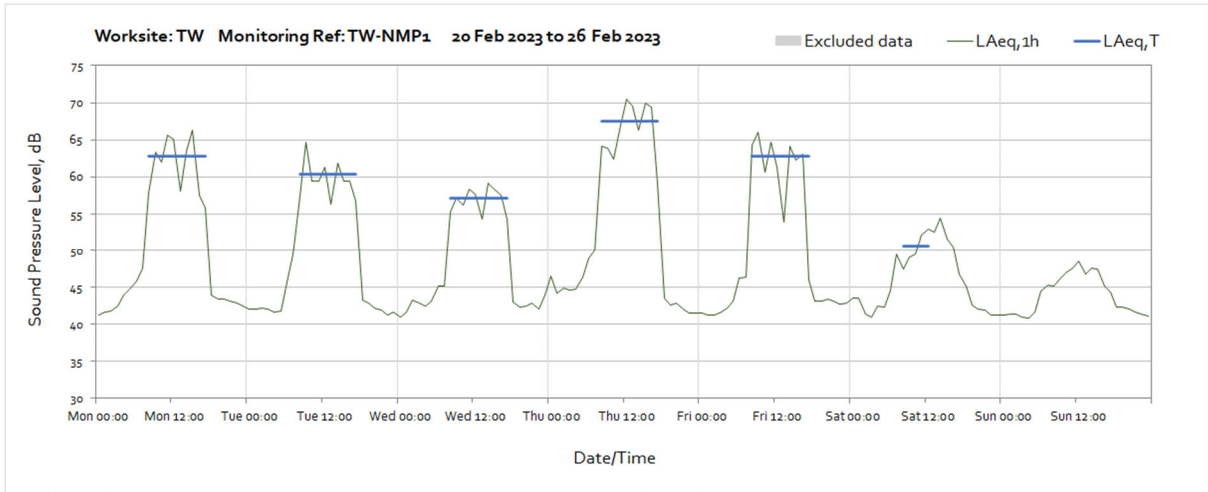


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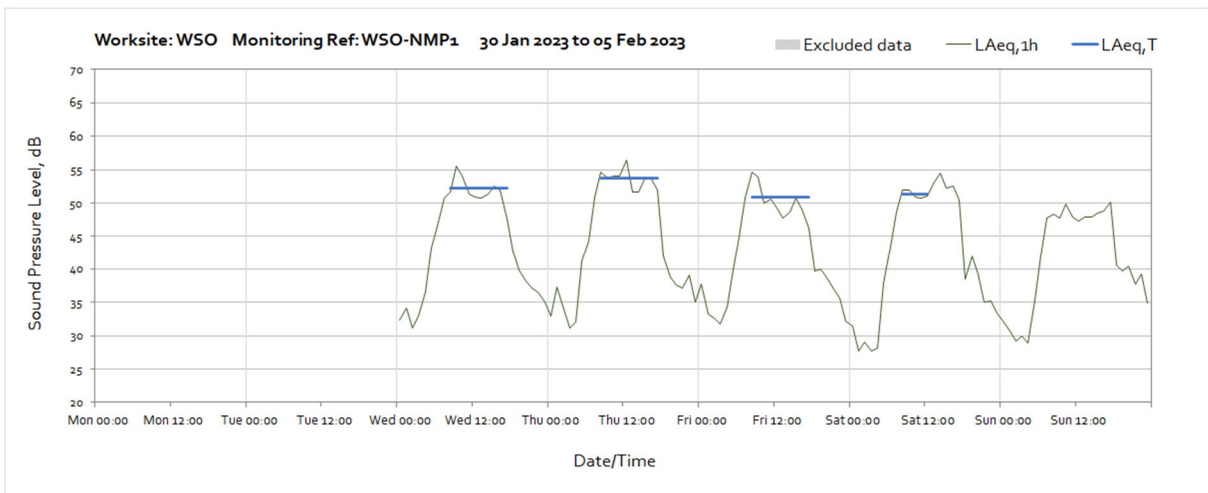
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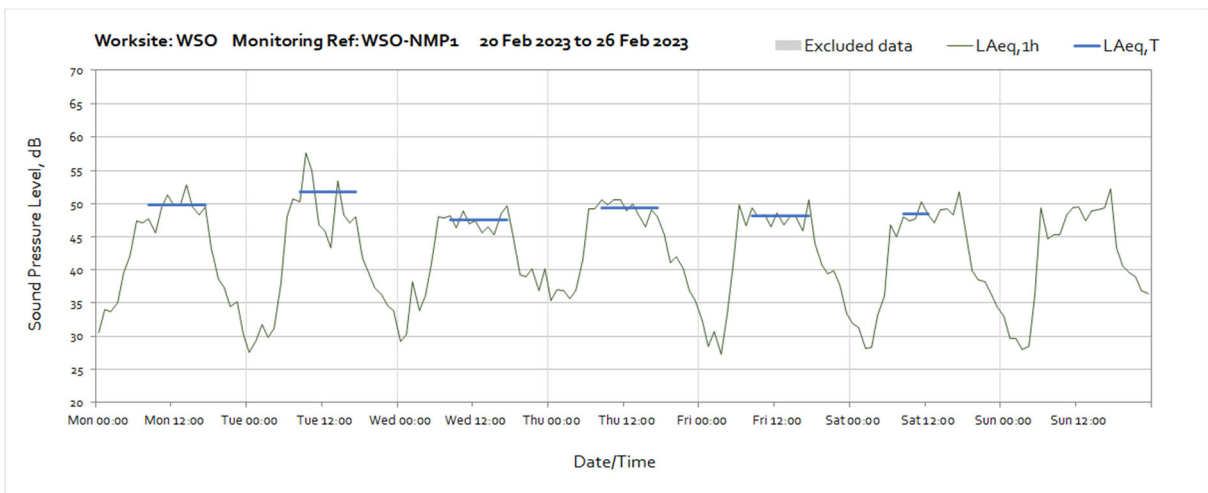
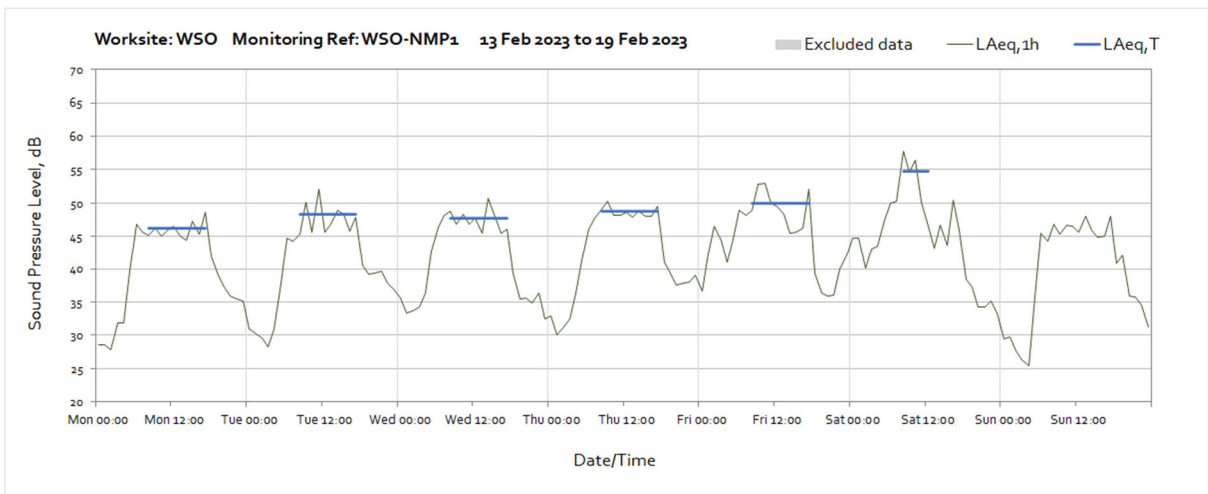
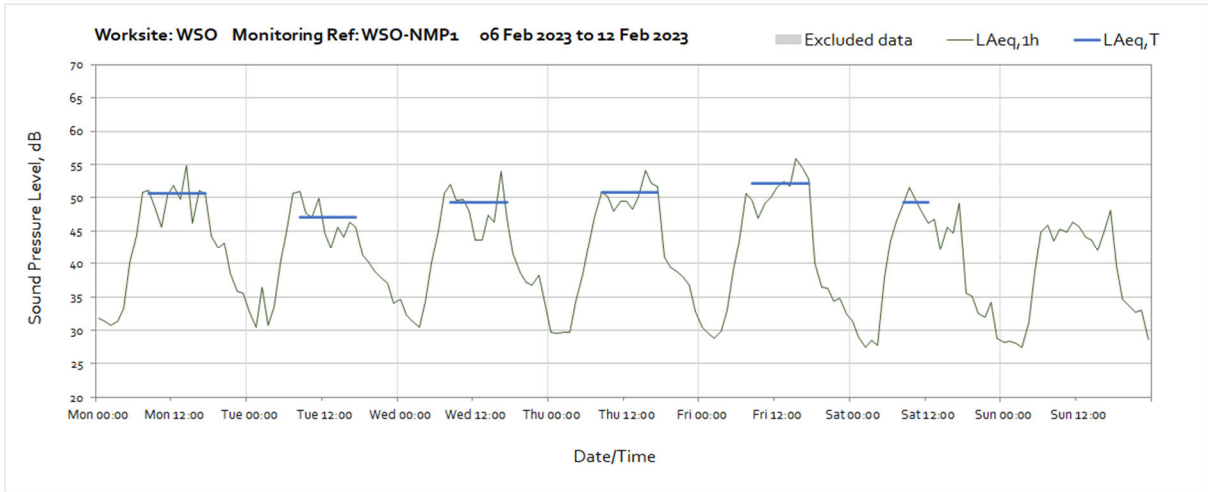


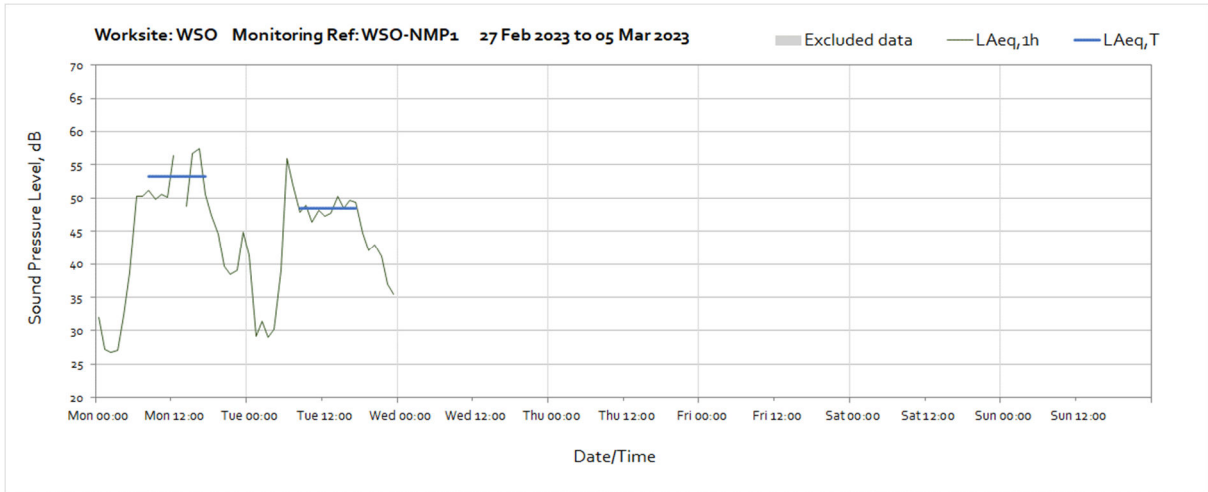
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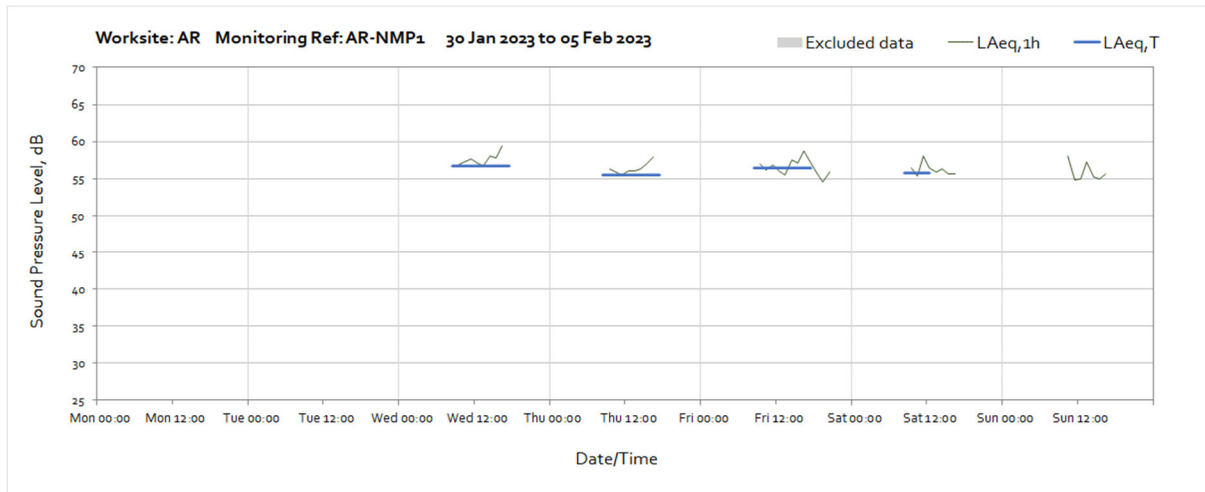




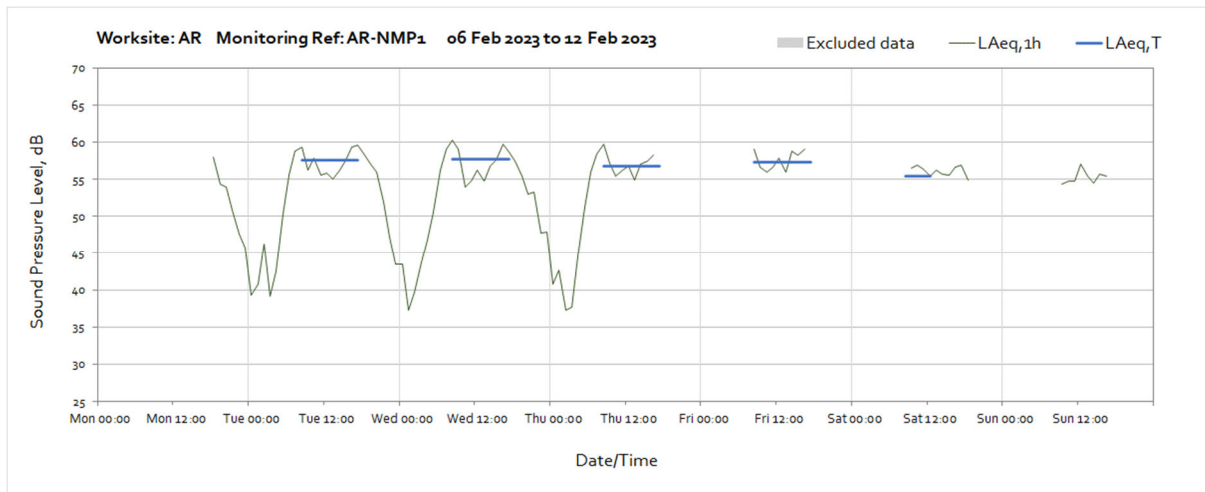


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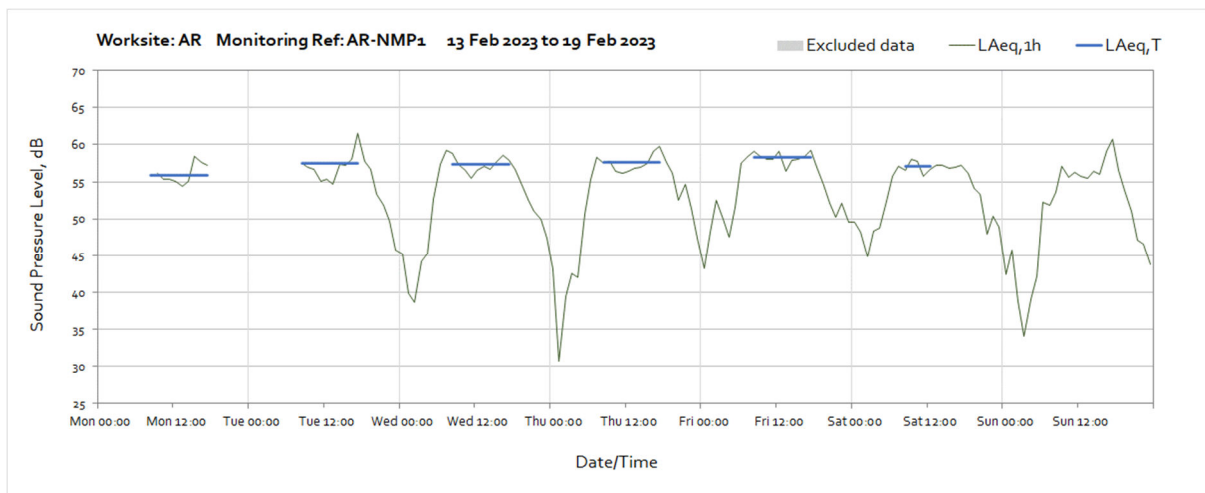
Worksite: AR – Monitoring Ref: AR-NMP1



Note: Missing data throughout the month of february was due to loss of power to monitor due to lack of solar charge.

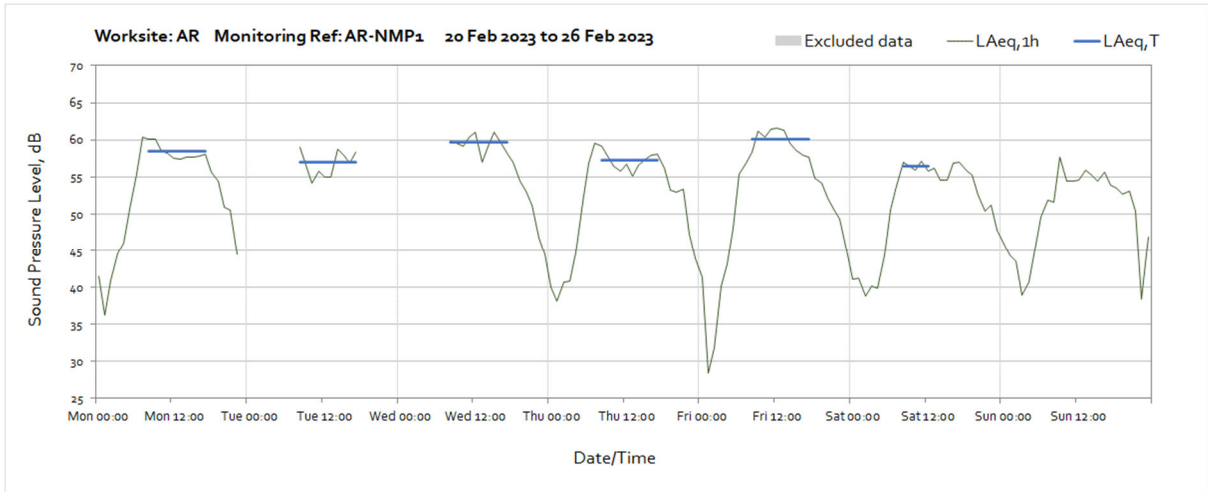


Note: Missing data throughout the month of february was due to loss of power to monitor due to lack of solar charge.

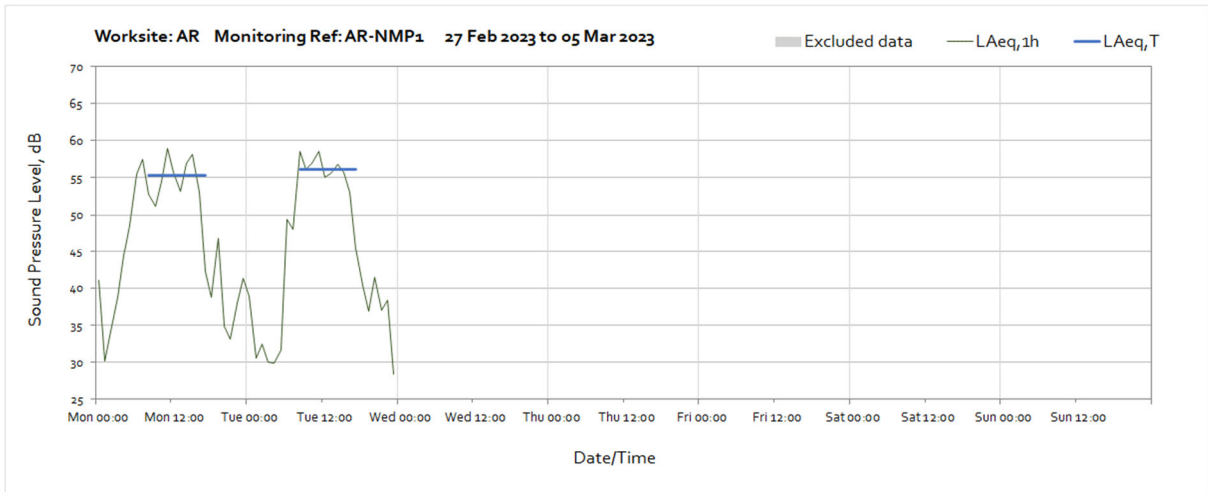


Note: Missing data throughout the month of february was due to loss of power to monitor due to lack of solar charge.

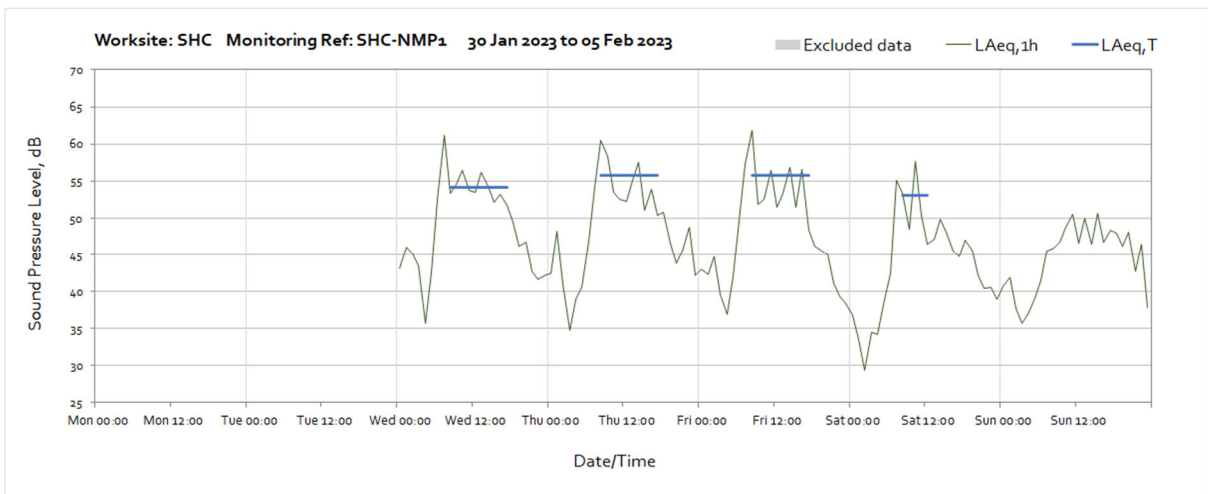
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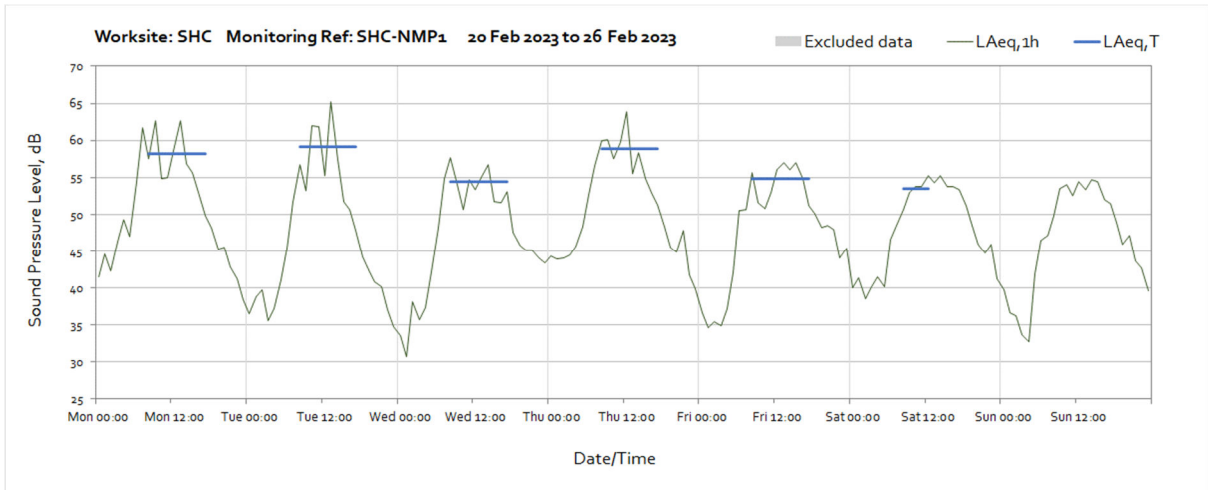
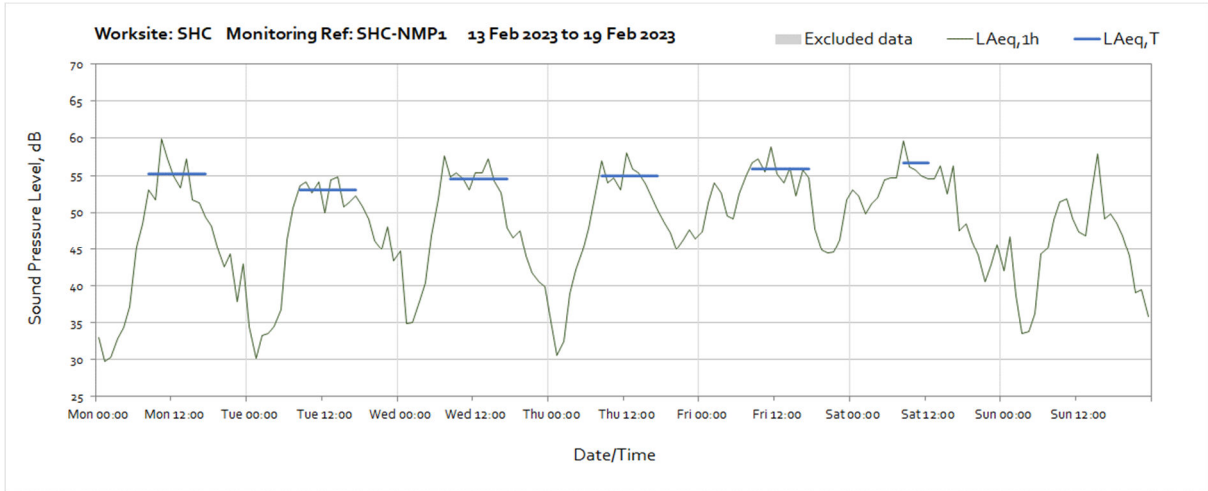
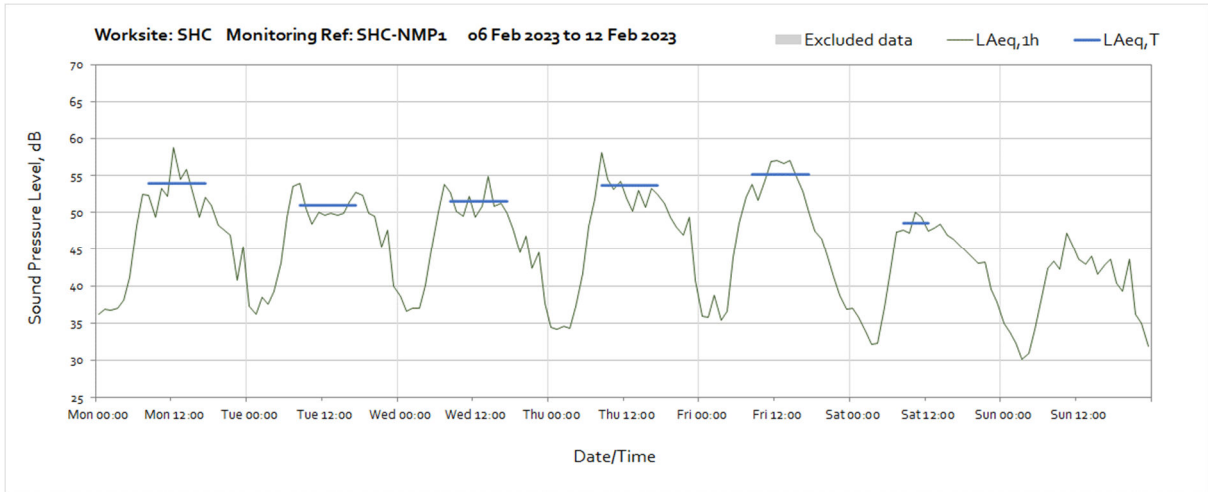


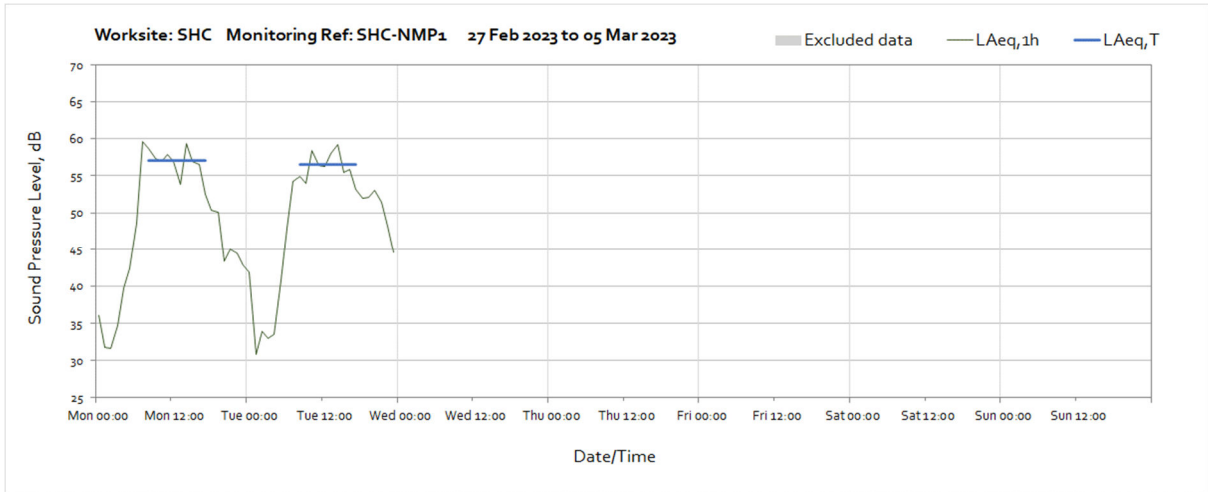
Note: Missing data throughout the month of February was due to loss of power to monitor due to lack of solar charge.



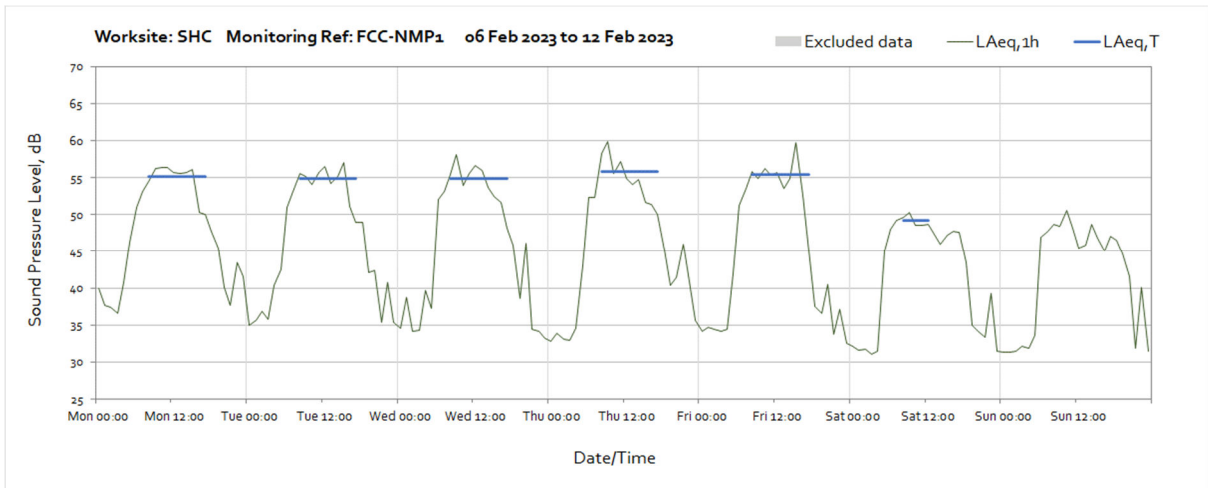
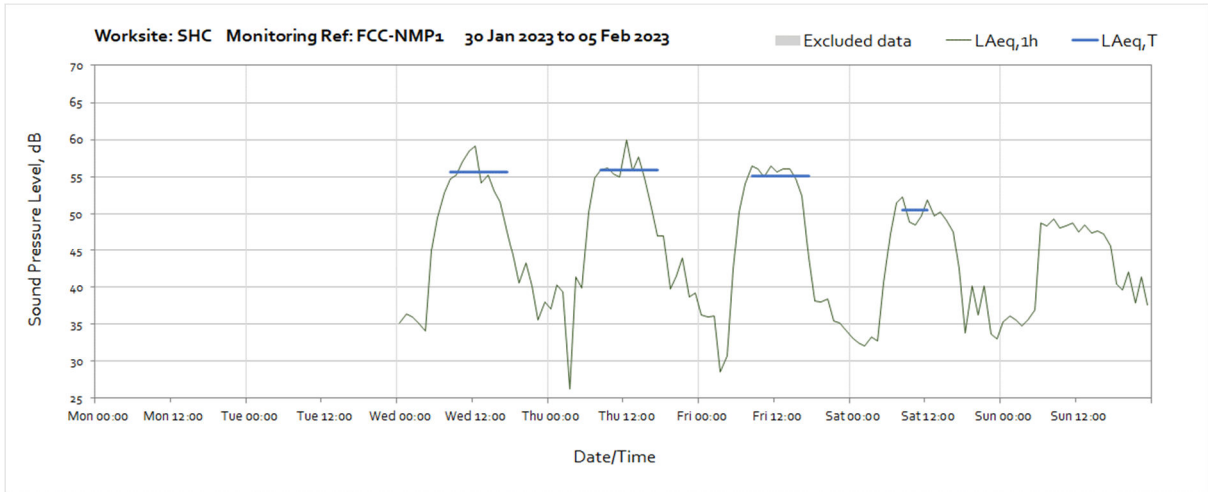
Worksite: SHC – Monitoring Ref: SHC-NMP1

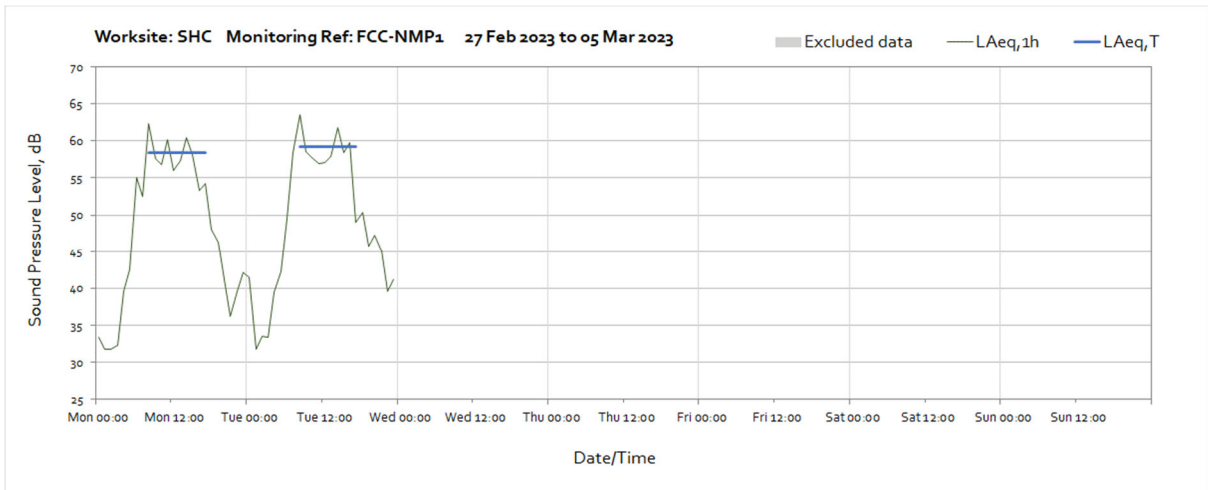
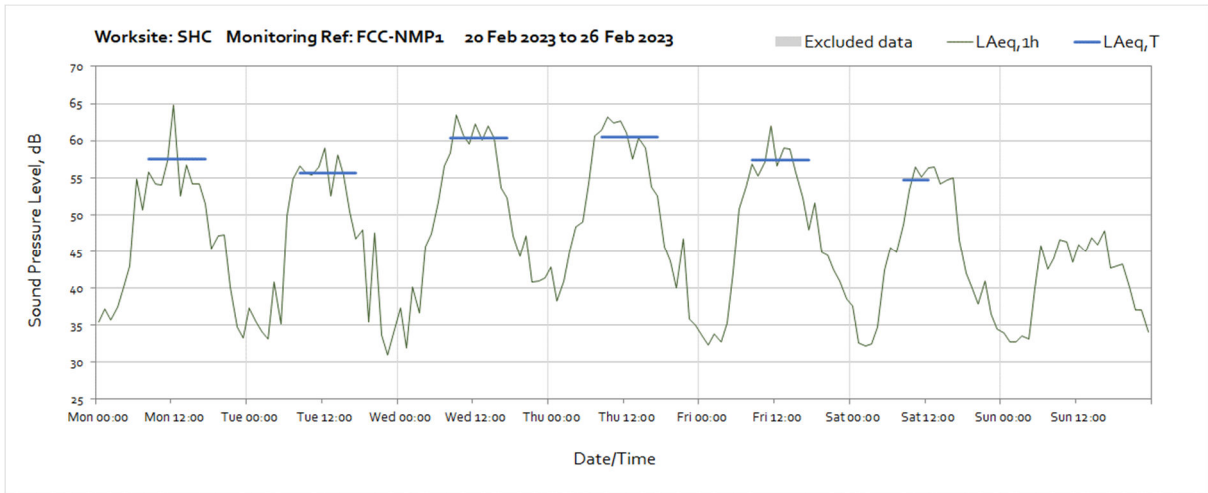
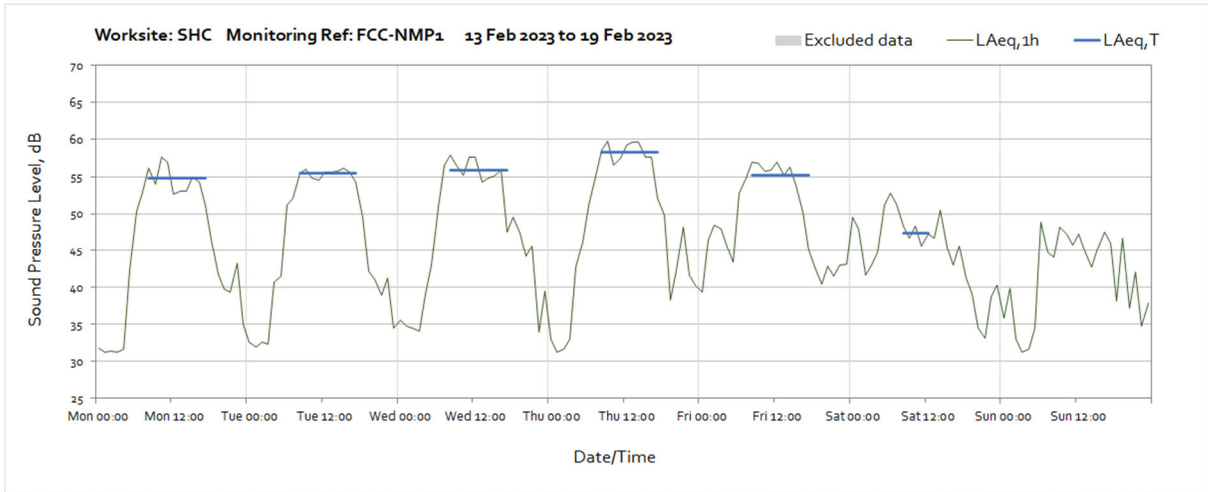




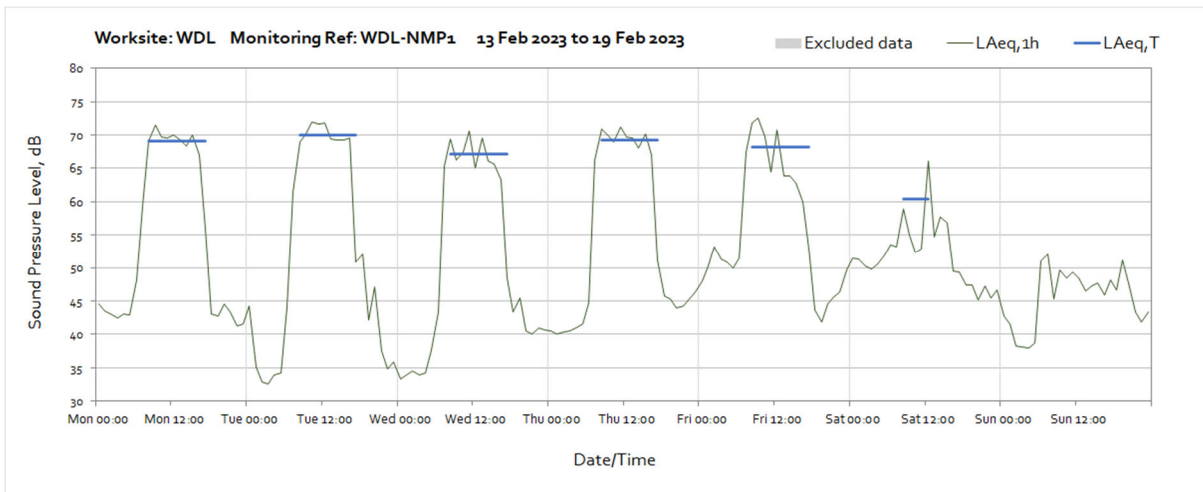
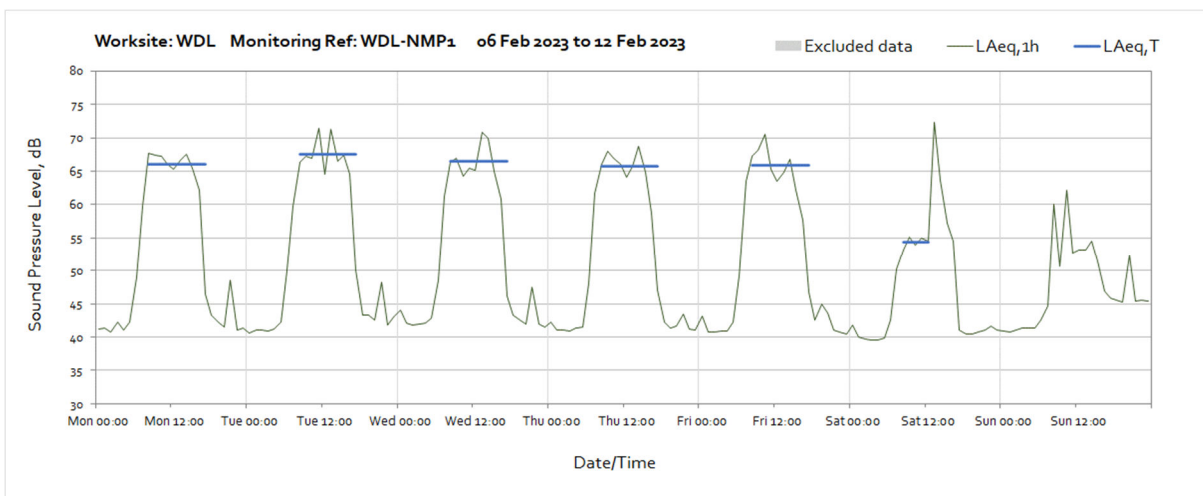
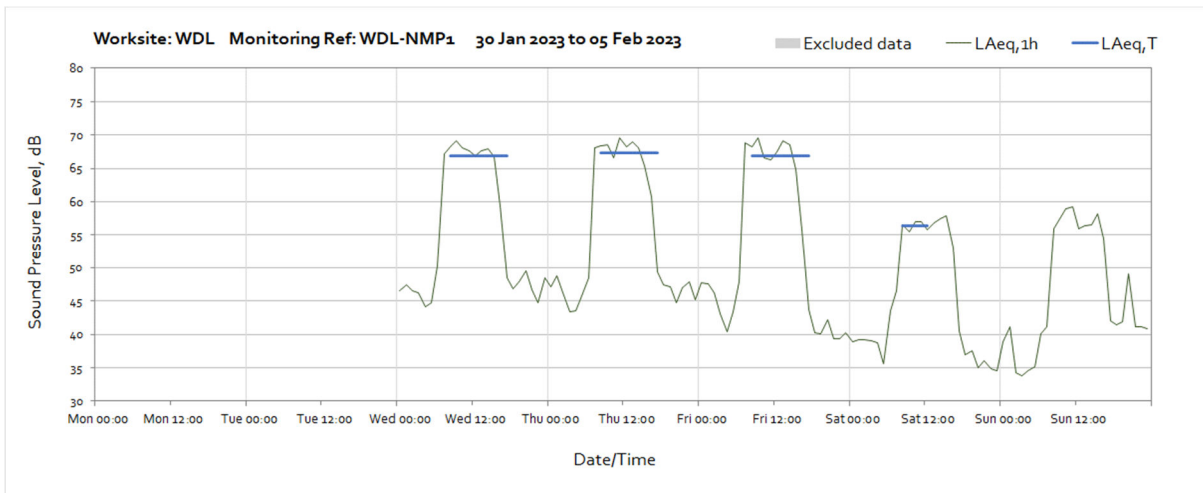


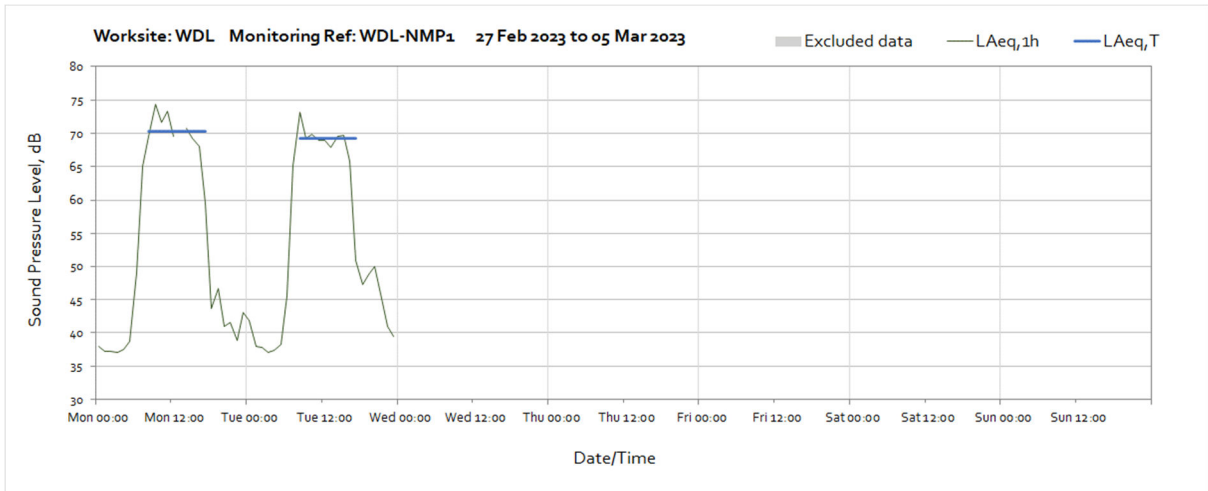
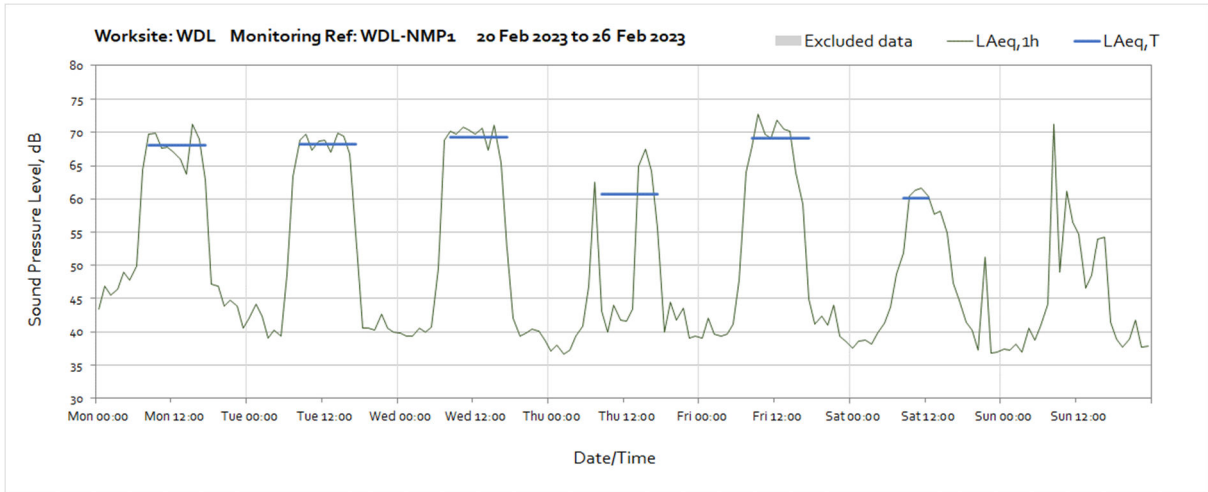
Worksite: SHC - Monitoring Ref: FCC-NMP1





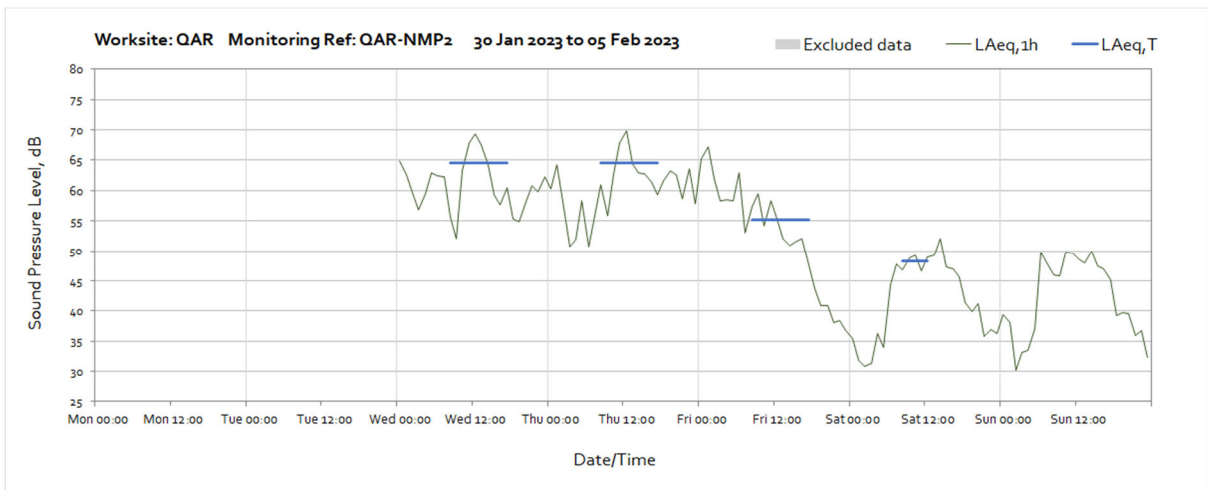
Worksite: WDL - Monitoring Ref: WDL-NMP1

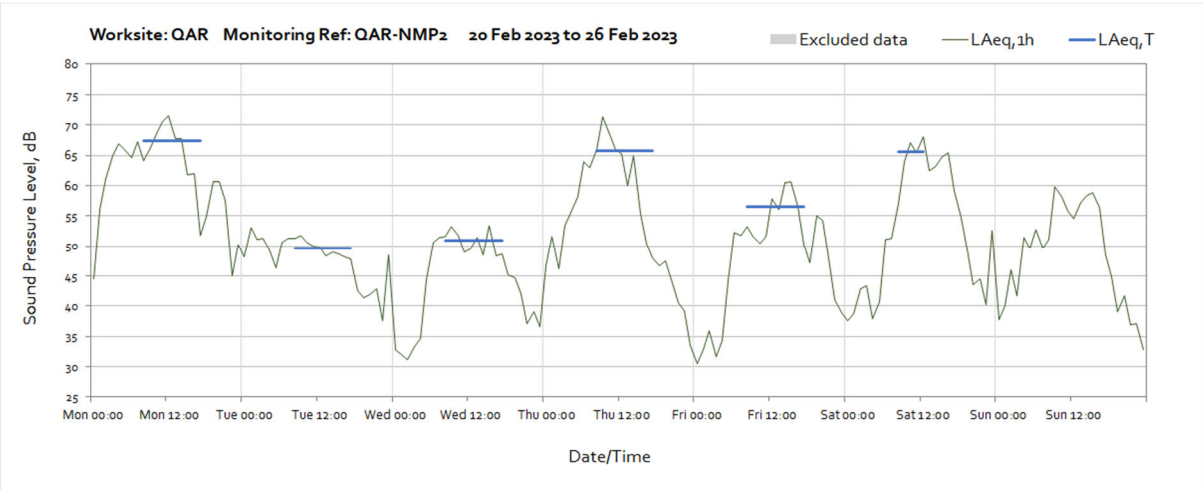
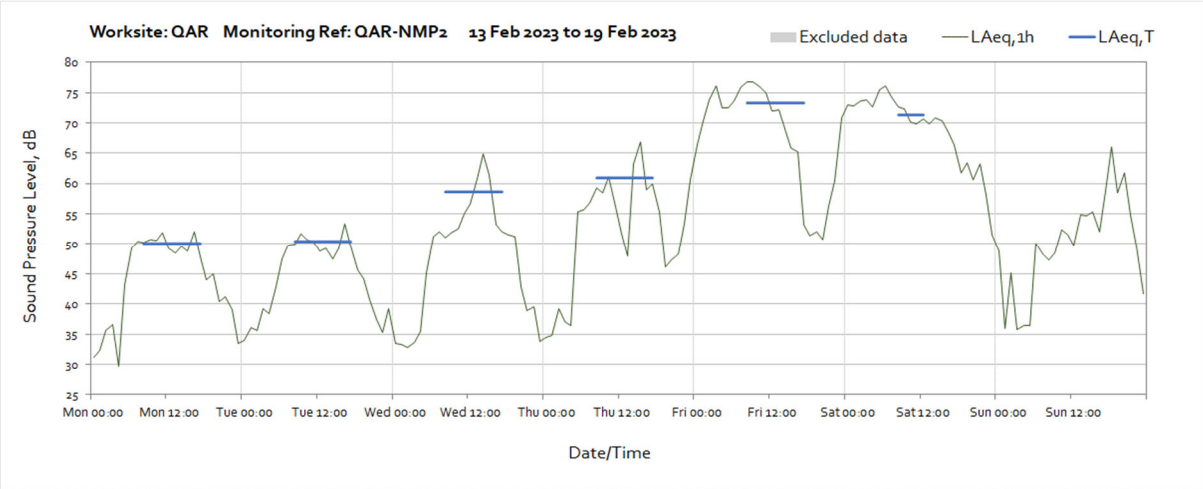
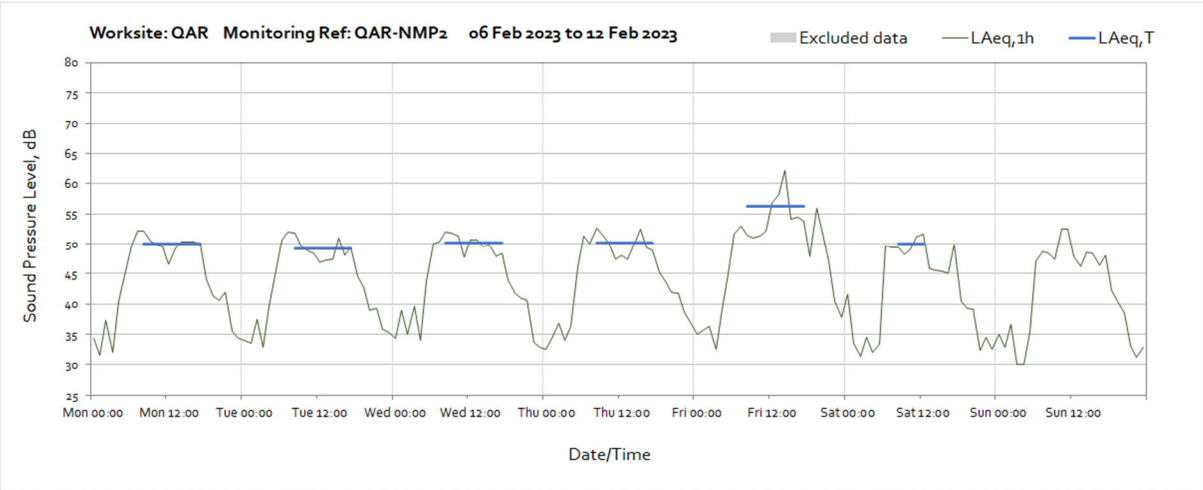




Note: Missing data between 13:00 and 14:00 on 27th February was due to monitor maintenance.

Worksite: QAR – Monitoring Ref: QAR-NMP2

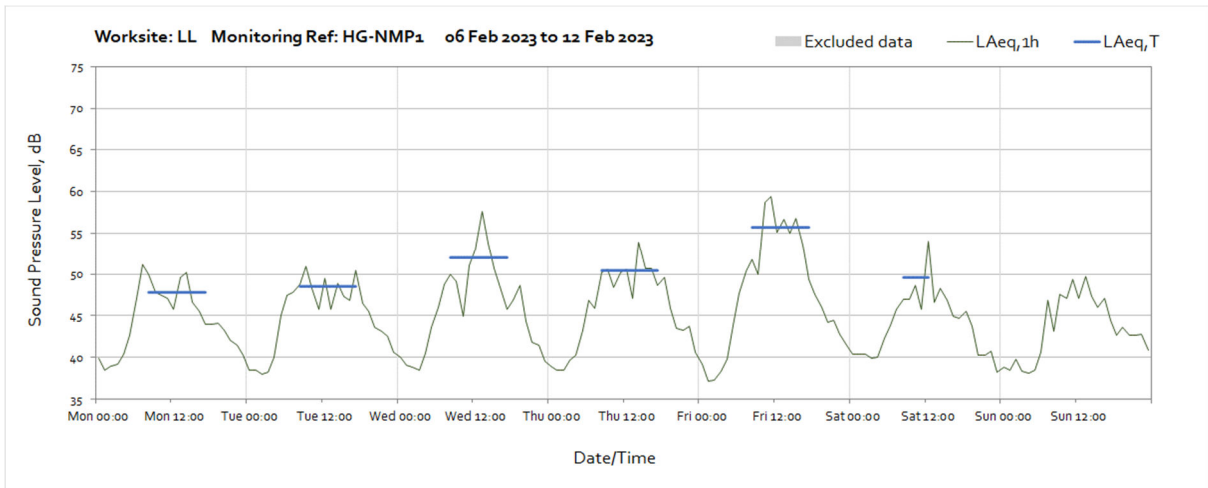
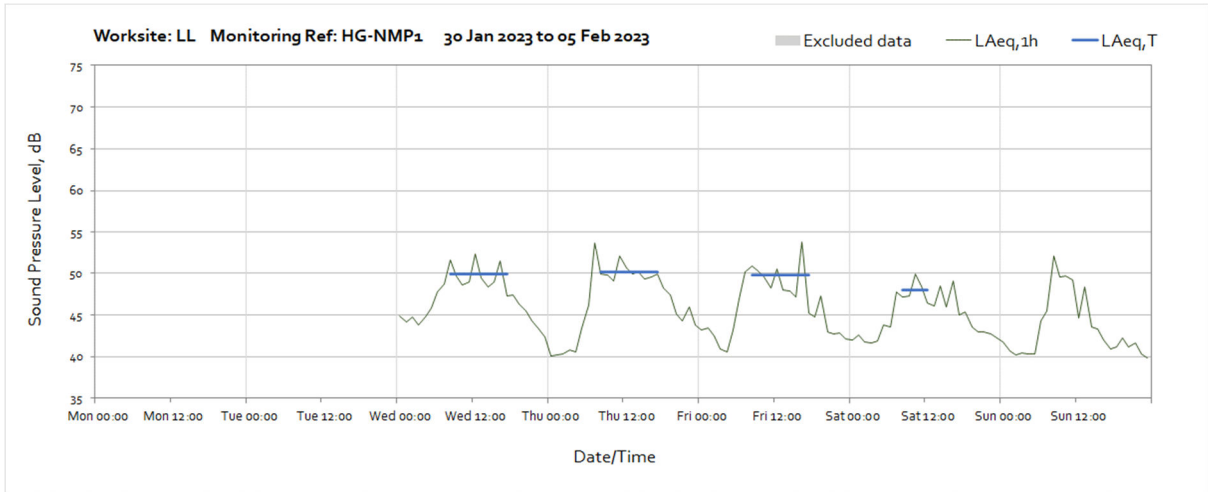


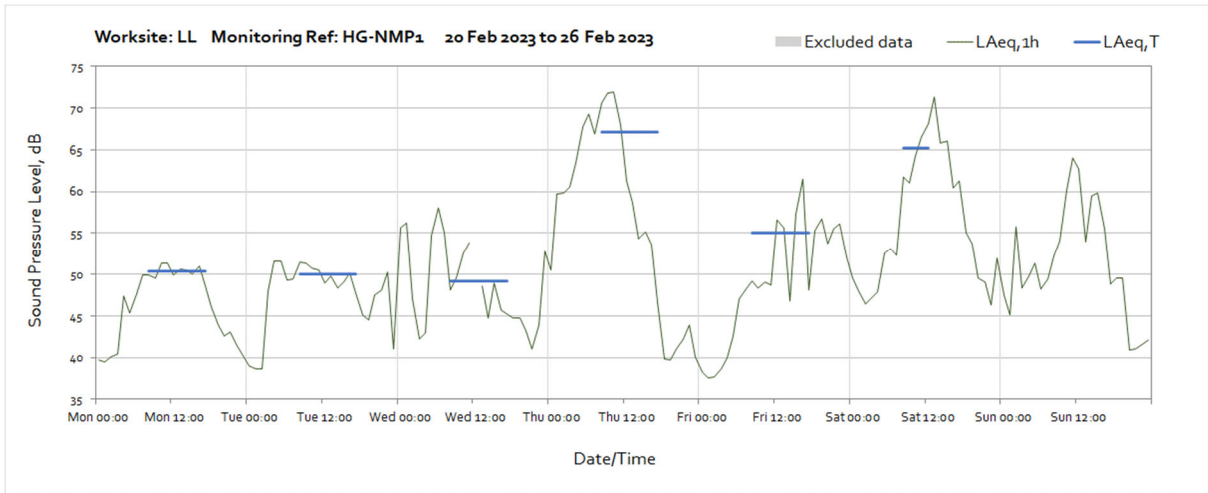
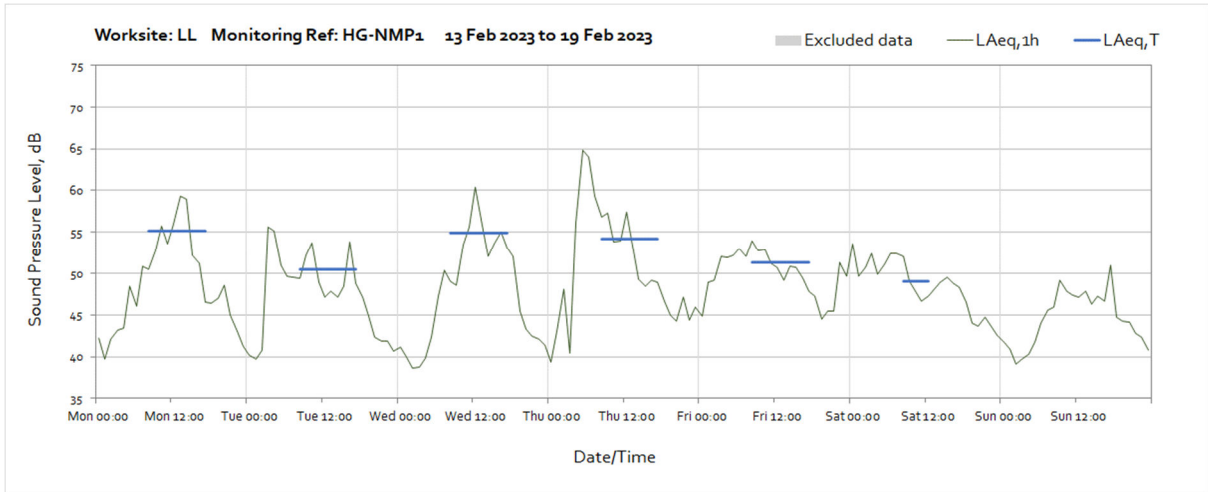




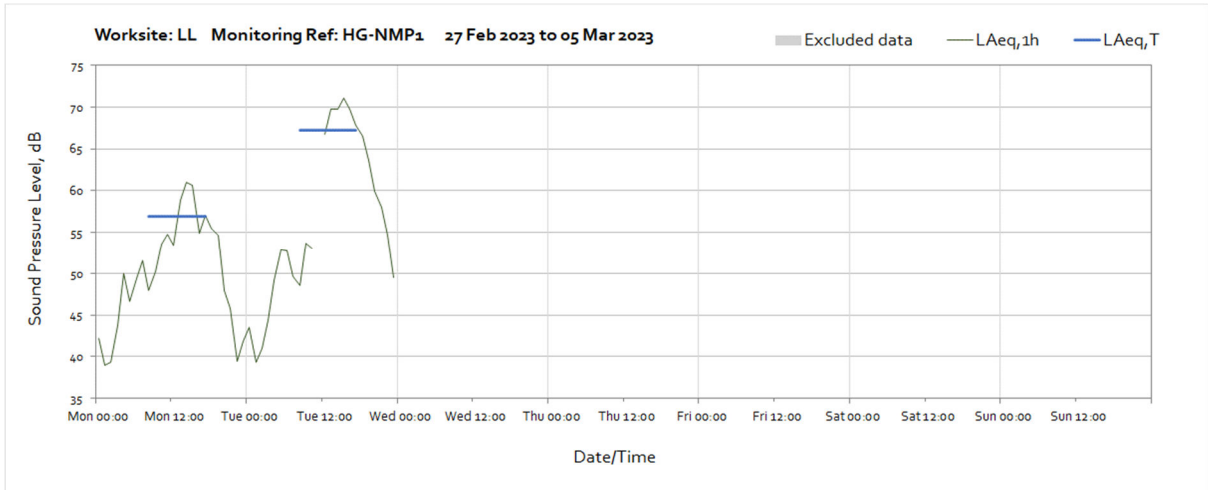
Note: Missing data between 13:00 and 14:00 on 27th February was due to monitor maintenance.

Worksite: LL - Monitoring Ref: HG-NMP1



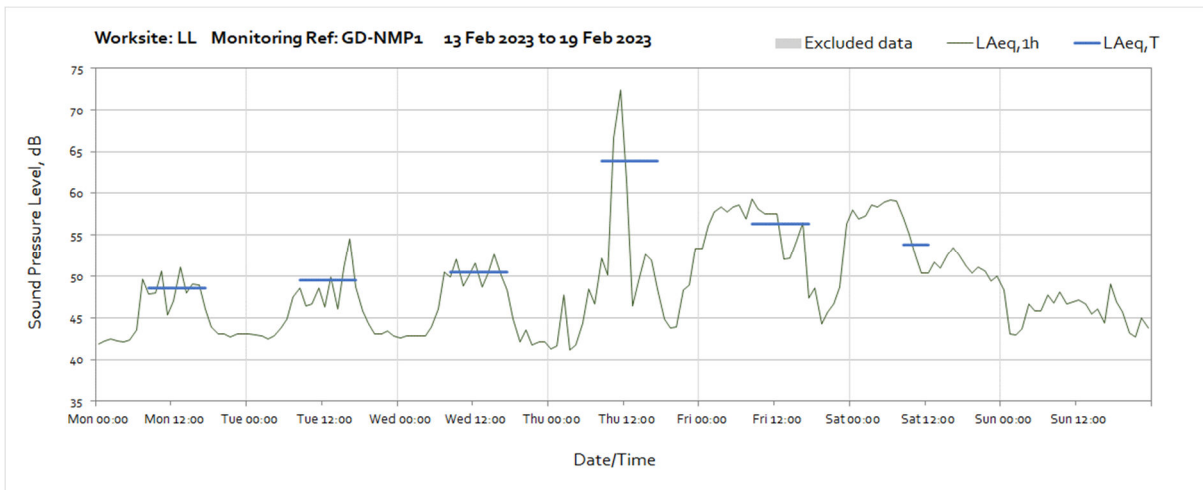
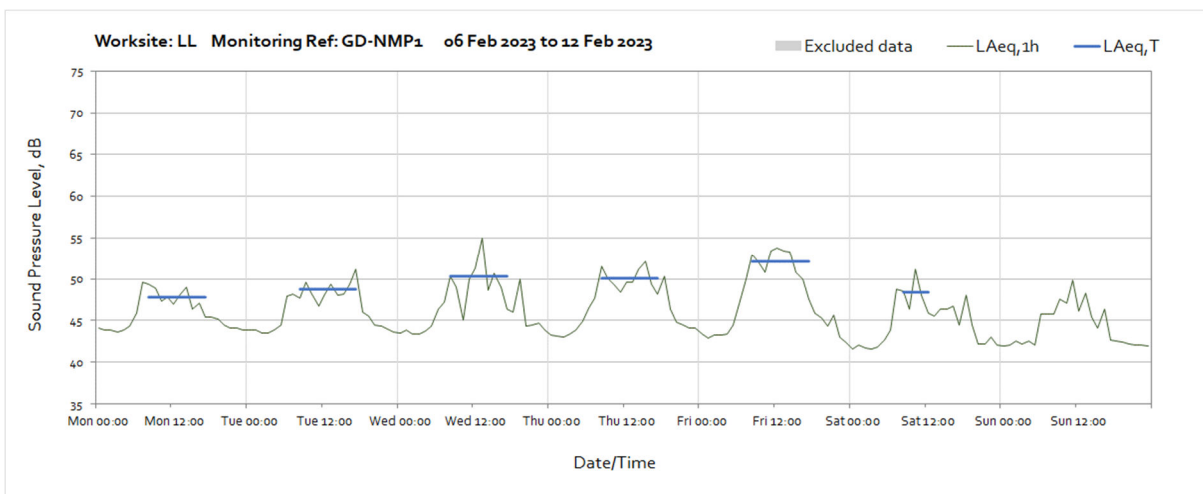
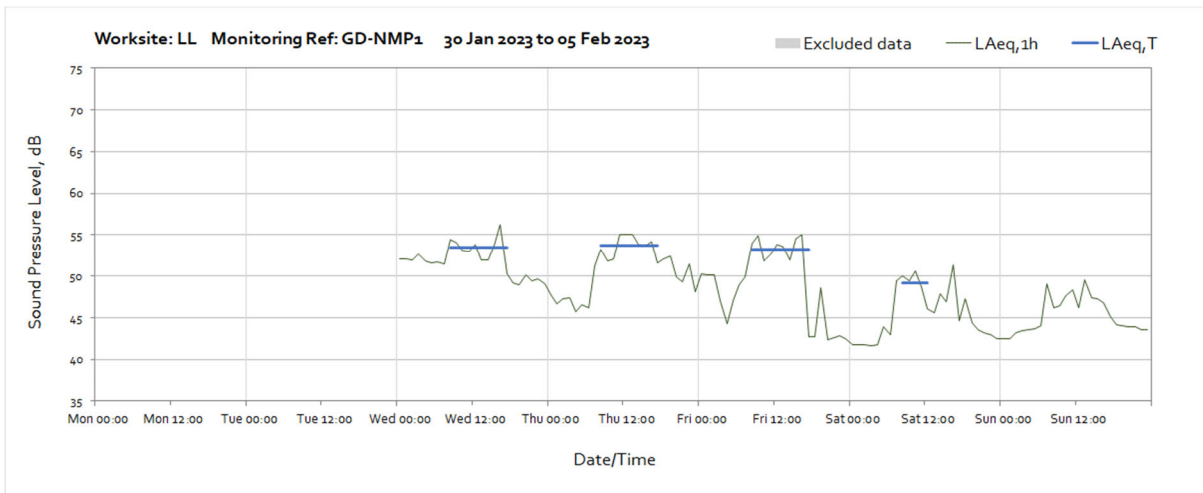


Note: Missing data between 12:00 and 13:00 on 22nd February was due to monitor maintenance.

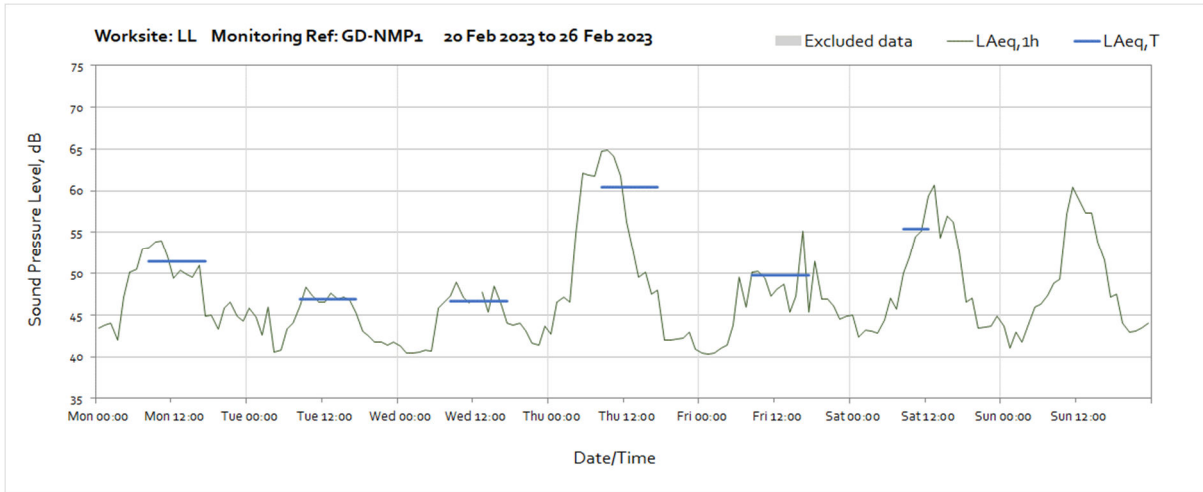


Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

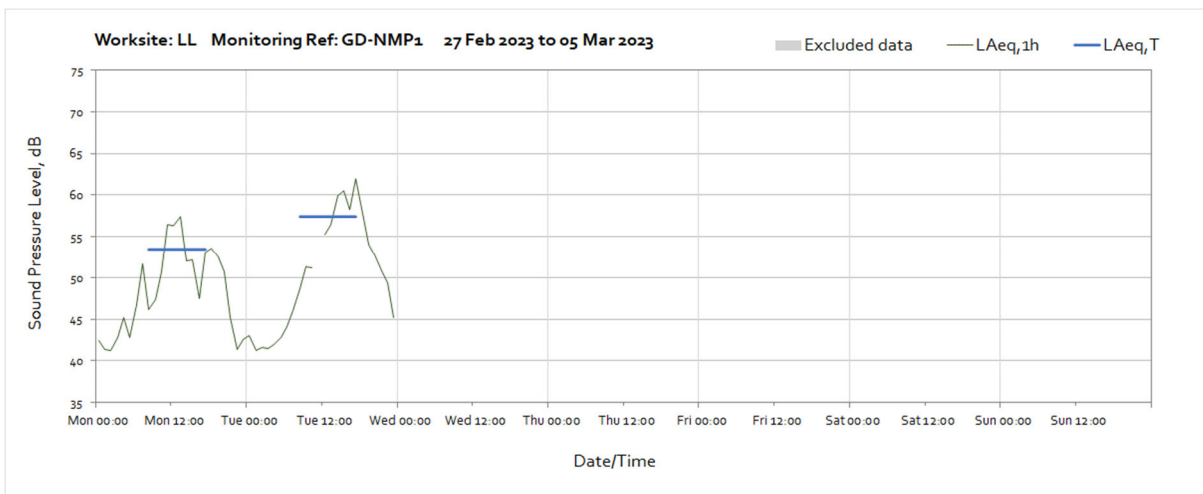
Worksite: LL - Monitoring Ref: GD-NMP1



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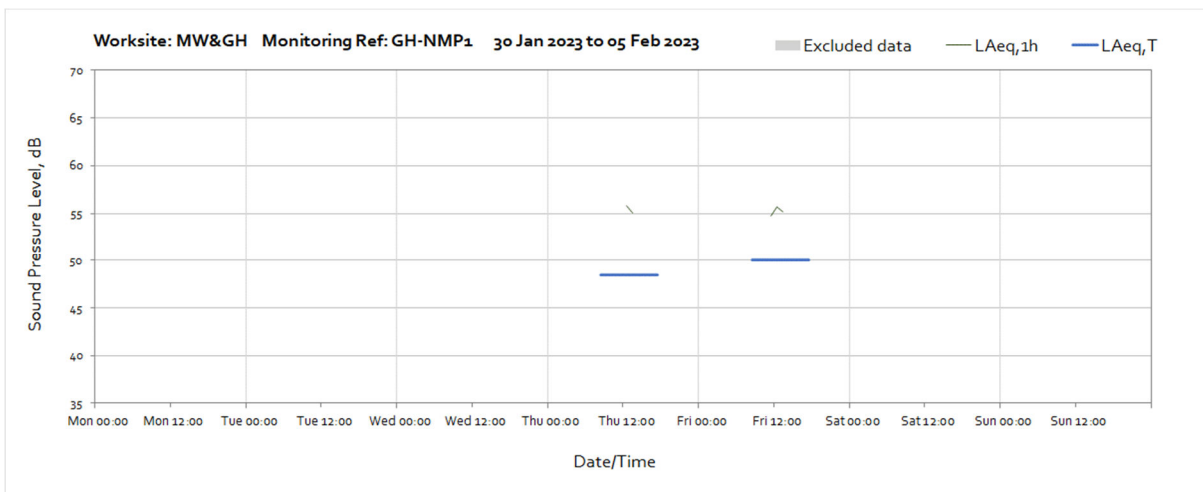


Note: Missing data between 12:00 and 13:00 on 22nd February was due to monitor maintenance.



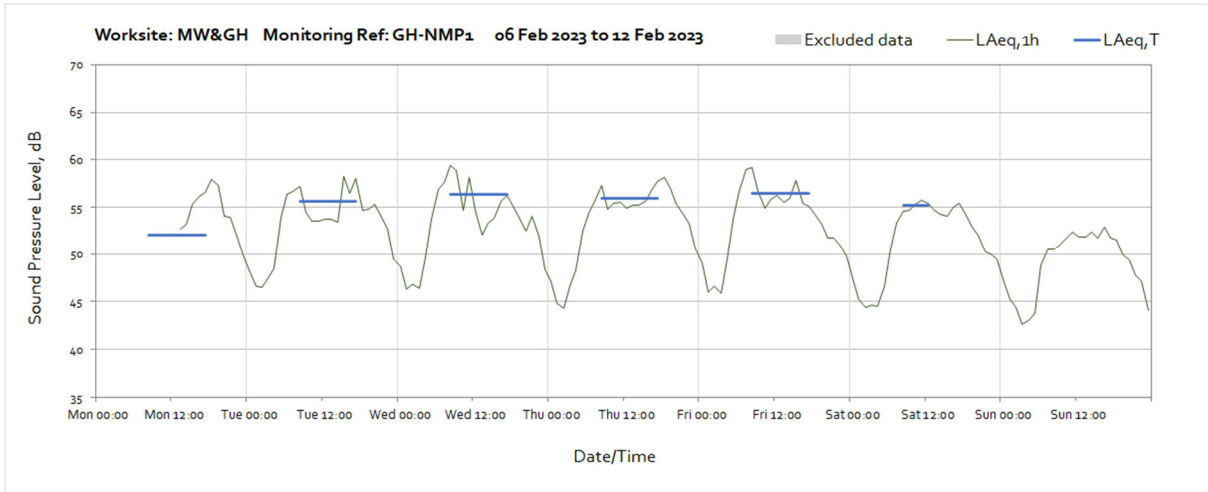
Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

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

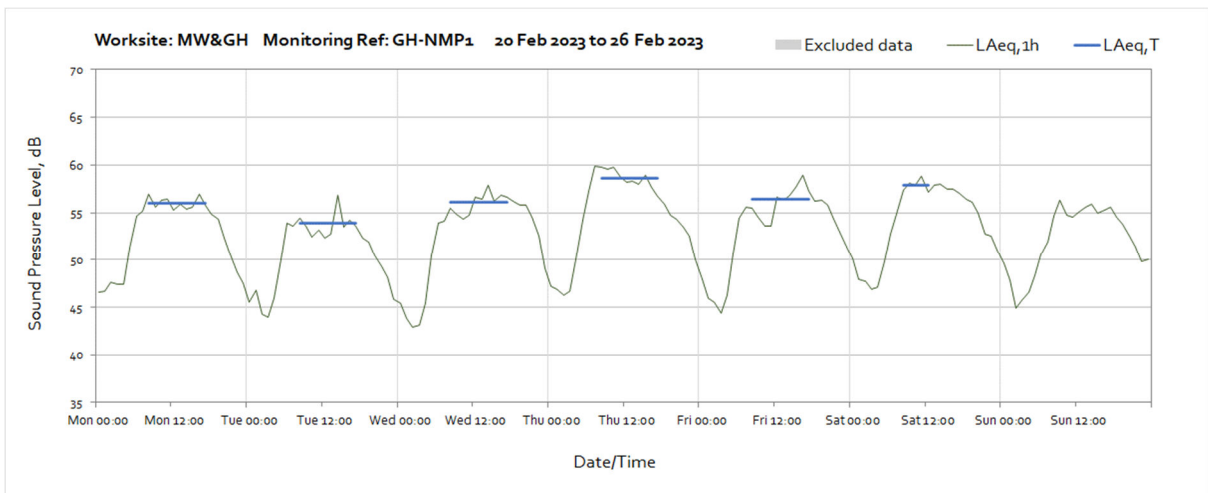
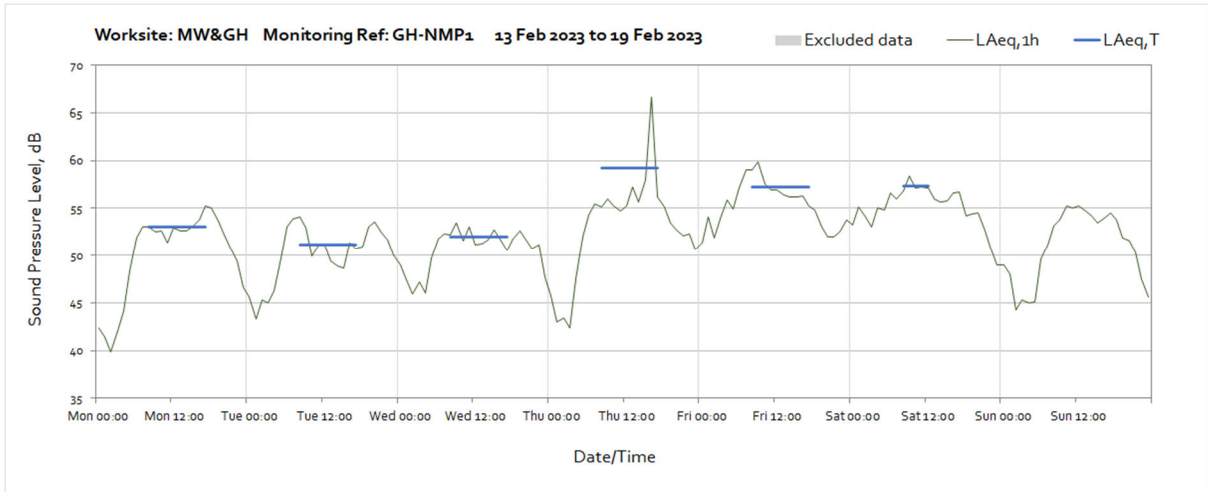


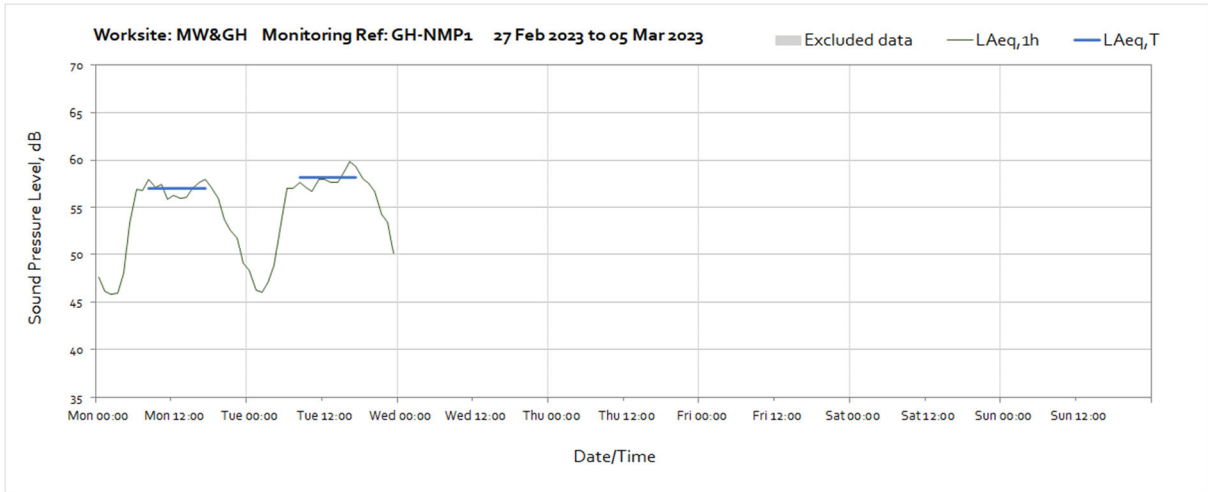
Note: Missing data throughout the first week of February was due to loss of monitor power due to lack of solar charge.

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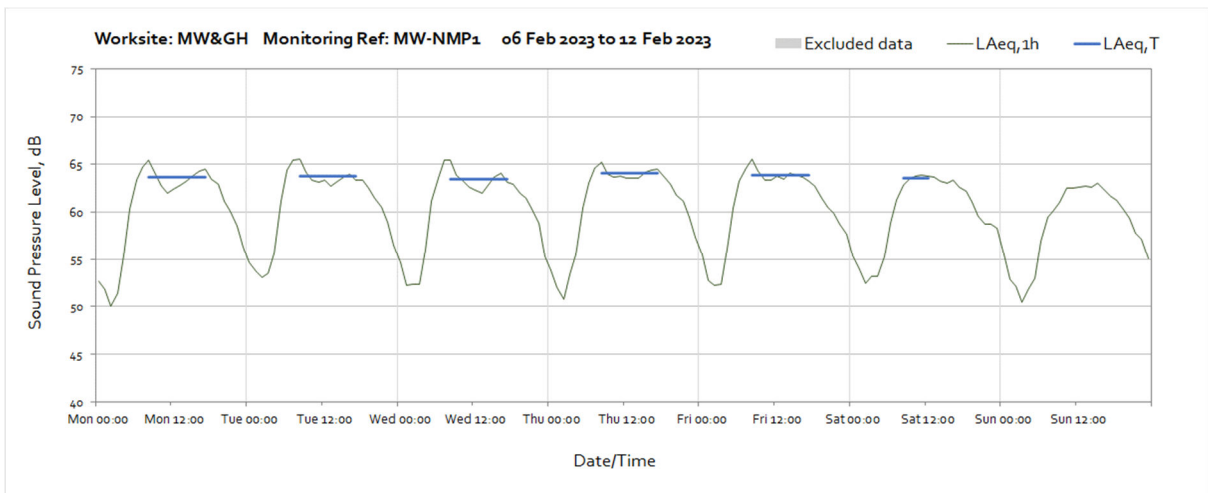
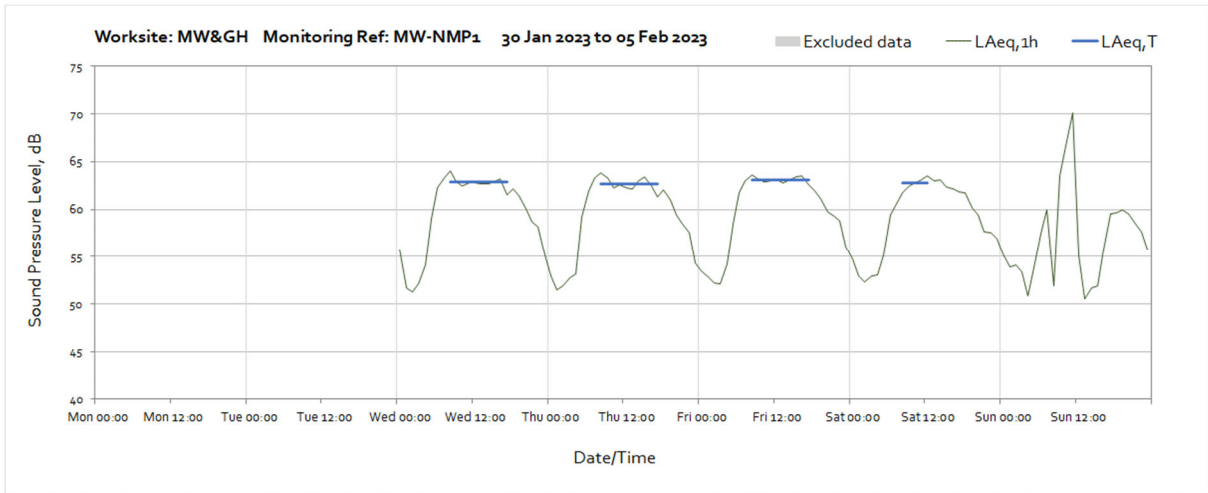


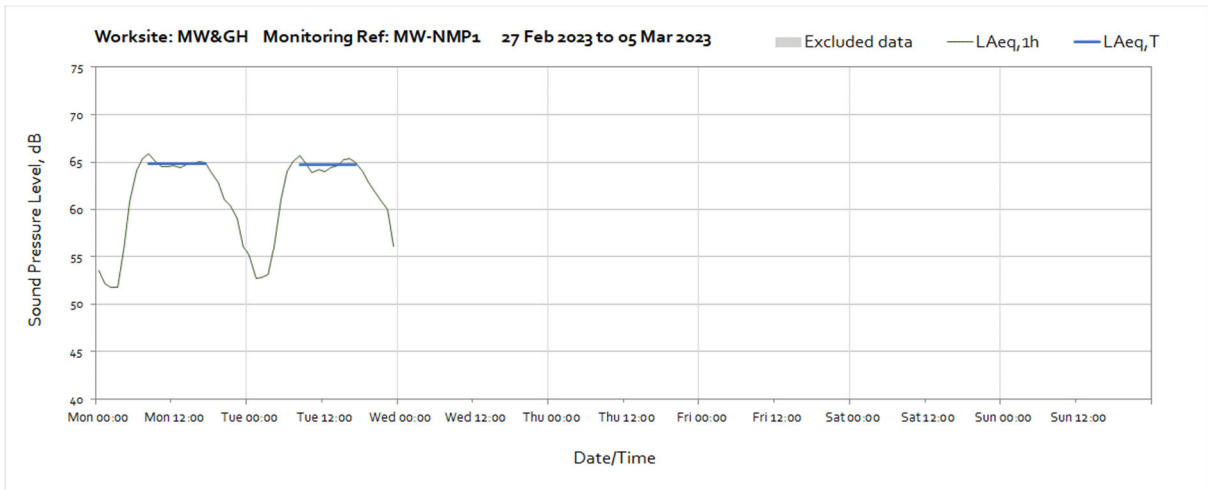
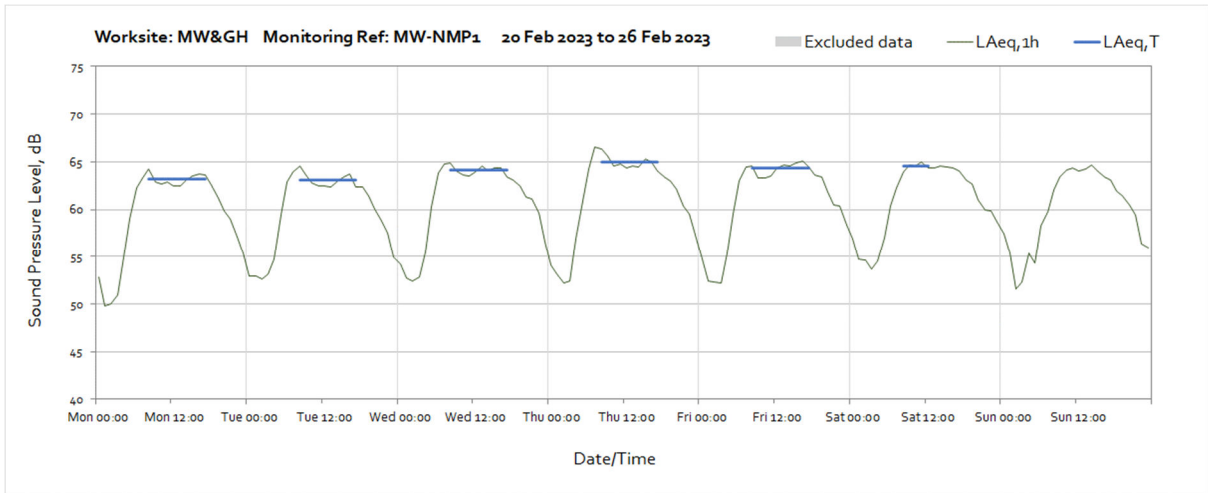
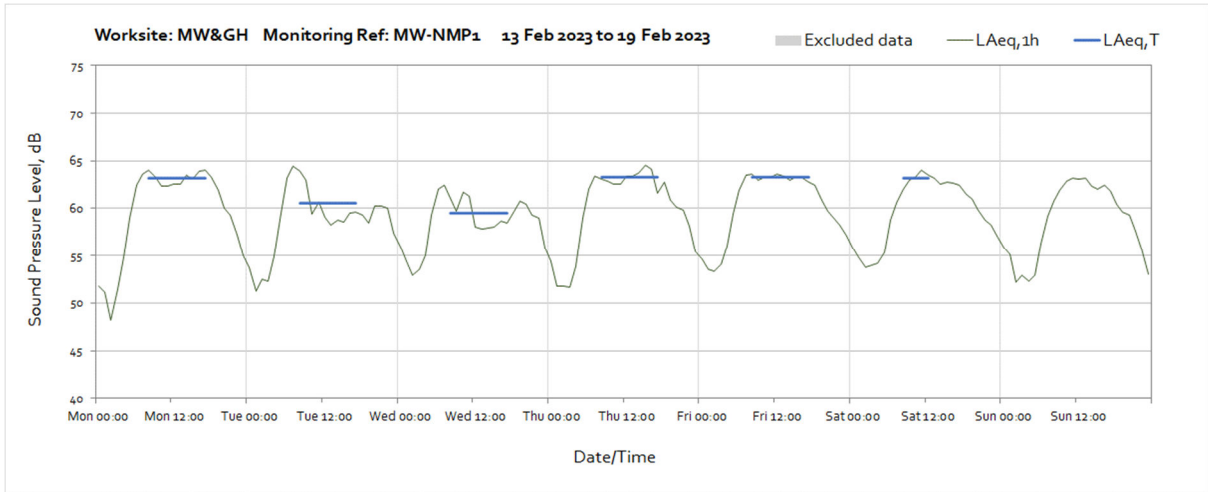
Note: Missing data between 00:00 and 12:00 on 6th February was due to loss of monitor power due to lack of solar charge.



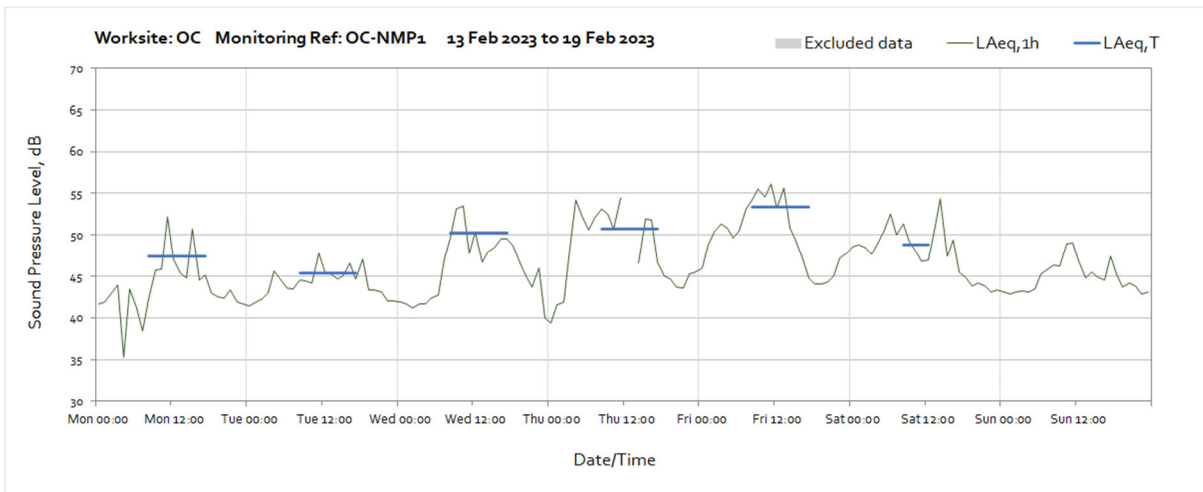
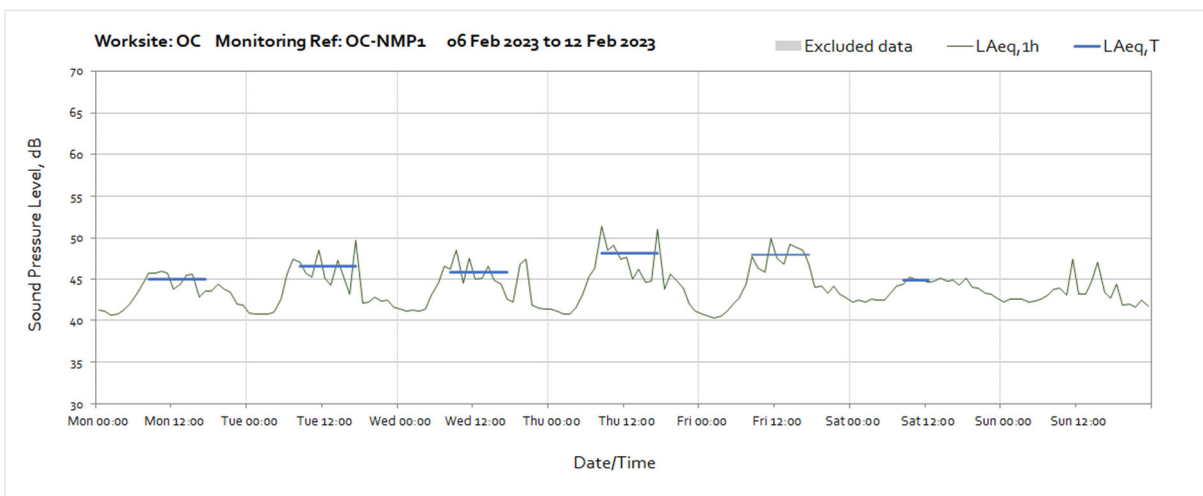
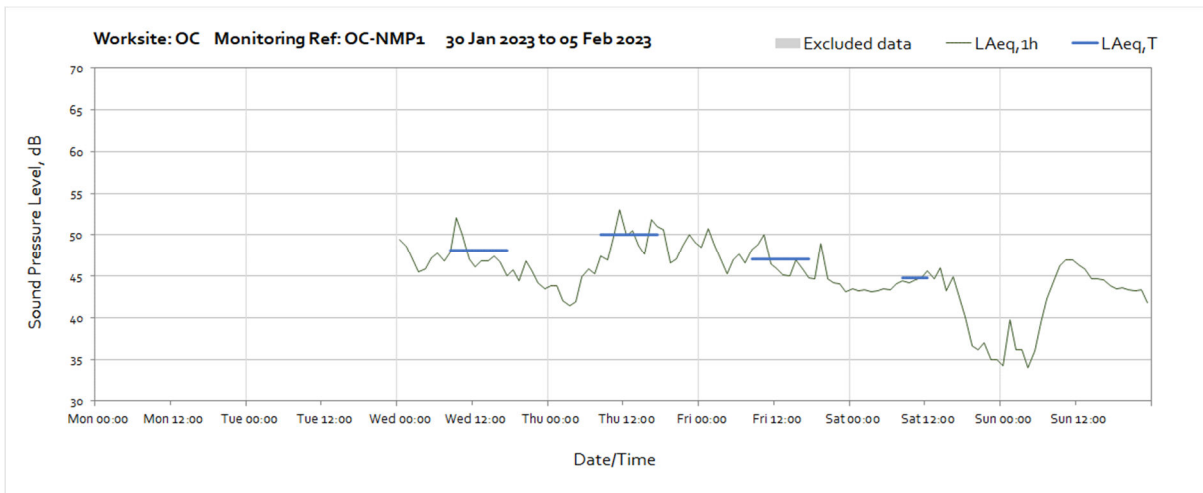


Worksite: MW&GH – Monitoring Ref: MW-NMP1

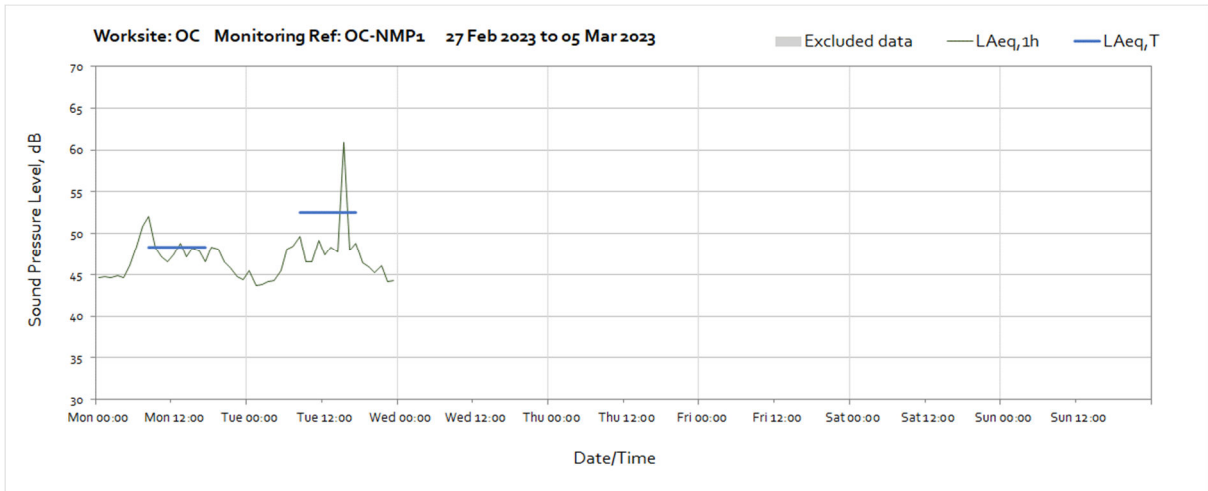
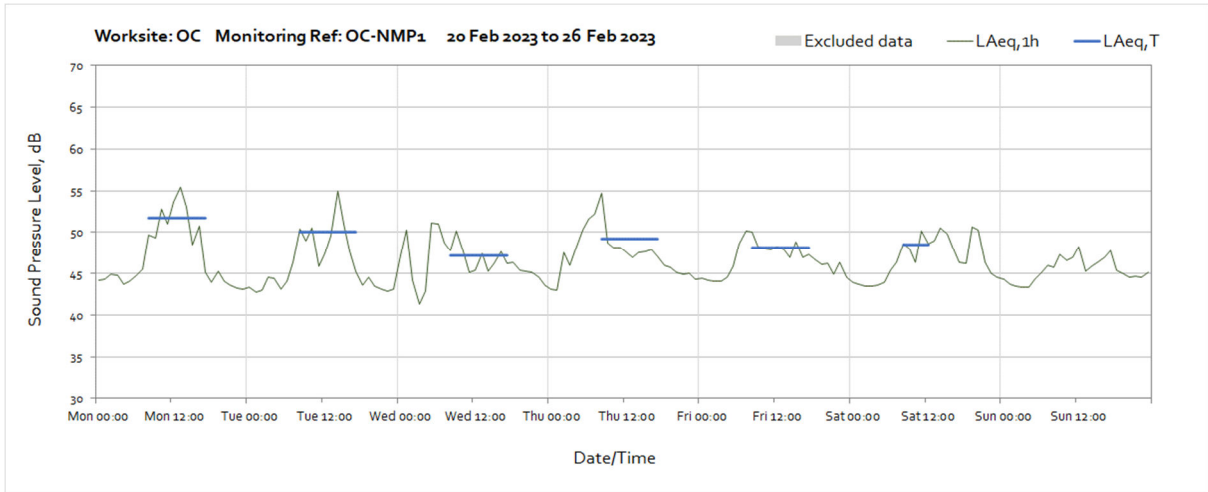




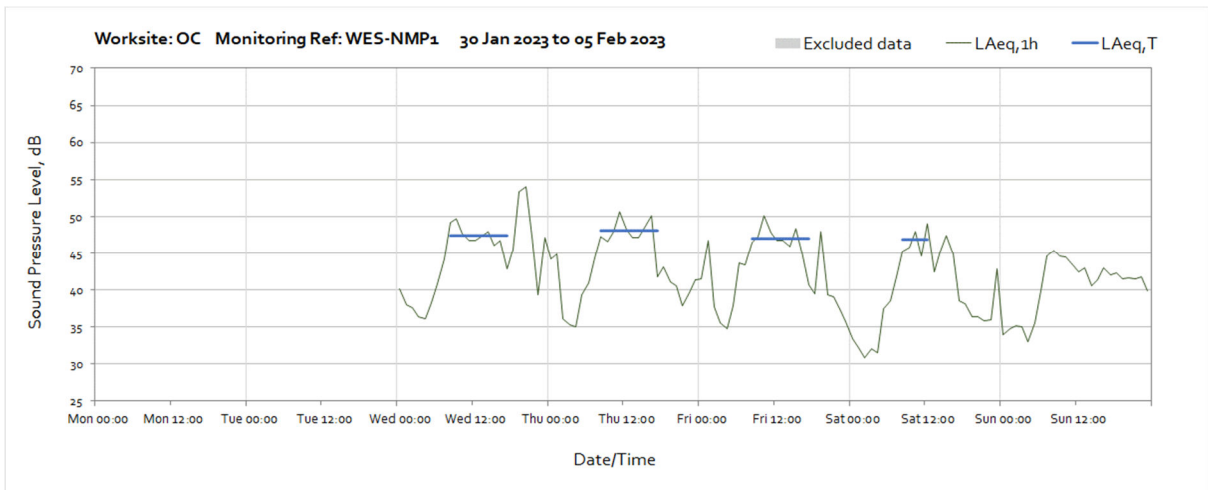
Worksite: OC – Monitoring Ref: OC-NMP1

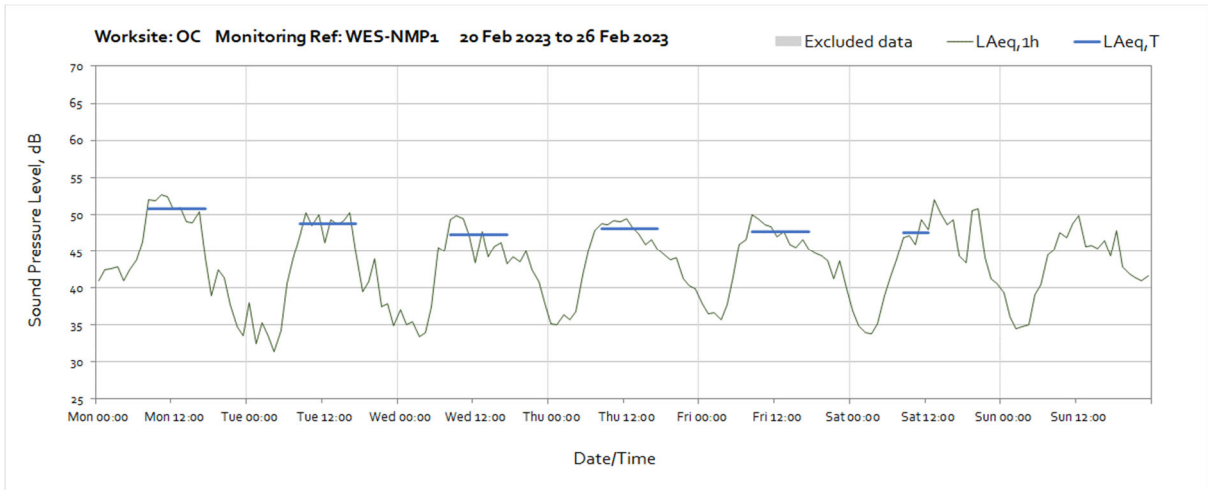
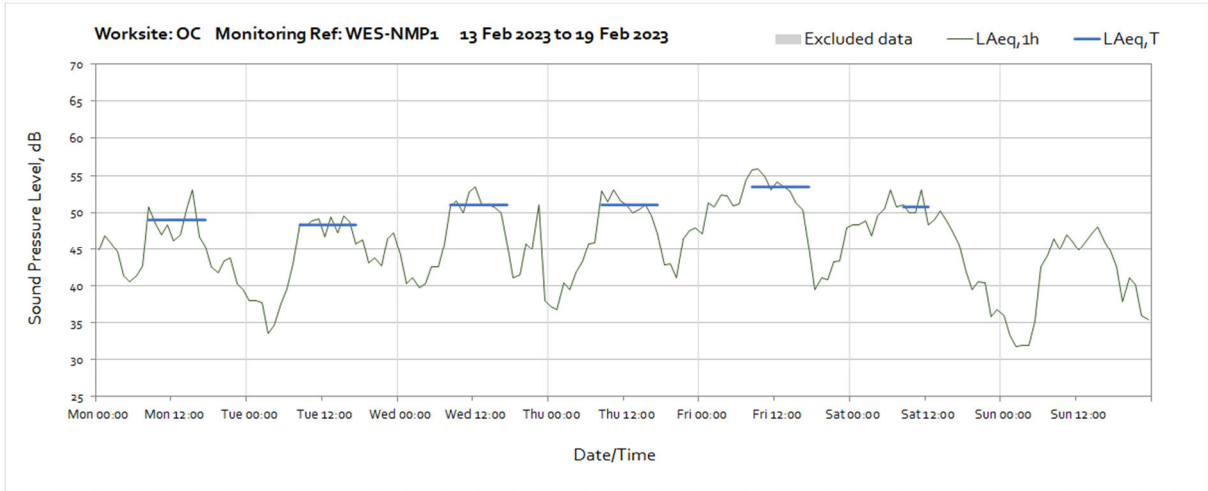
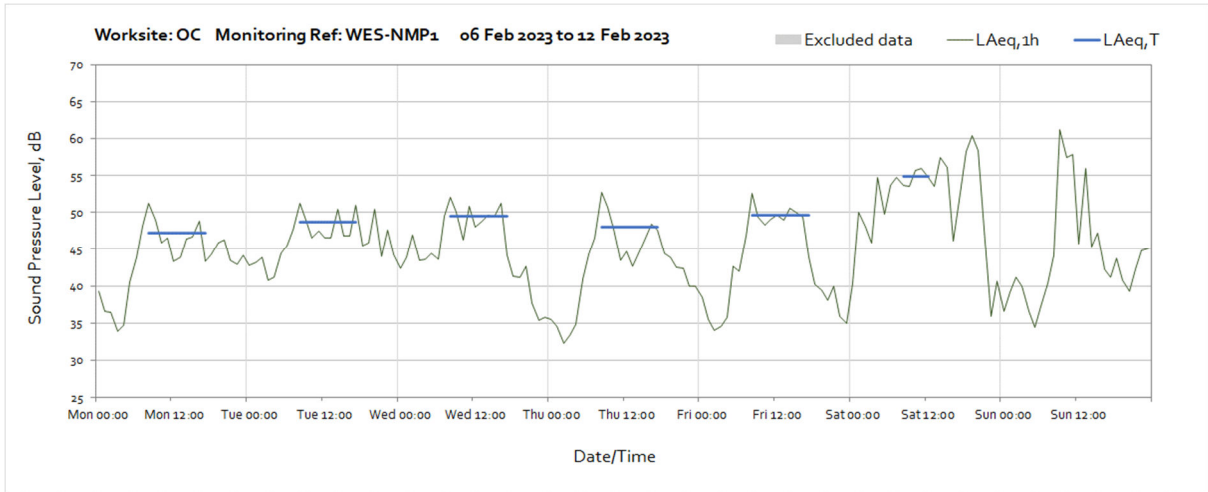


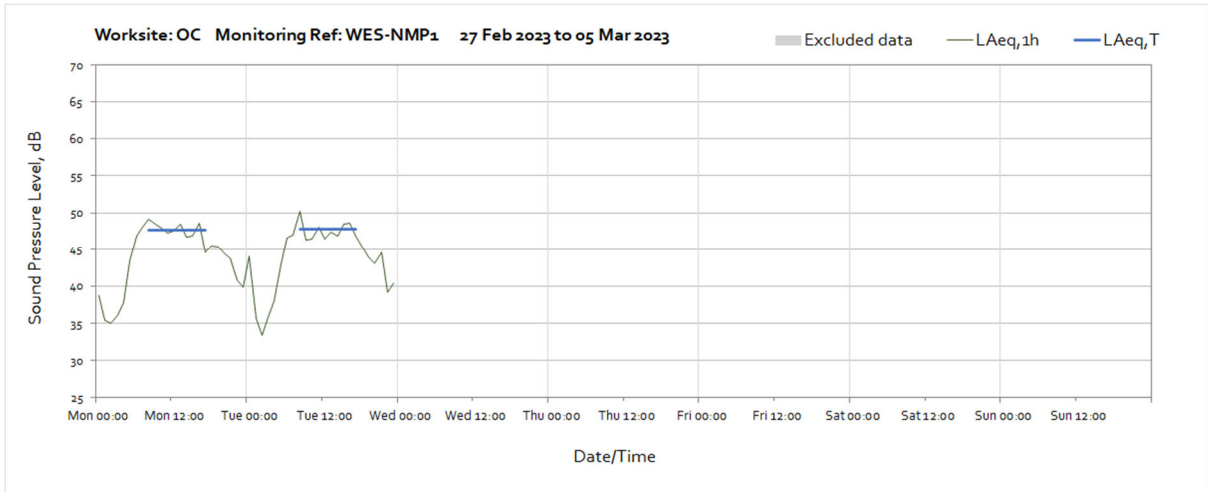
Note: Missing data between 12:00 and 14:00 on 16th February was due to monitor maintenance.



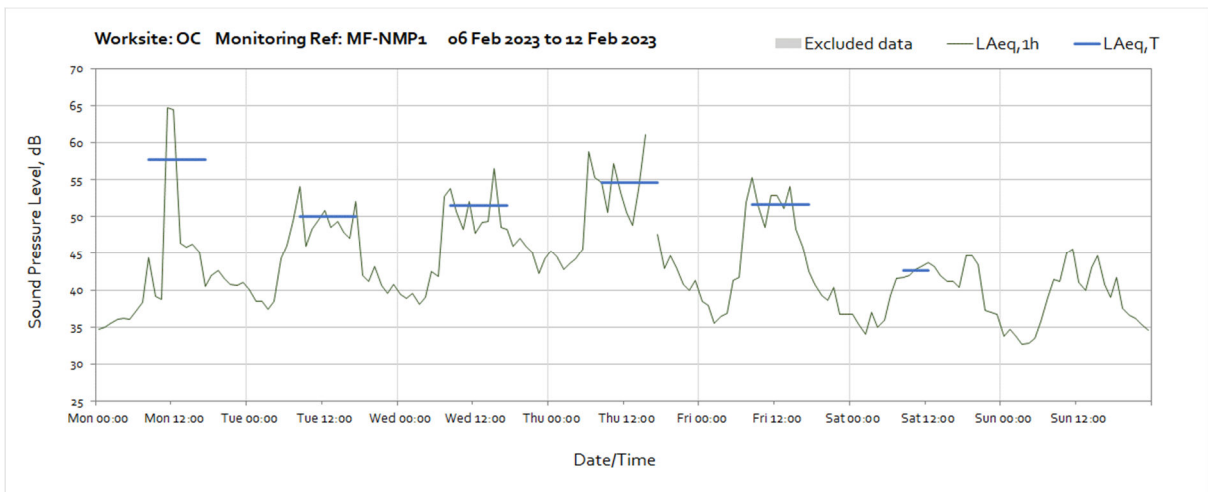
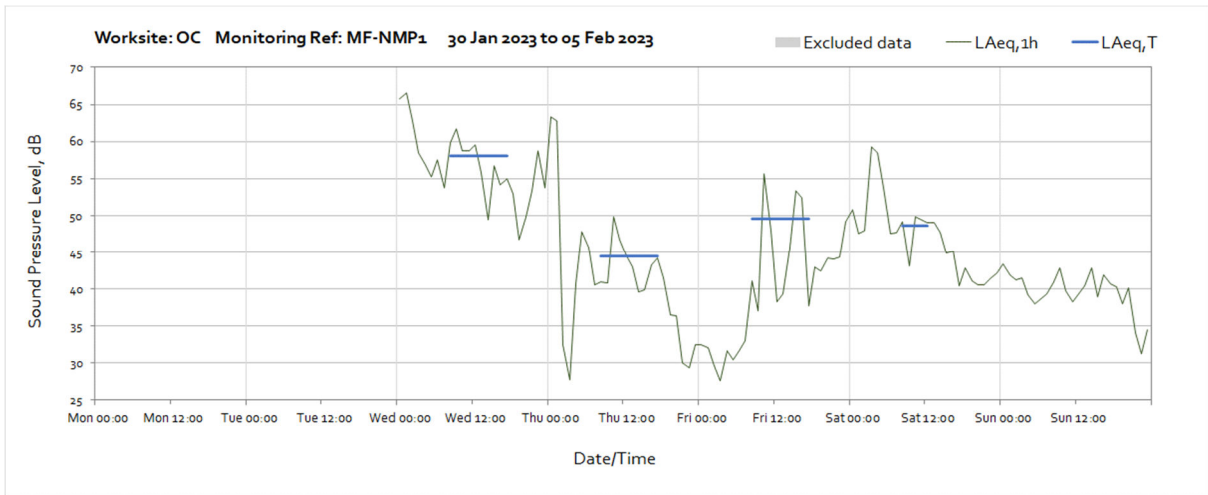
Worksite: OC - Monitoring Ref: WES-NMP1



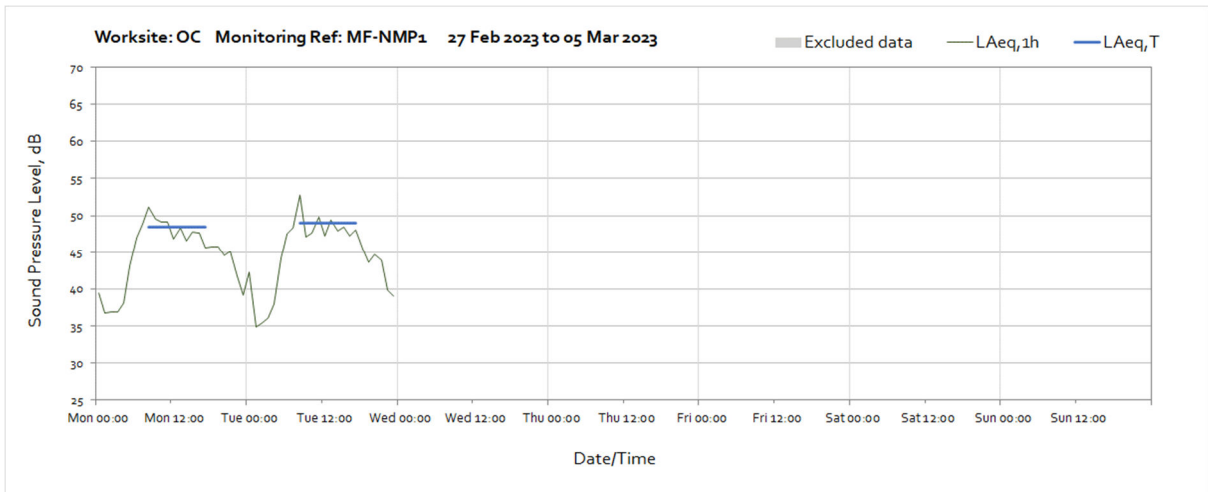
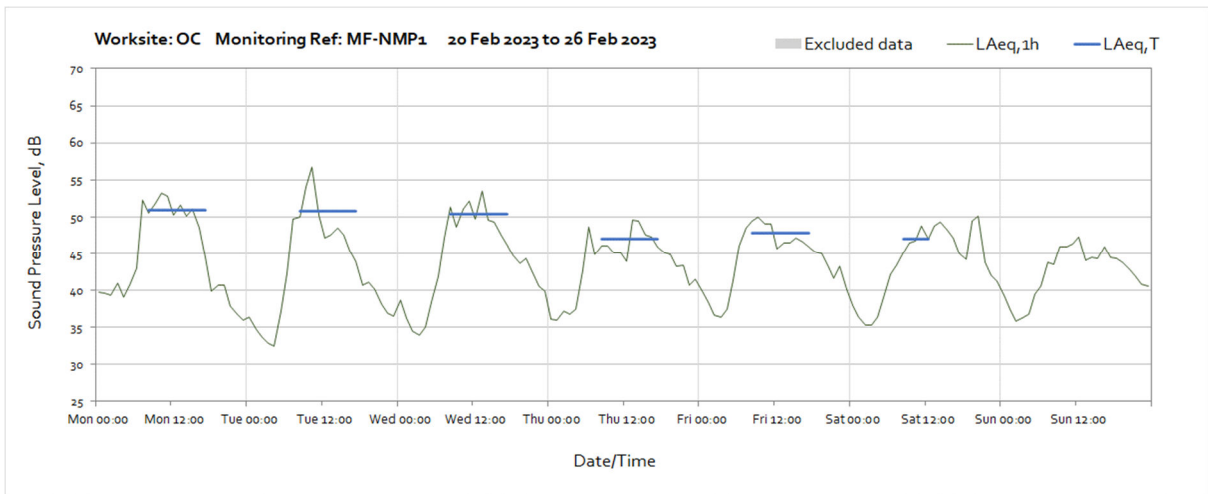
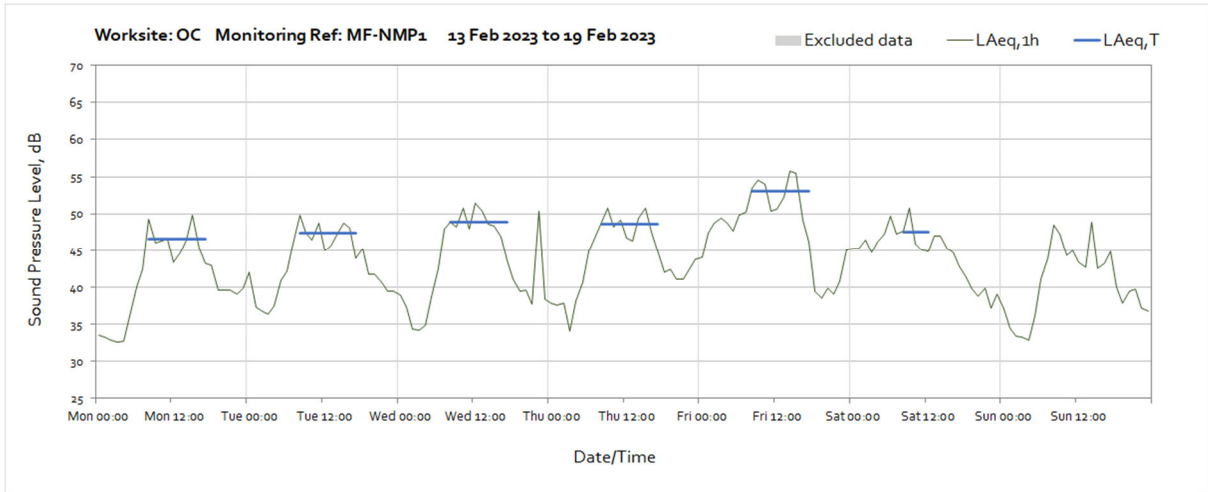




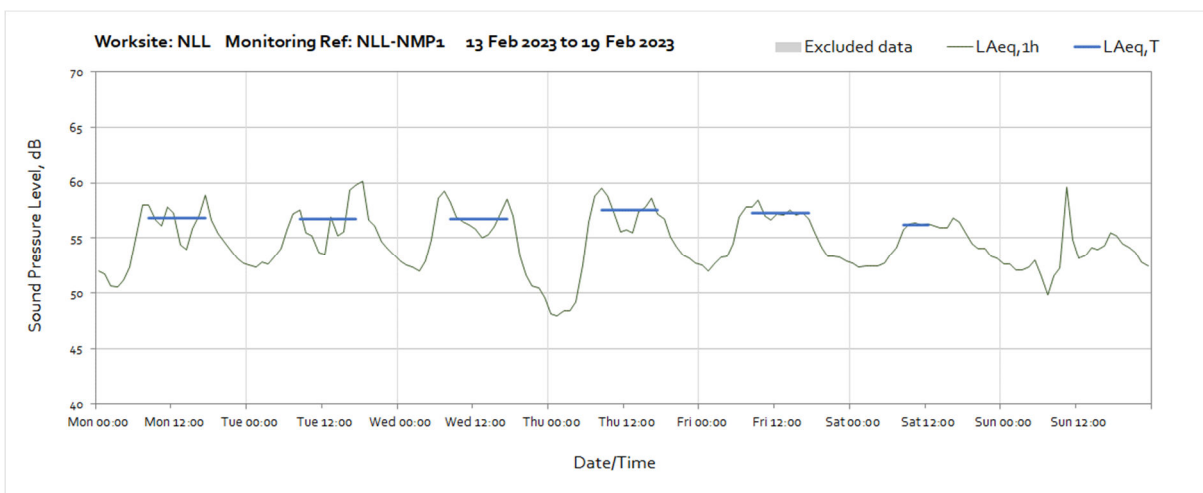
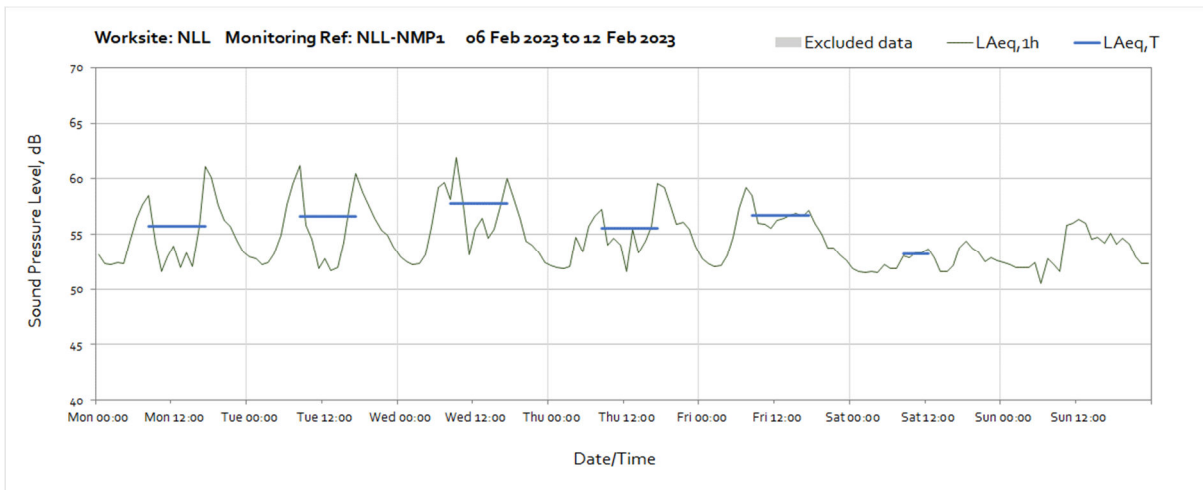
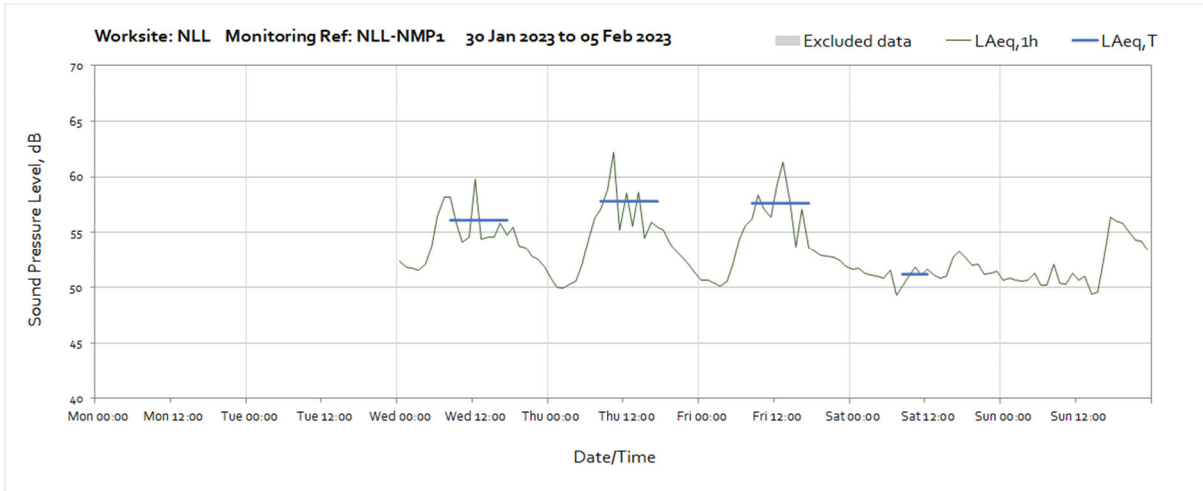
Worksite: OC – Monitoring Ref: MF-NMP1



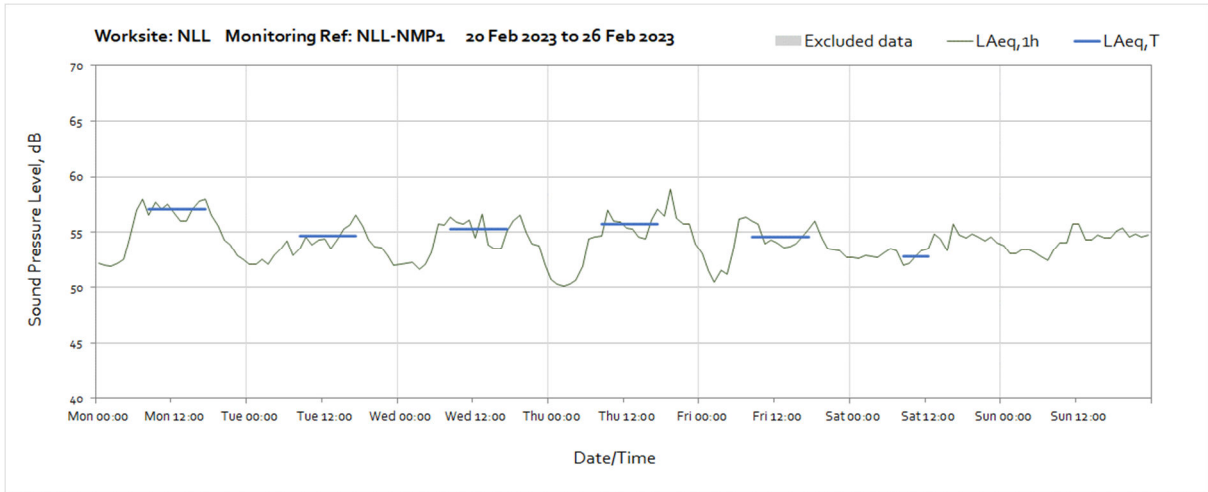
Note: Missing data between 16:00 and 17:00 on 9th February was due to monitor maintenance.



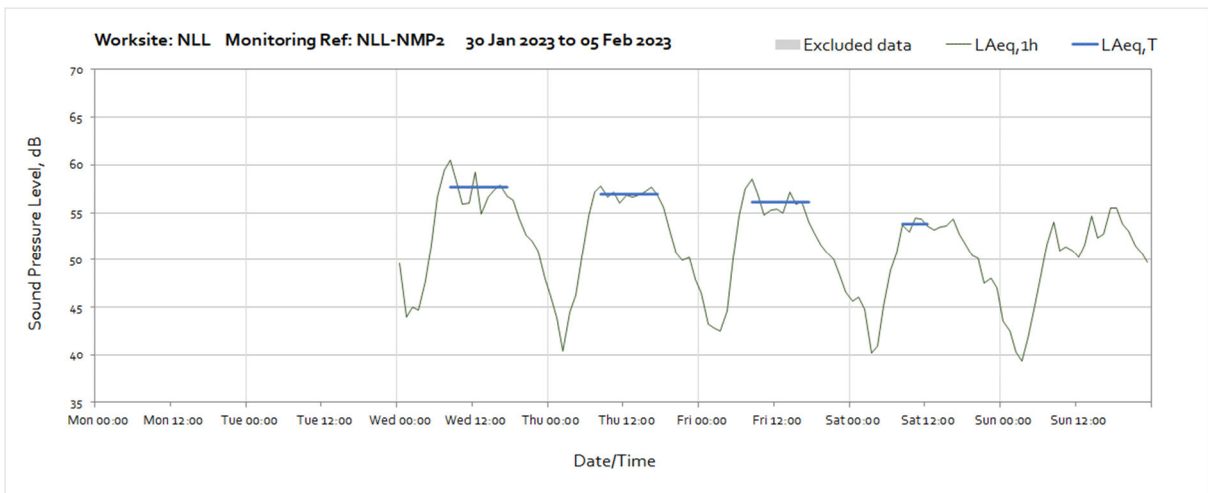
Worksite: NLL – Monitoring Ref: NLL-NMP1

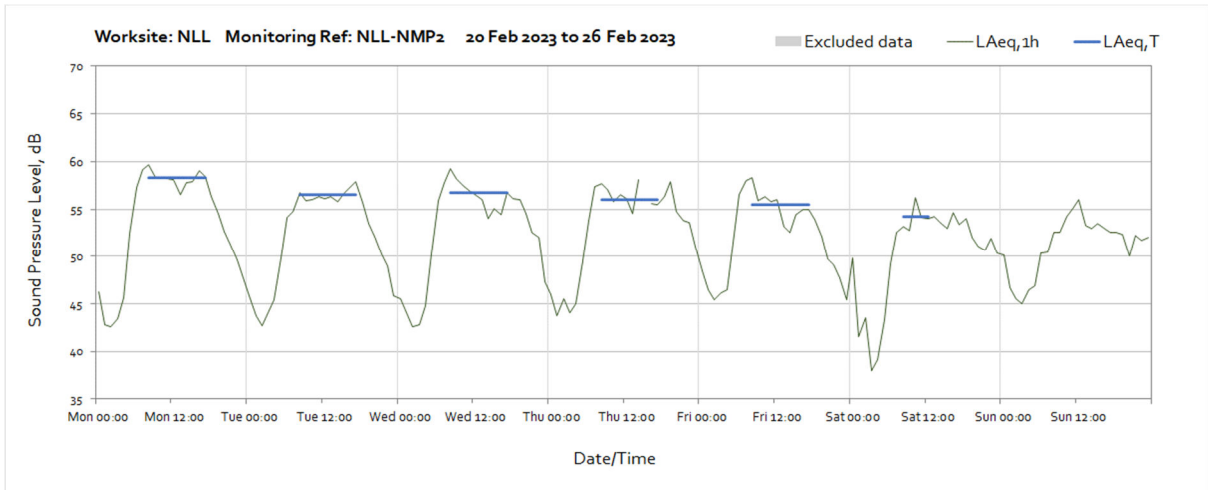
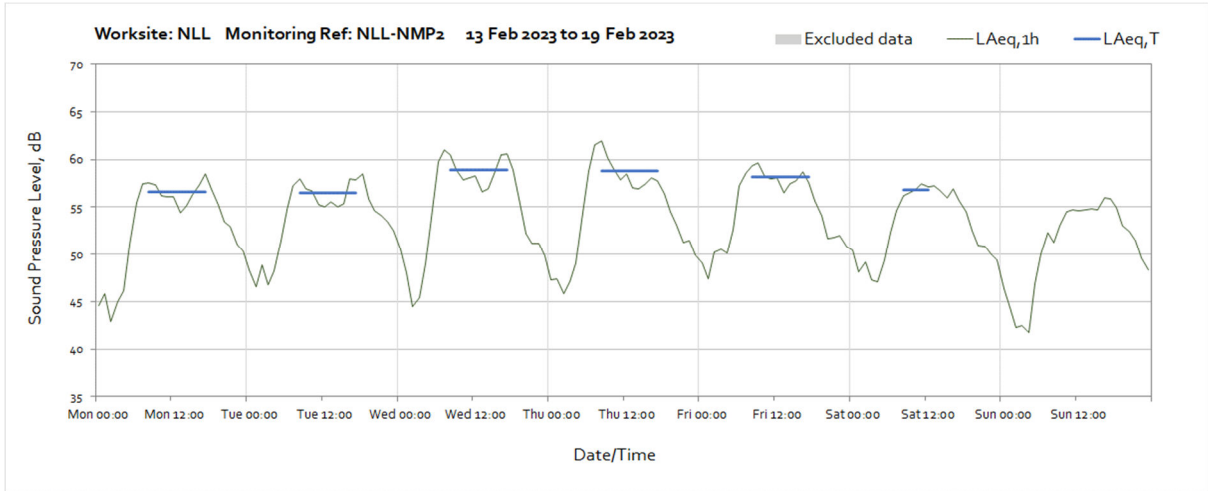
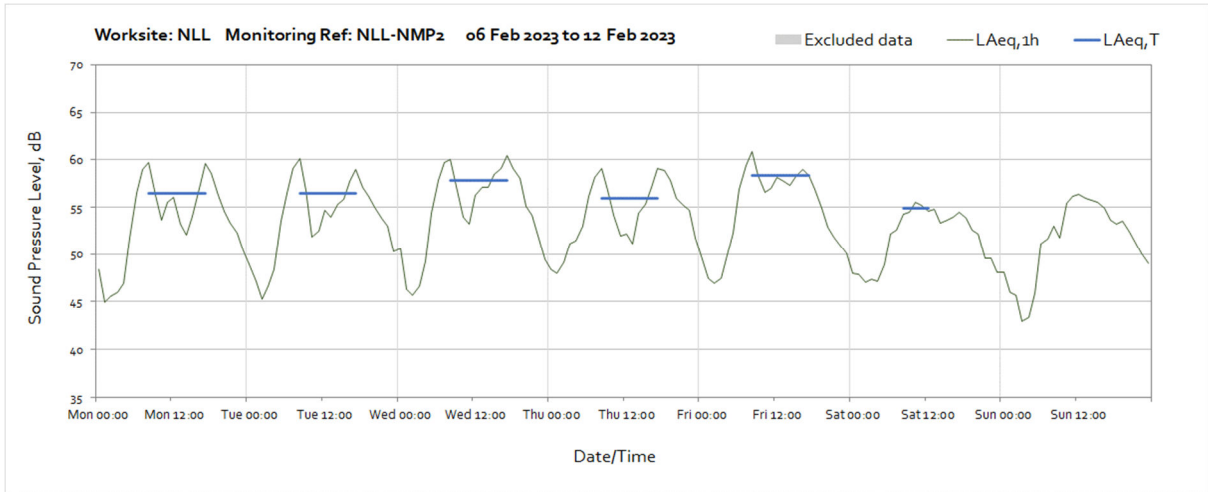


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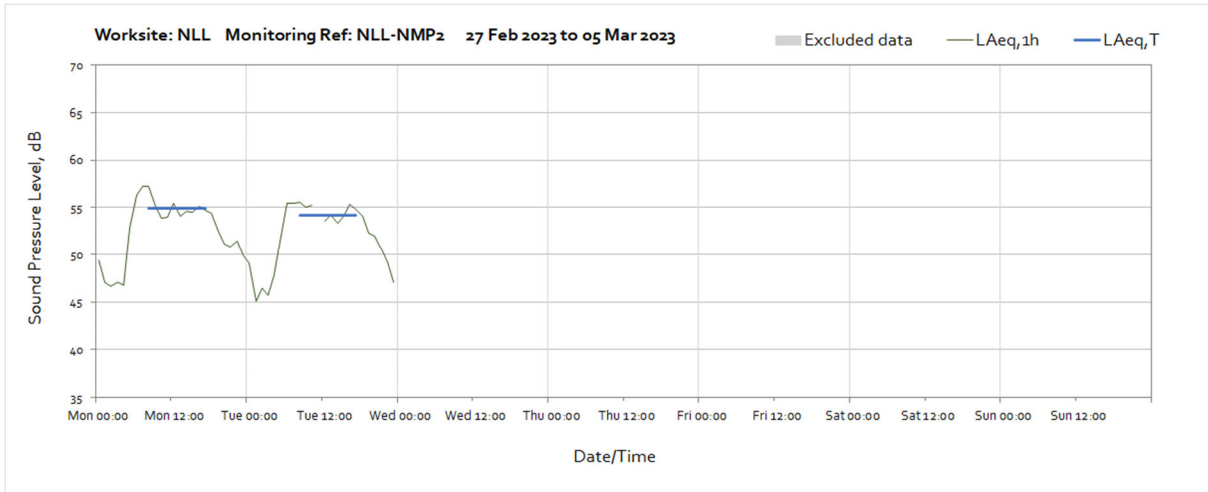


Worksite: NLL - Monitoring Ref: NLL-NMP2



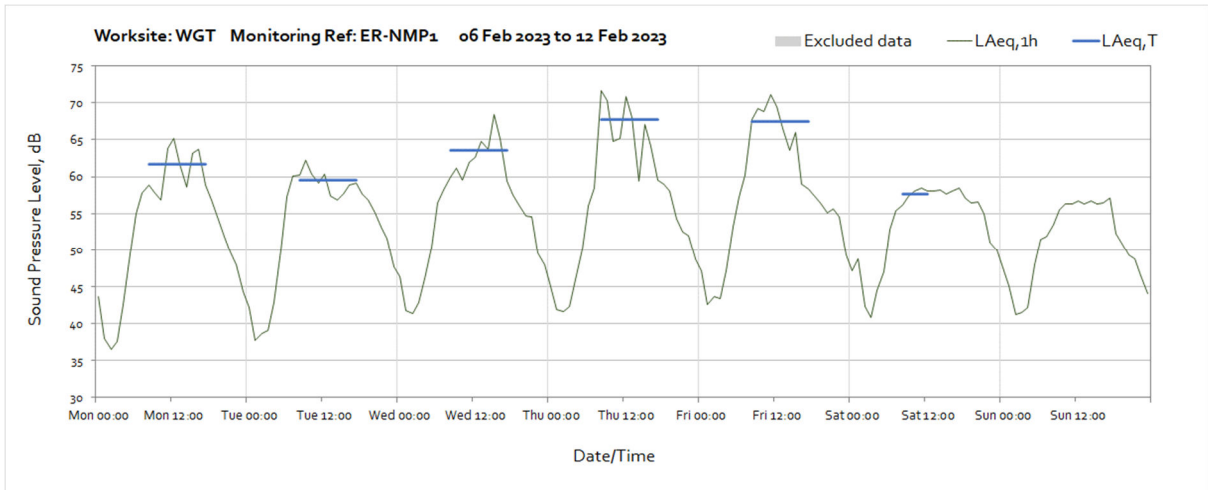
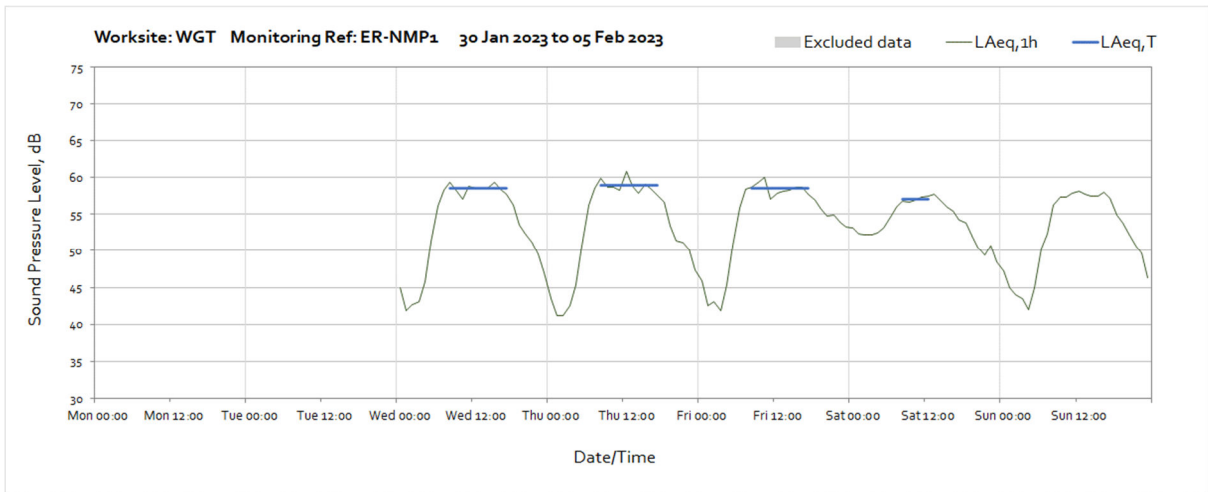


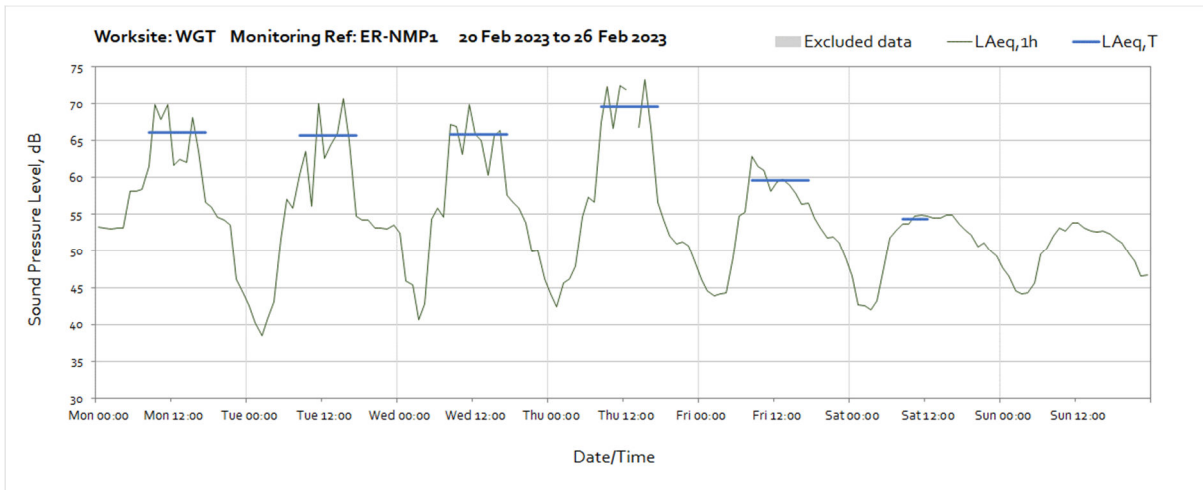
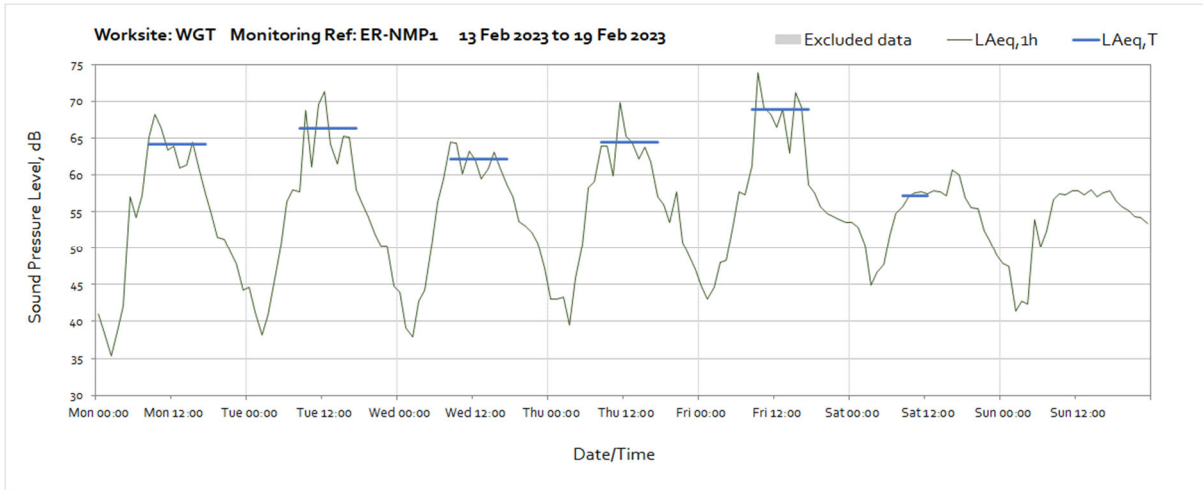
Note: Missing data between 15:00 and 16:00 on 23rd February was due to monitor maintenance.



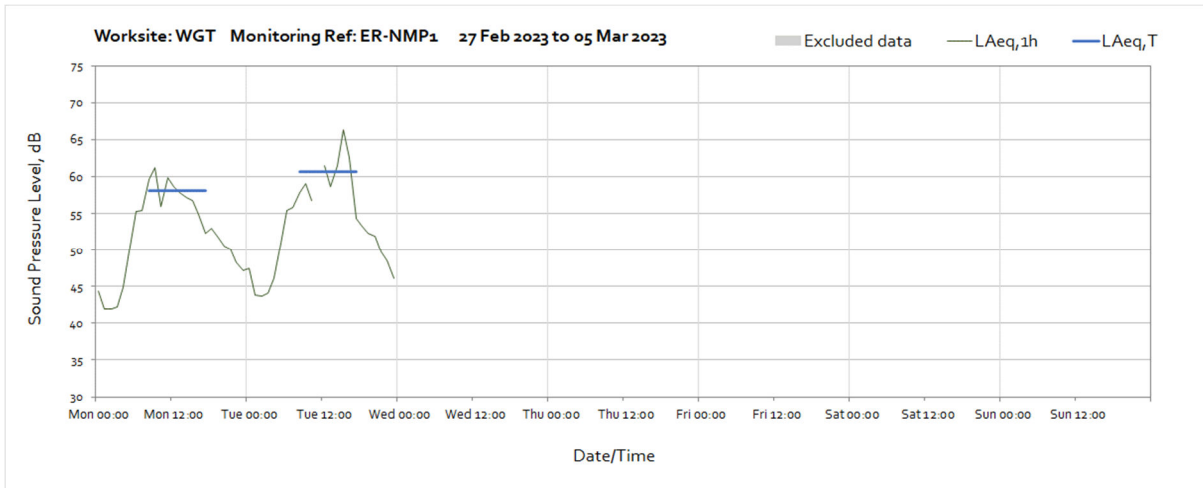
Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

Worksite: WGT – Monitoring Ref: ER-NMP1



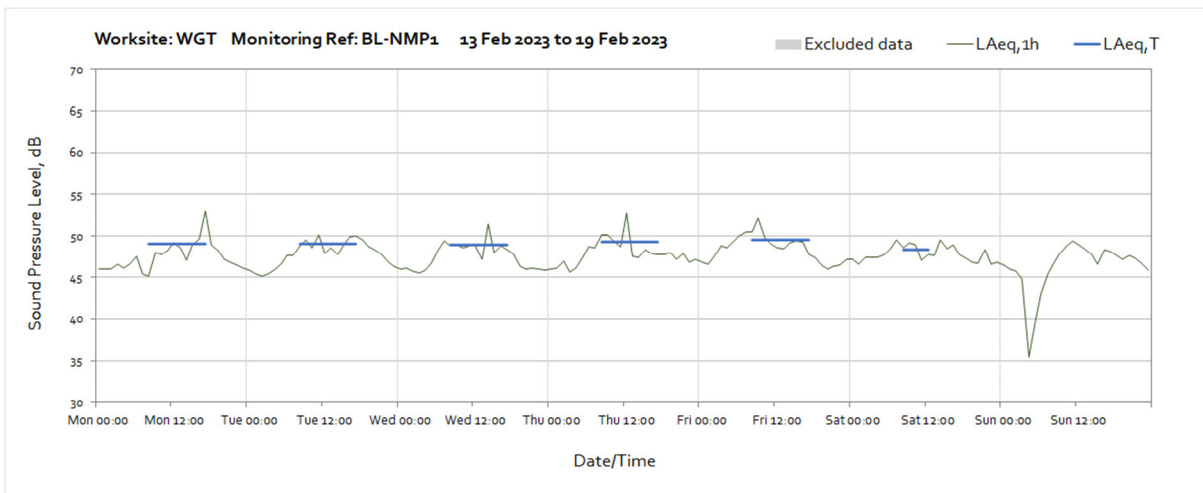
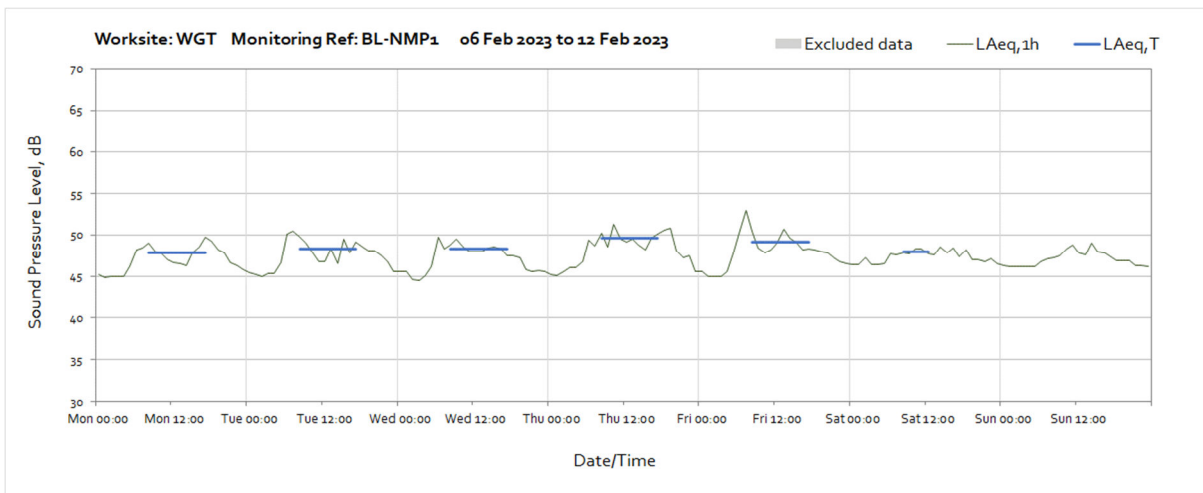
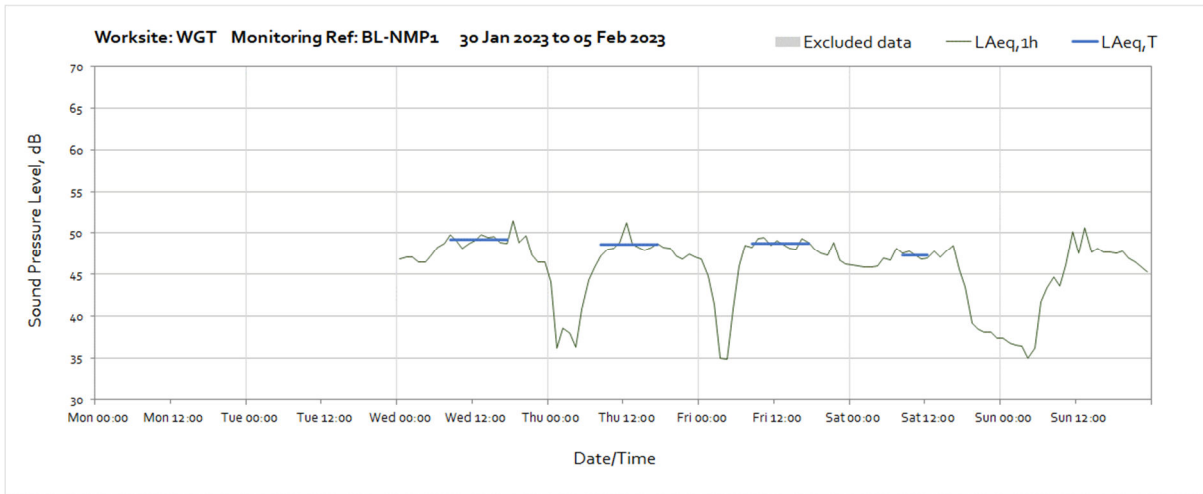


Note: Missing data between 13:00 and 14:00 on 23rd February was due to monitor maintenance.

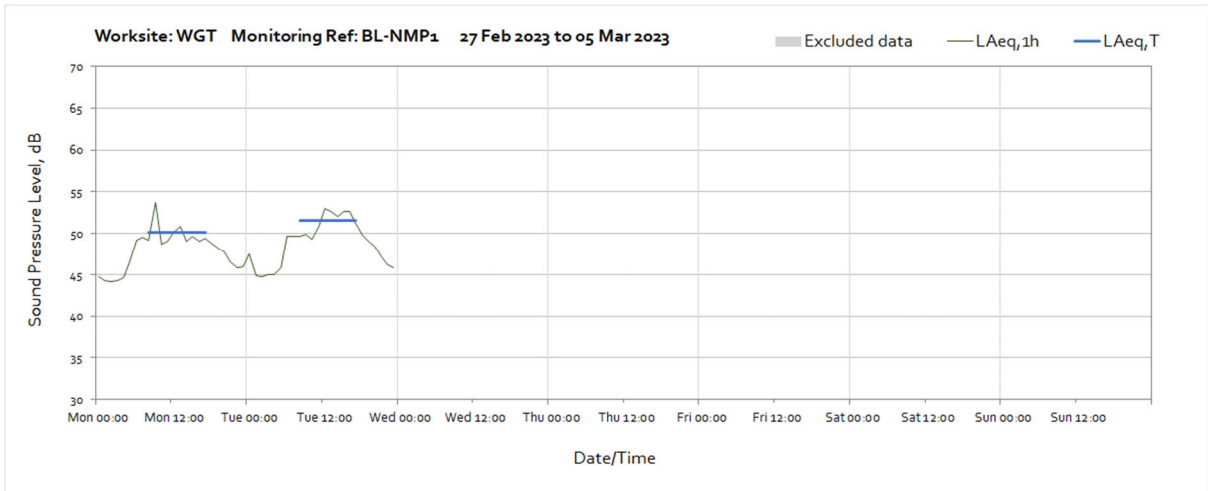
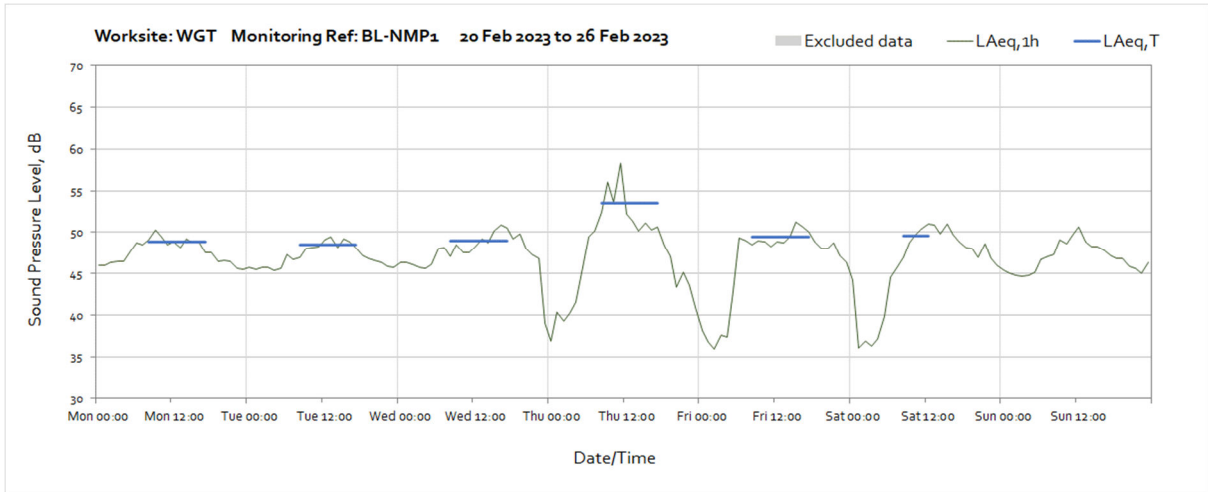


Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

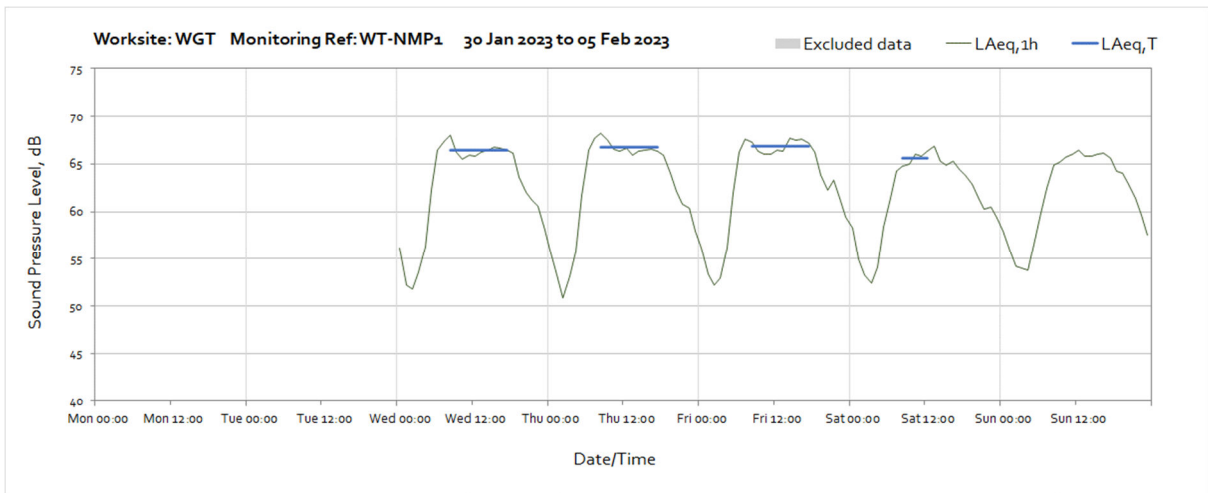
Worksite: WGT – Monitoring Ref: BL-NMP1

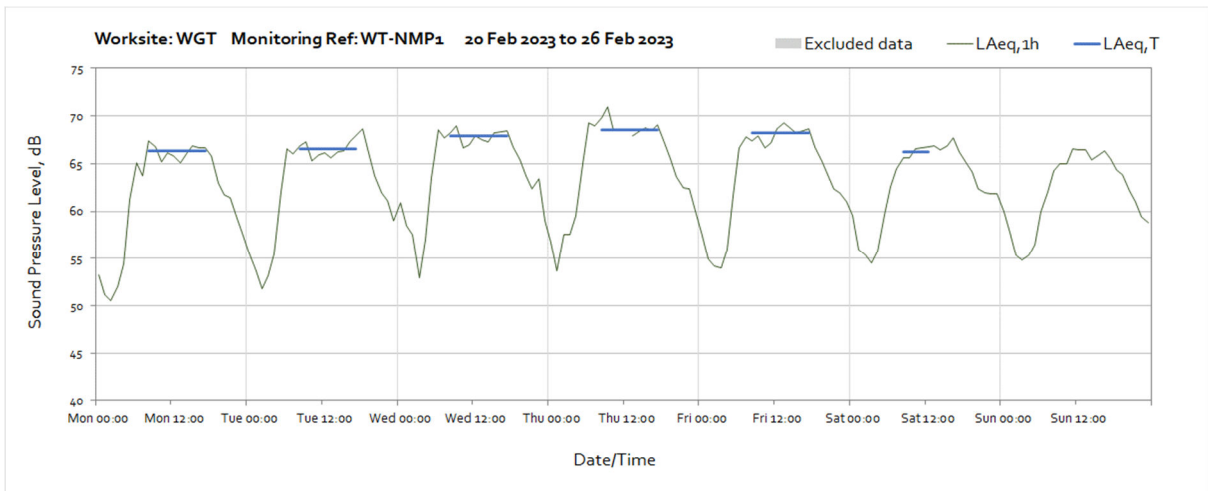
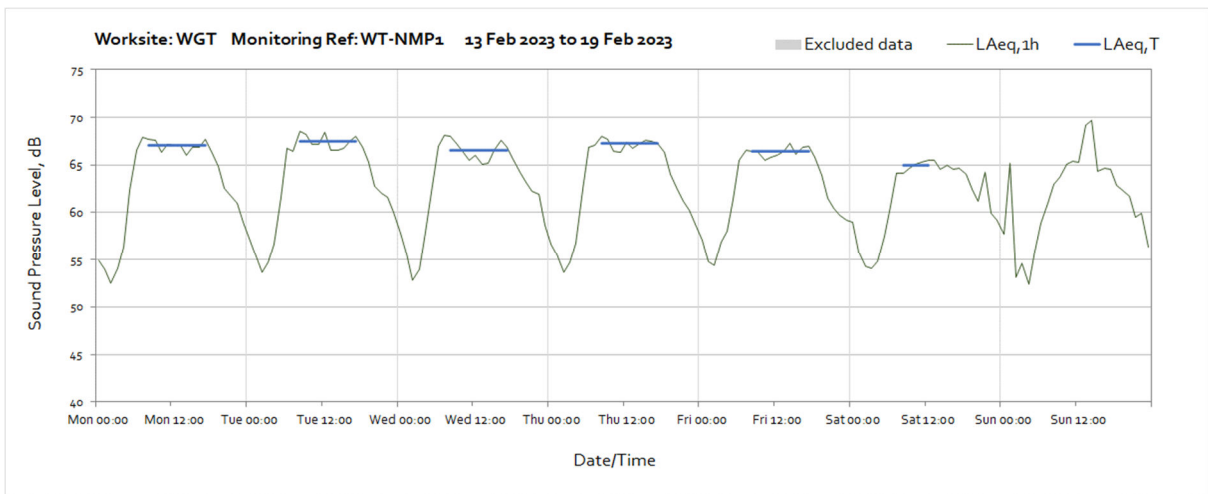
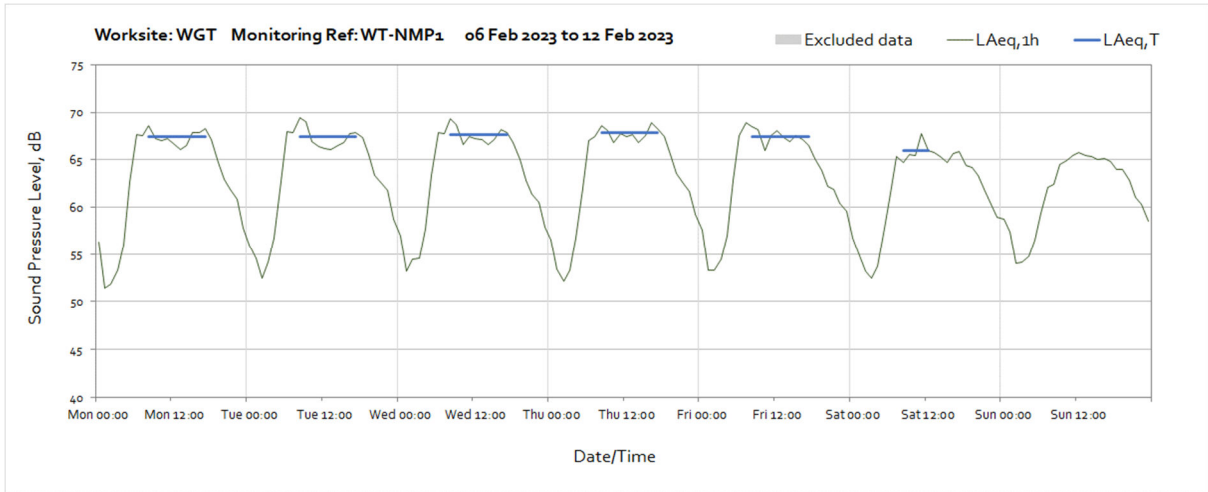


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Worksite: WGT - Monitoring Ref: WT-NMP1

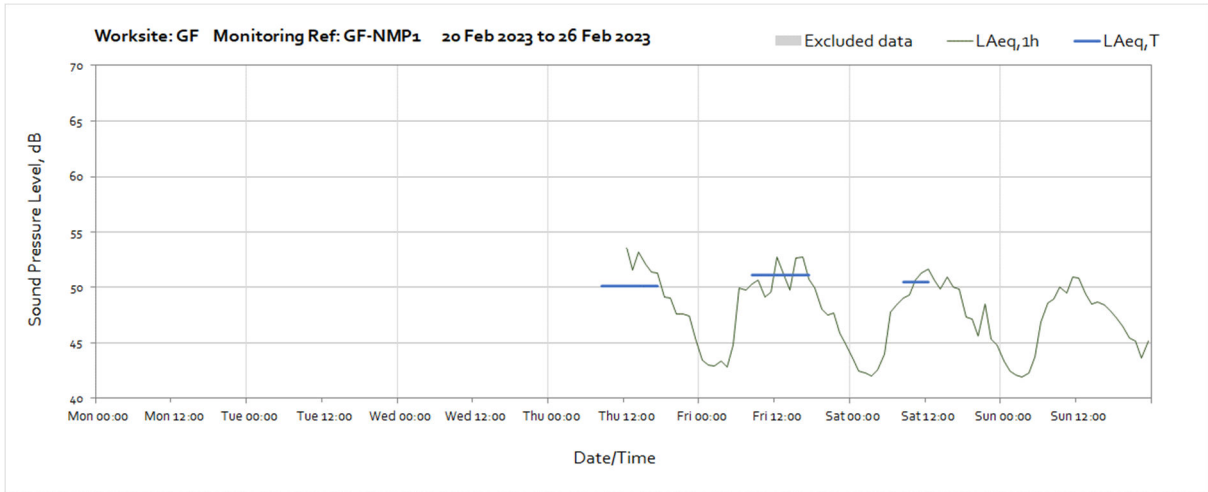




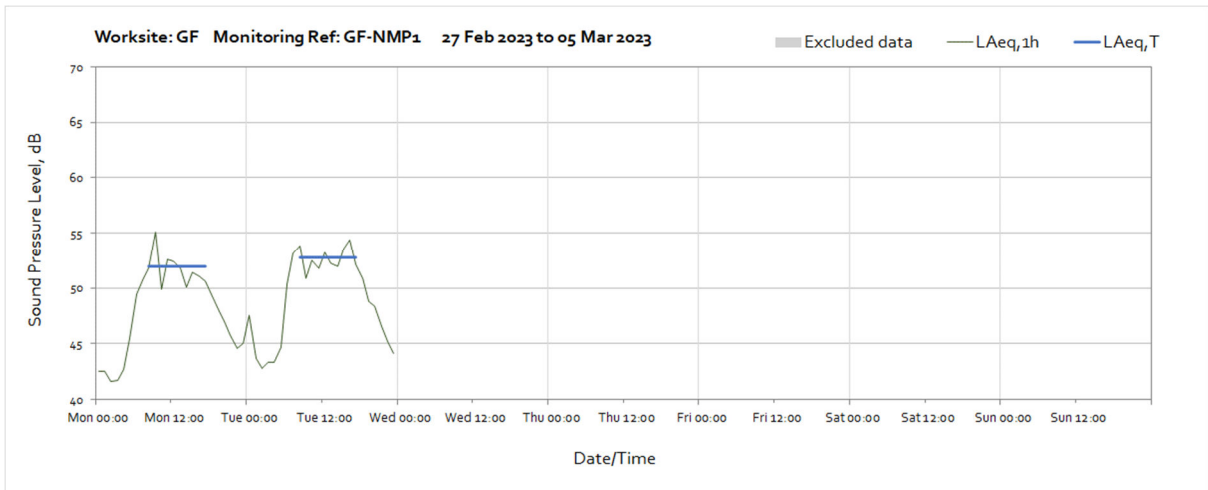
Note: Missing data between 12:00 and 13:00 on 23rd February was due to monitor maintenance.



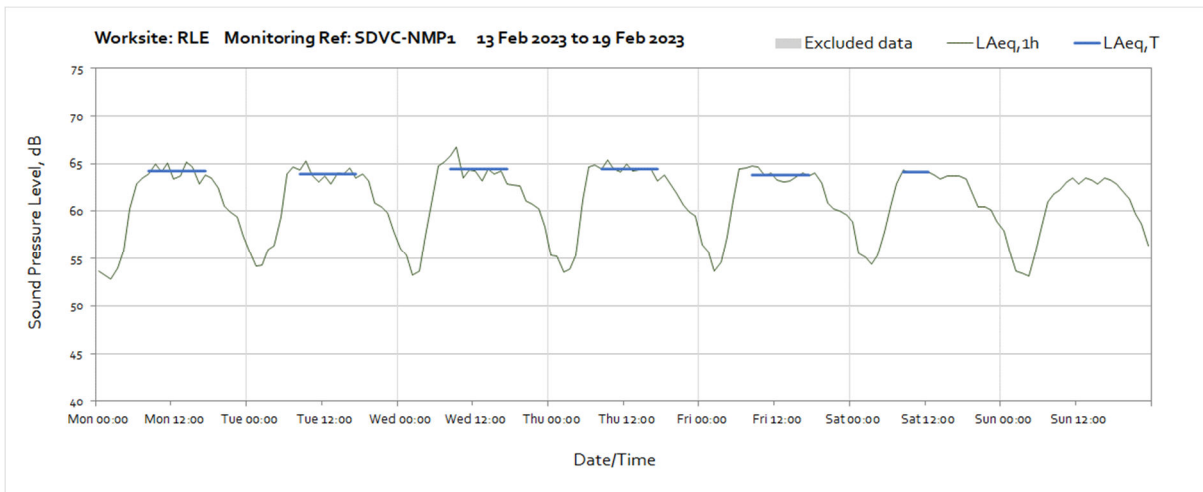
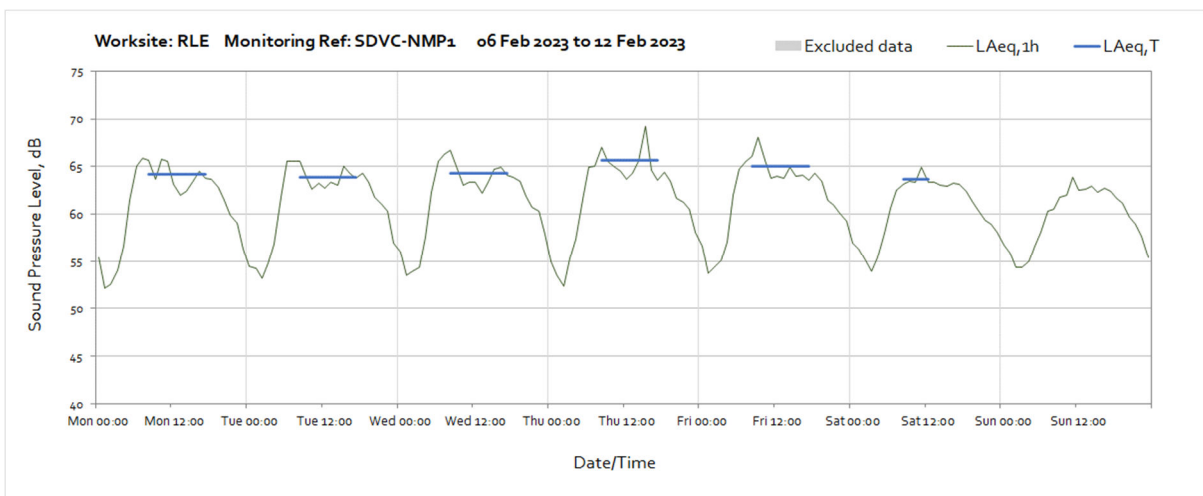
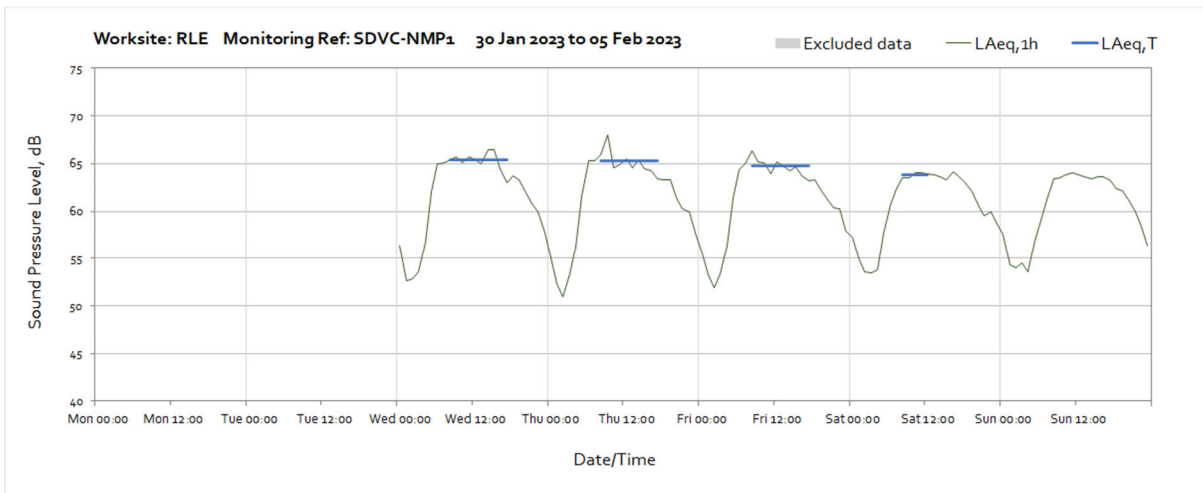
Worksite: GF – Monitoring Ref: GF-NMP1

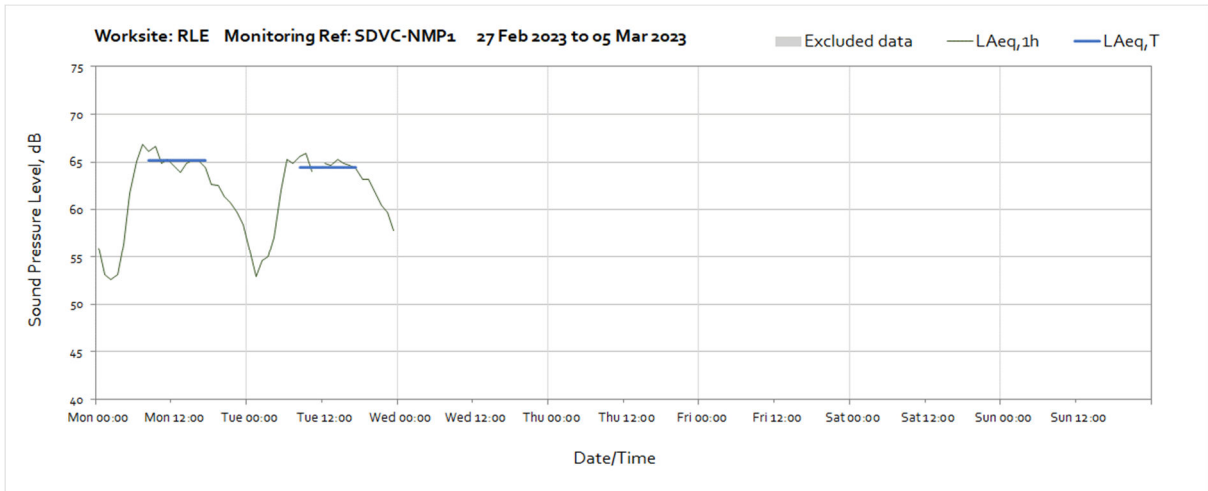
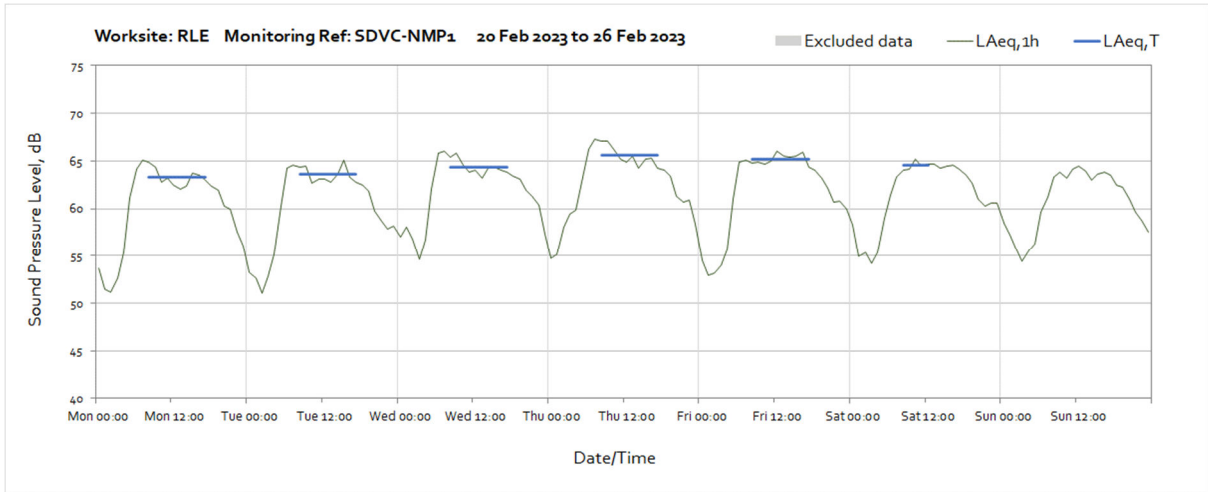


Note: Monitor was reinstalled at 12:00 on 23rd February.



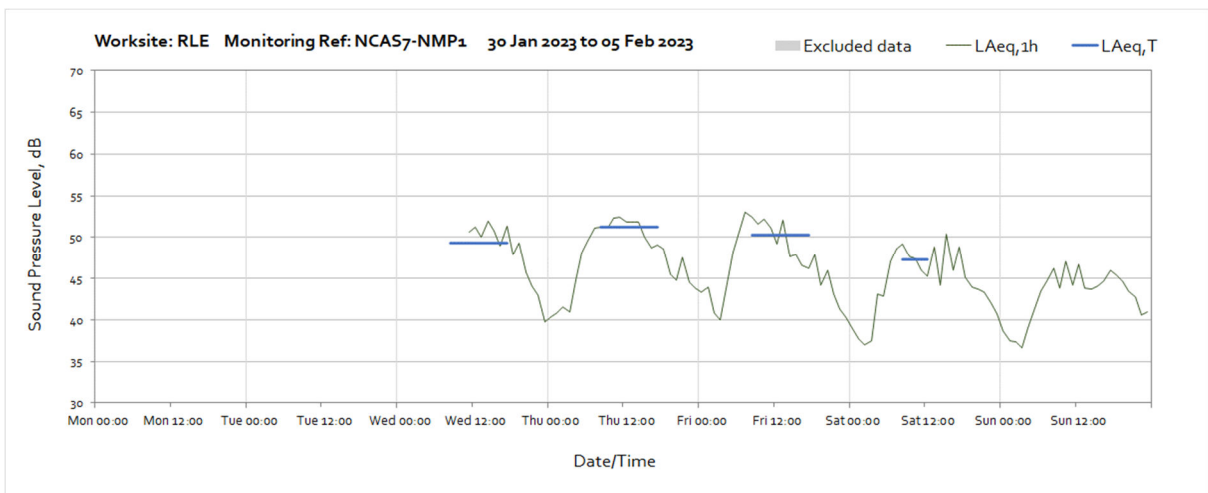
Worksite: RLE – Monitoring Ref: SDVC-NMP1





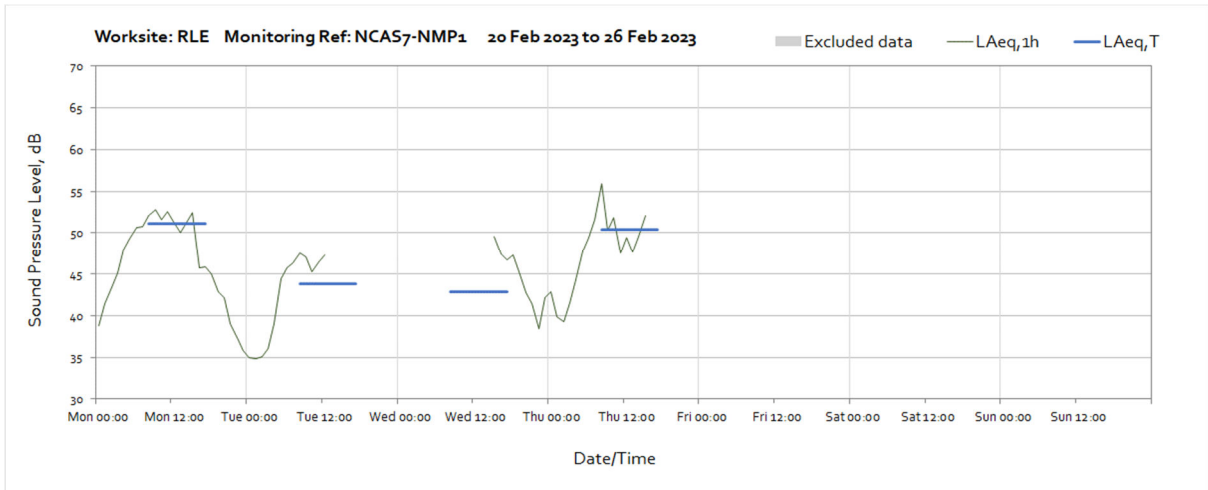
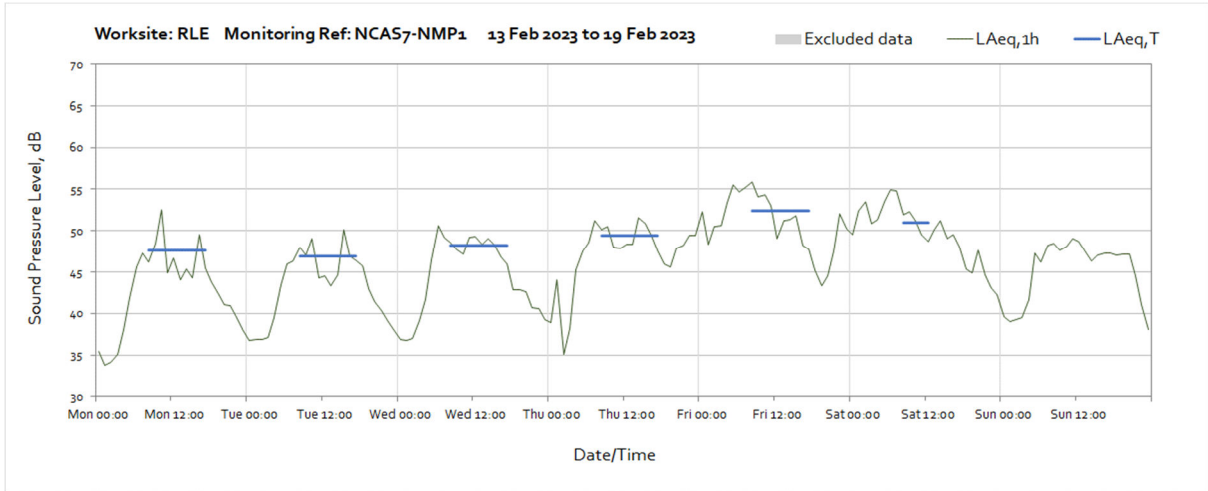
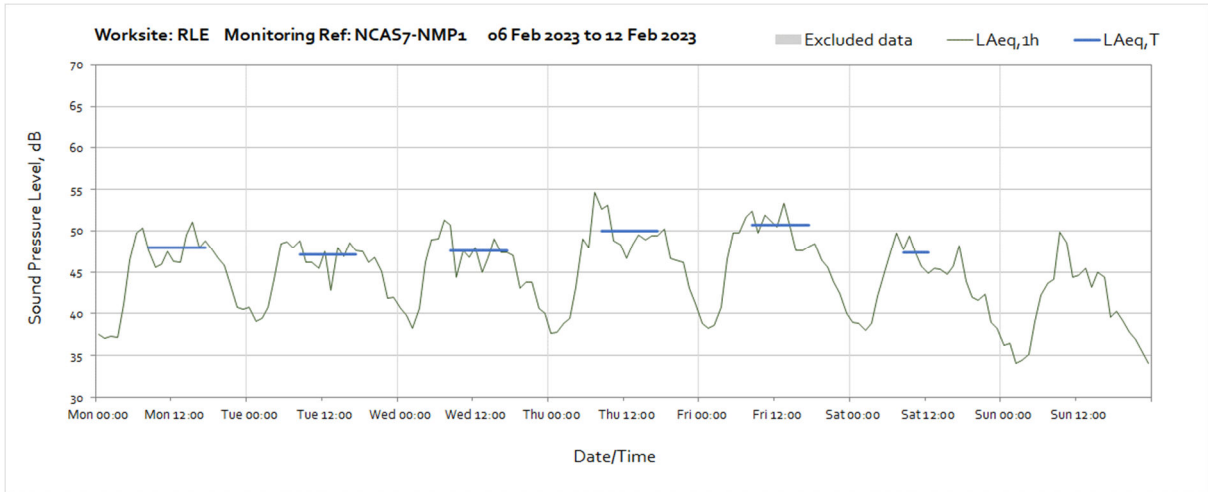
Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

Worksite: RLE – Monitoring Ref: NCAS7-NMP1



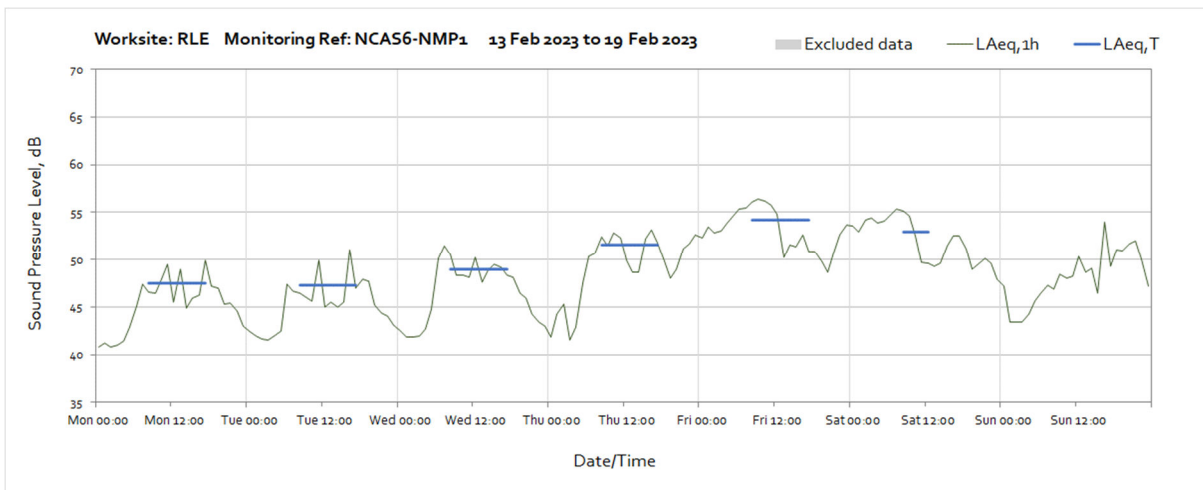
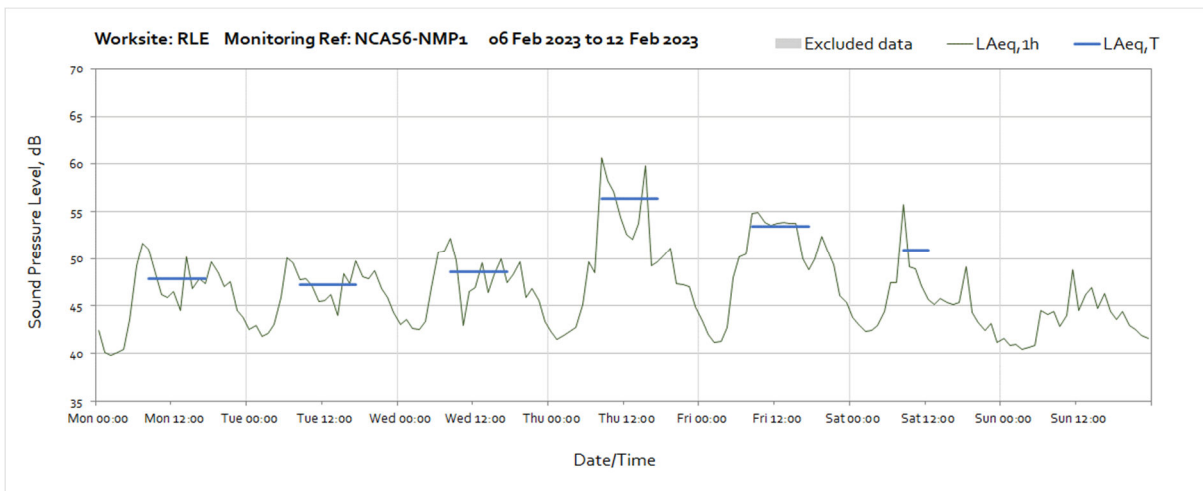
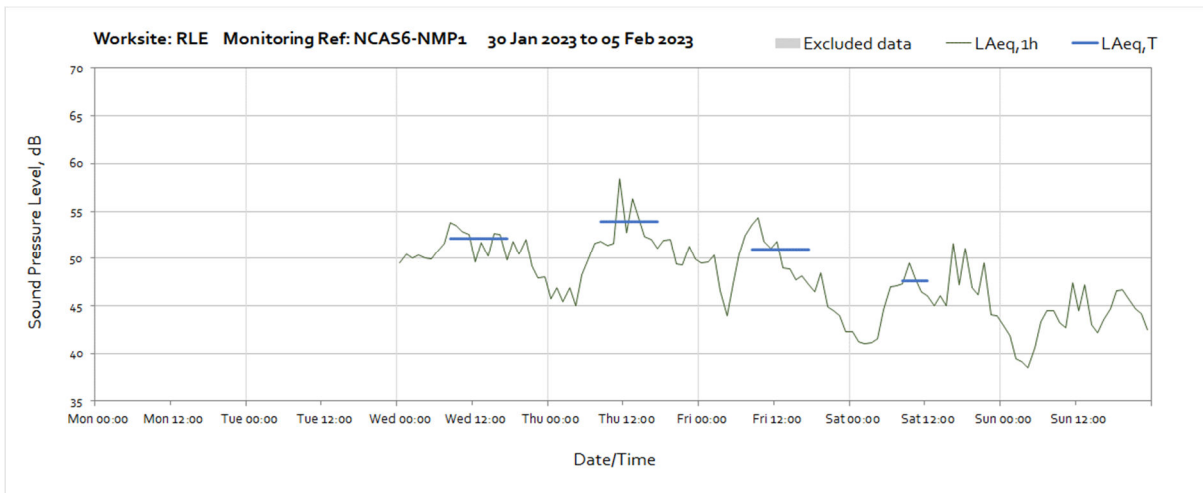
Note: Missing data from month start until 10:00 on 1st February was due to depleted monitor battery.

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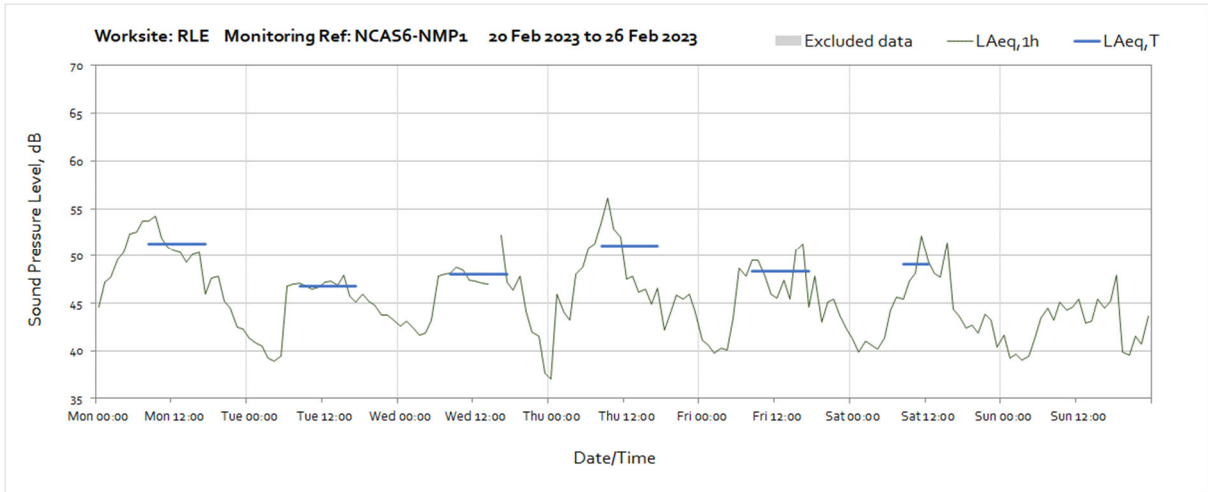


Note: Missing data from 13:00 on 21st February until 15:00 on 22nd February was due to depleted monitor battery. Monitor was retrieved for repair at 16:00 on 23rd February.

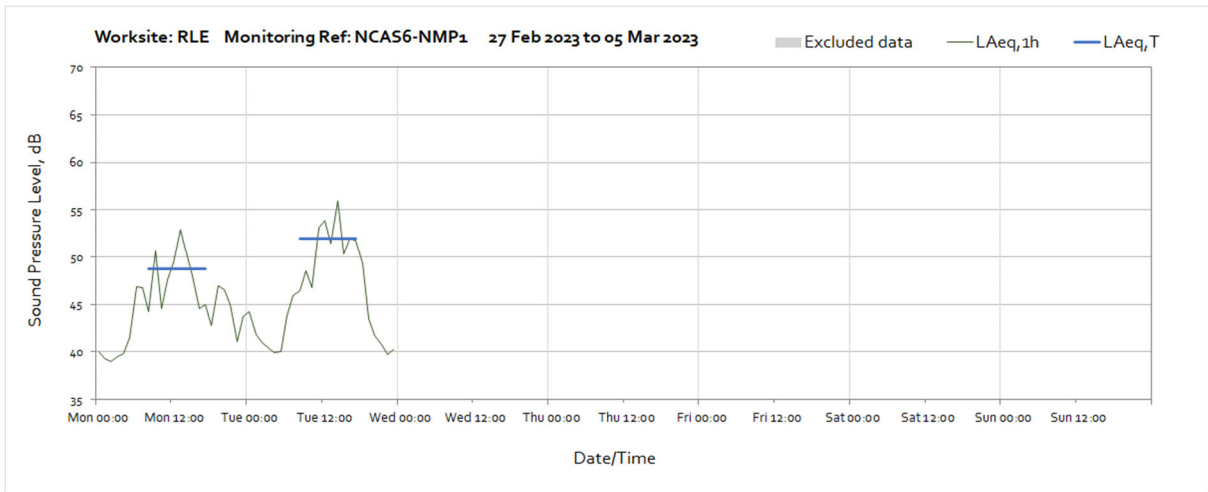
Worksite: RLE – Monitoring Ref: NCAS6-NMP1



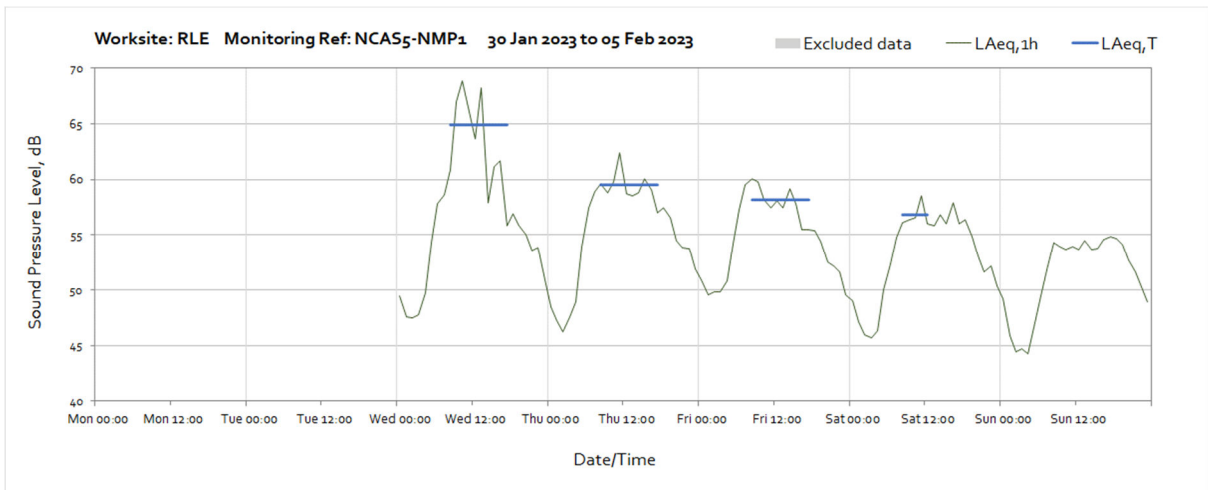
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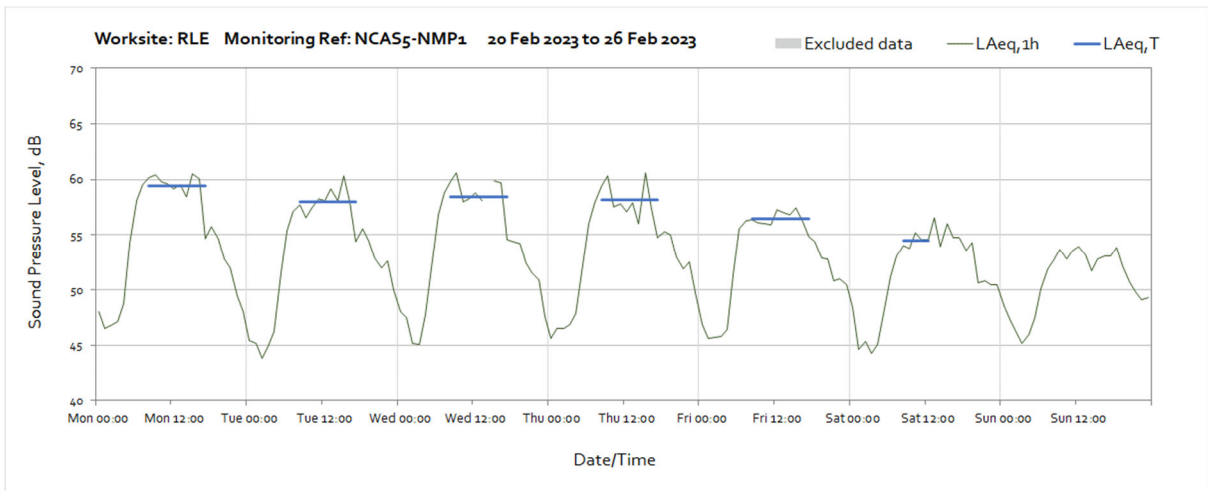
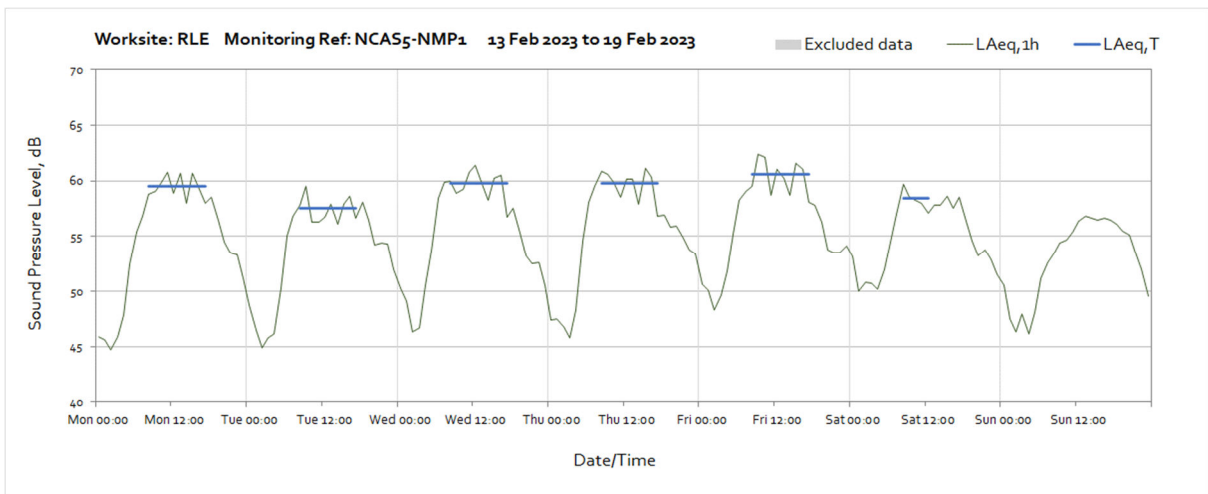
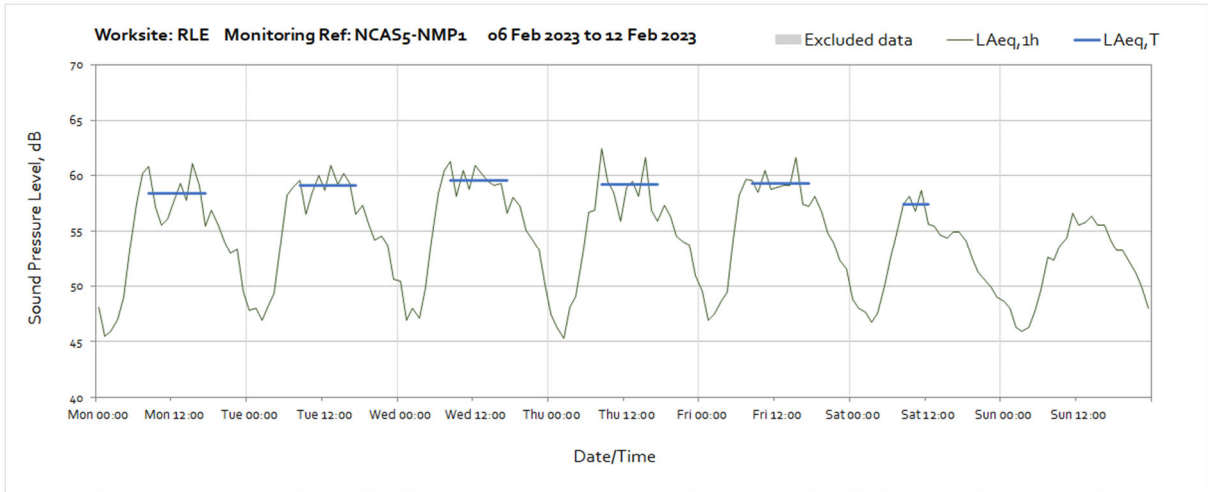


Note: Missing data between 15:00 and 16:00 on 22nd February was due to monitor maintenance.

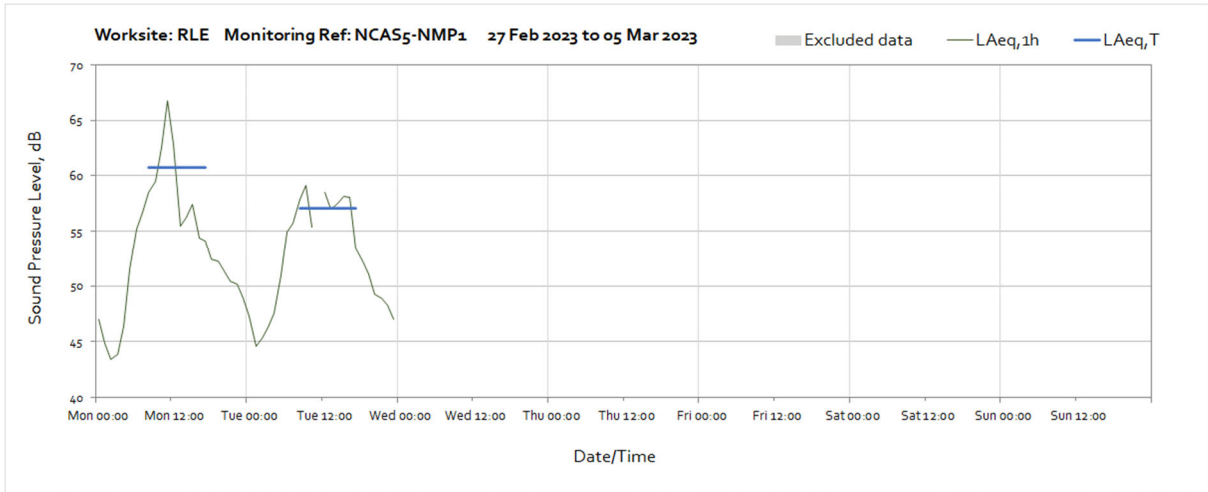


Worksite: RLE – Monitoring Ref: NCAS5-NMP1



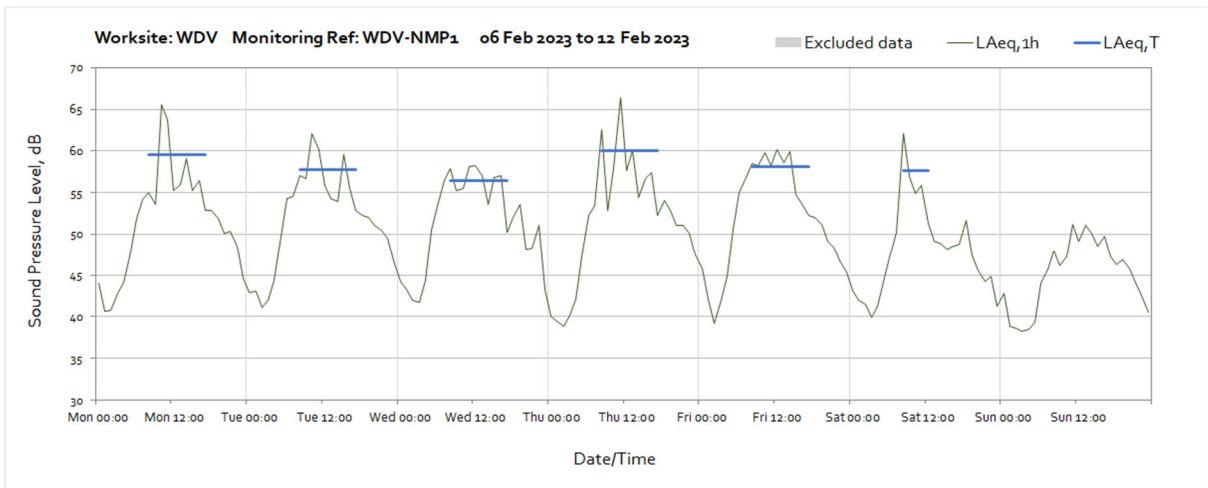
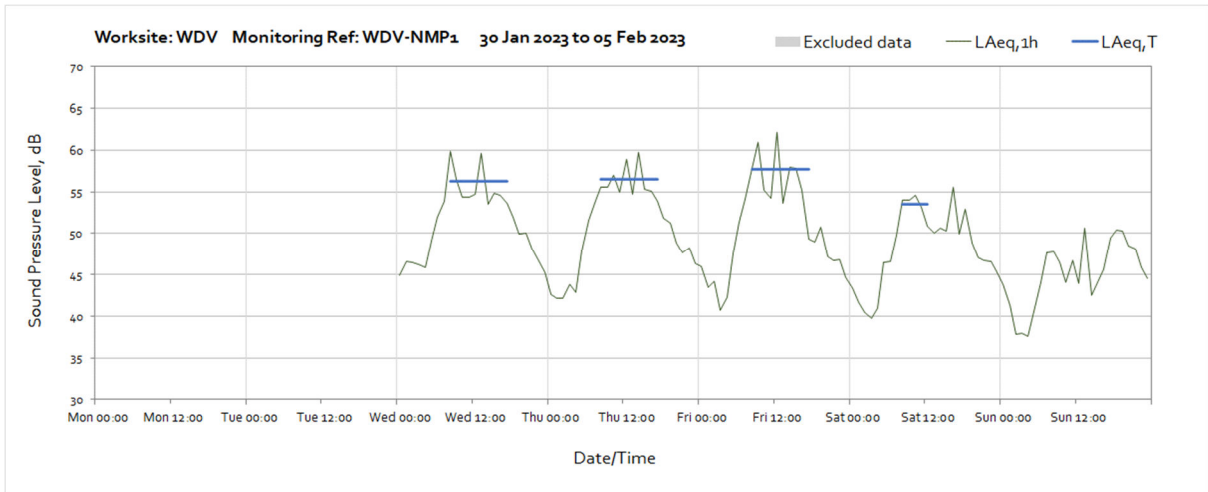


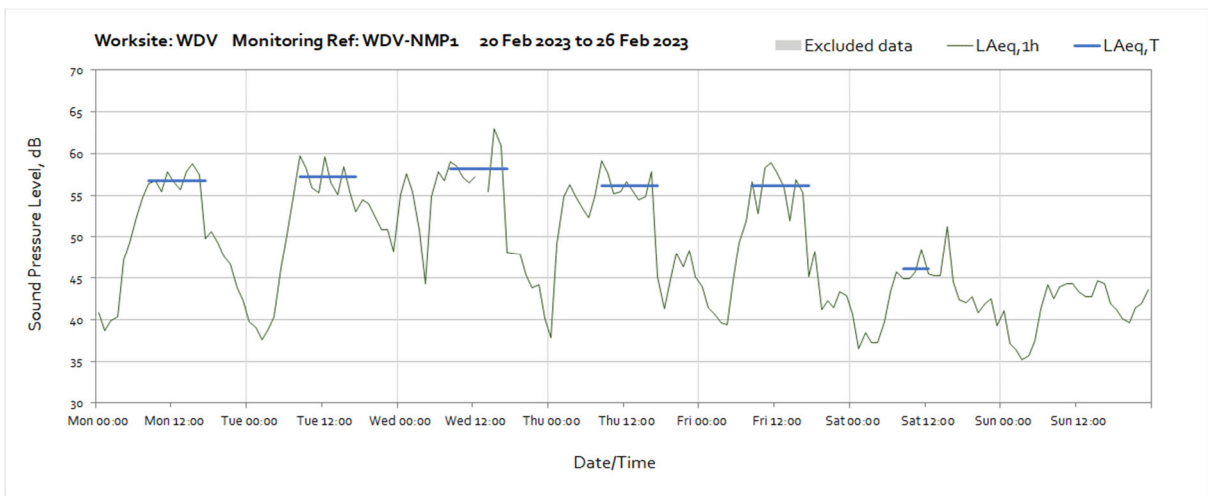
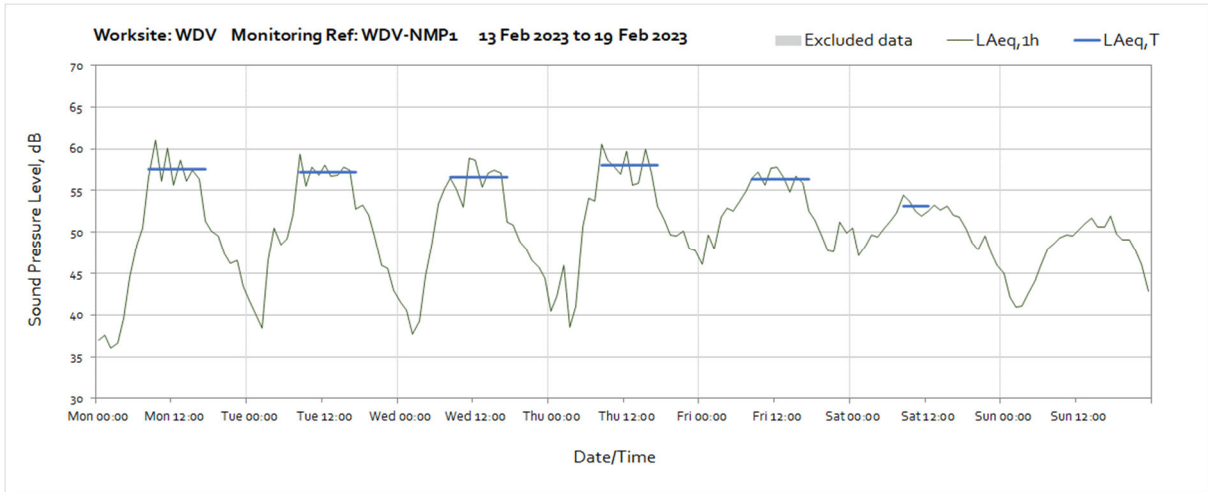
Note: Missing data between 14:00 and 15:00 on 22nd February was due to monitor maintenance.



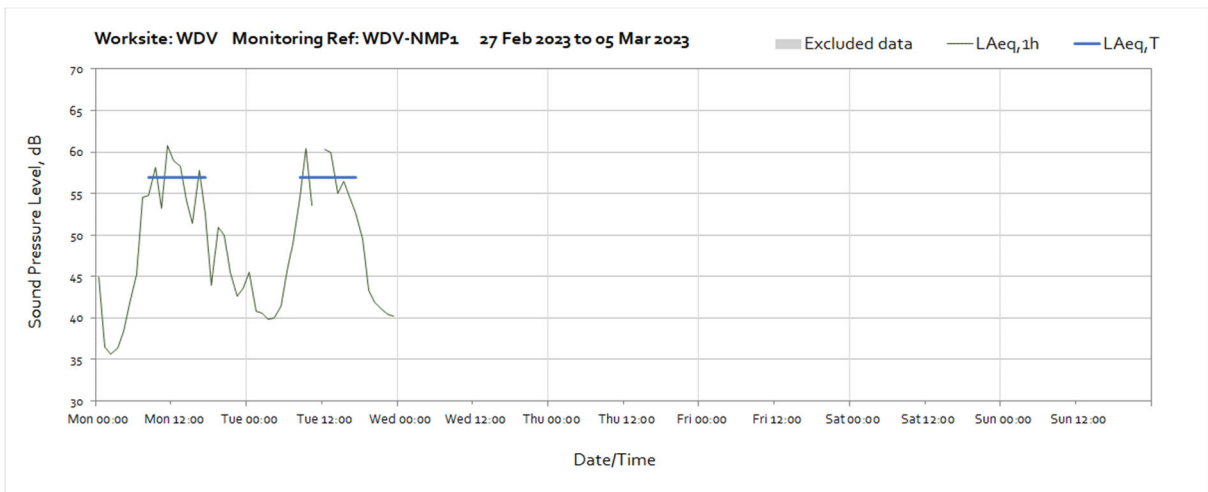
Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

Worksite: WDV - Monitoring Ref: WDV-NMP1



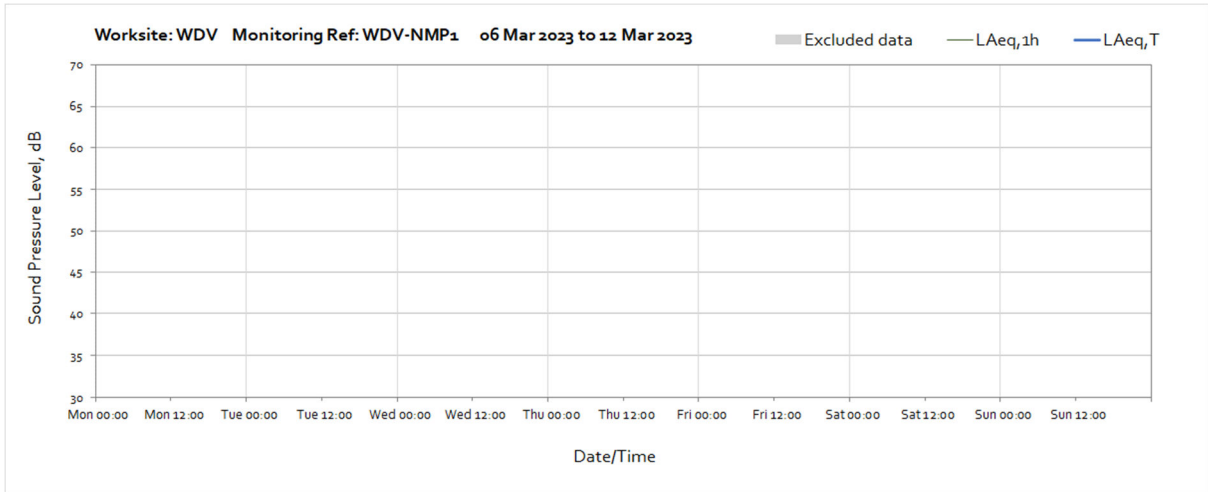


Note: Missing data between 13:00 and 14:00 on 22nd February was due to monitor maintenance.

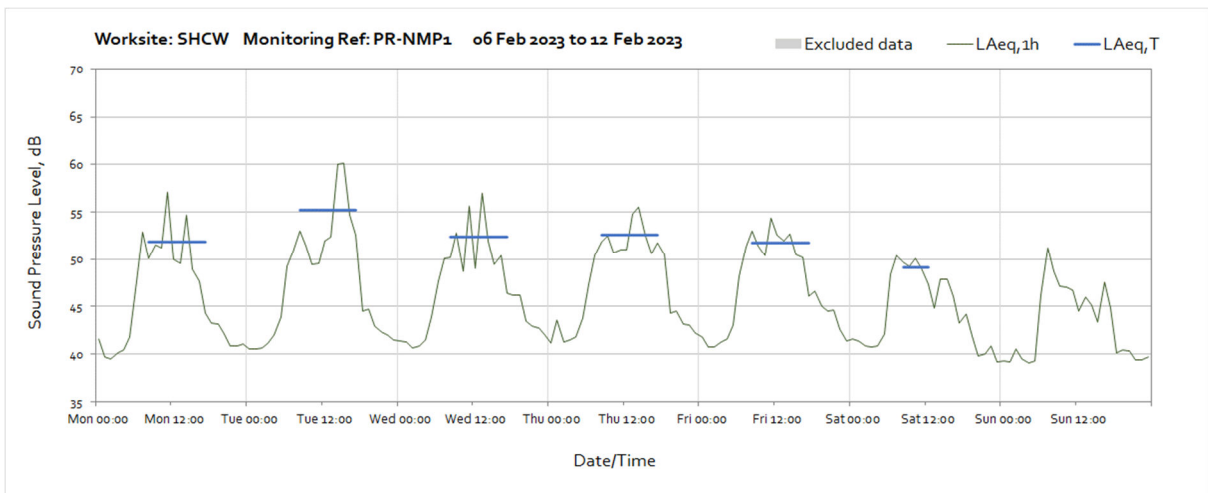
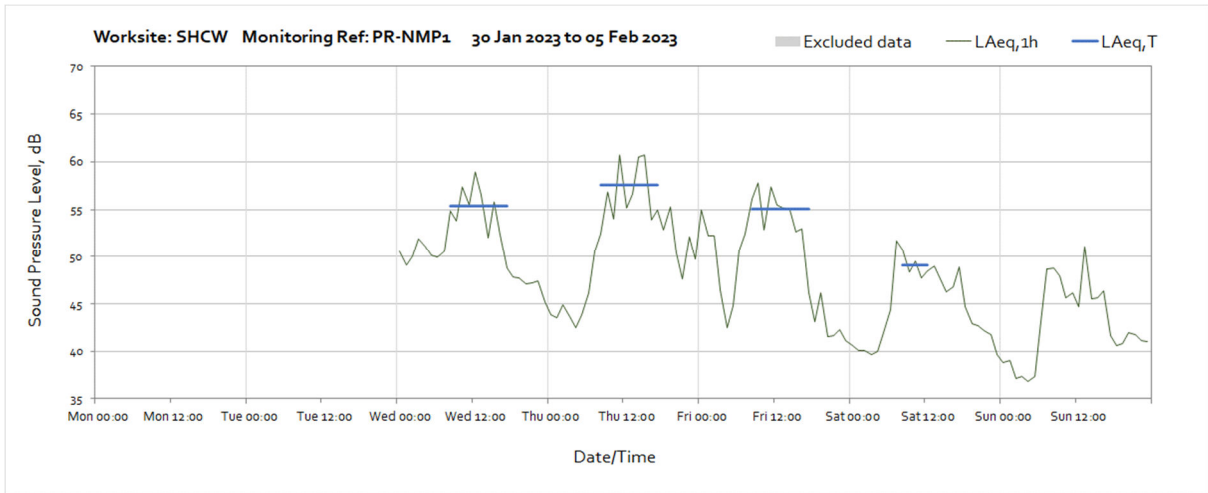


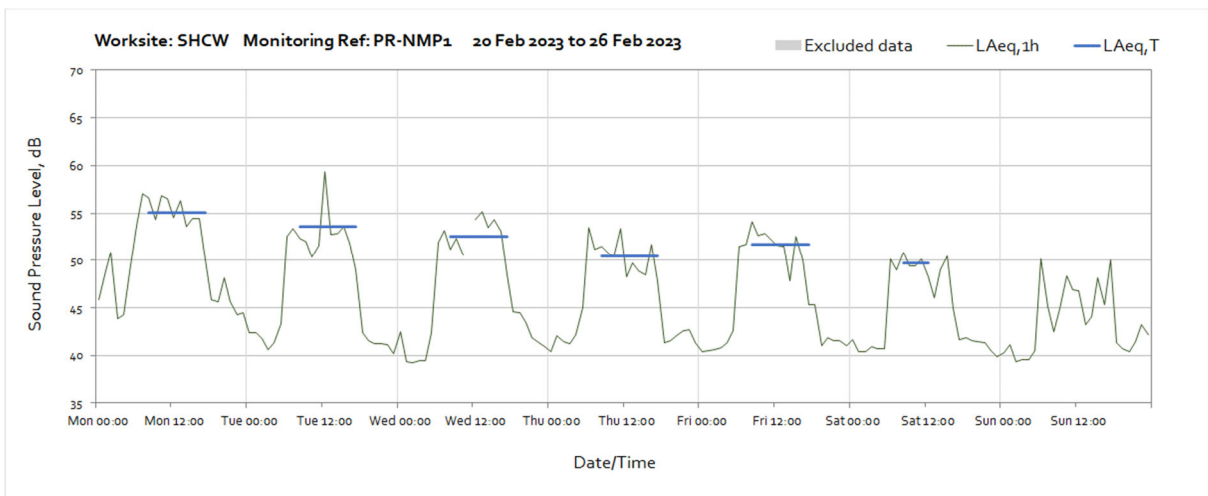
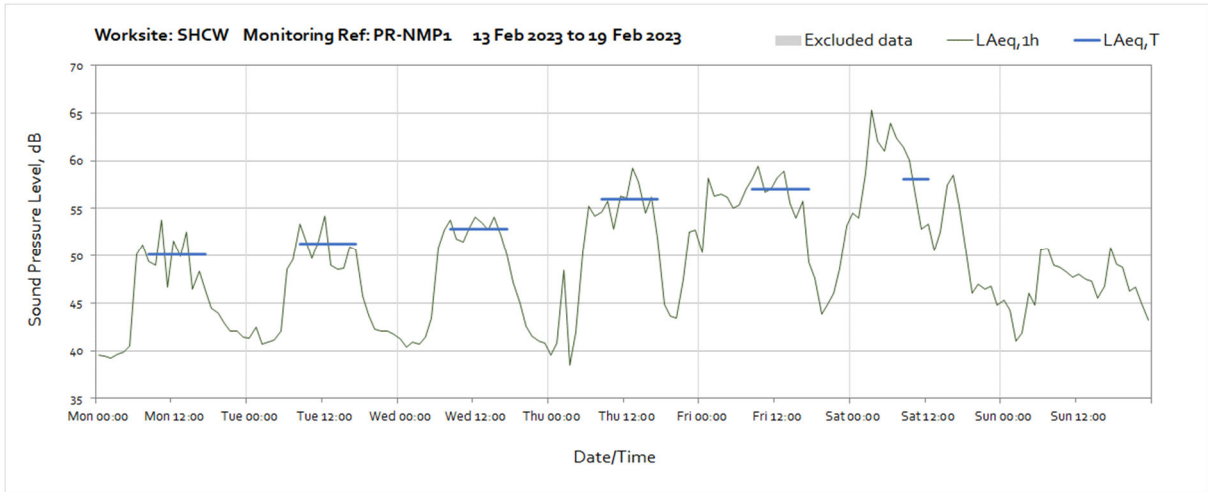
Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

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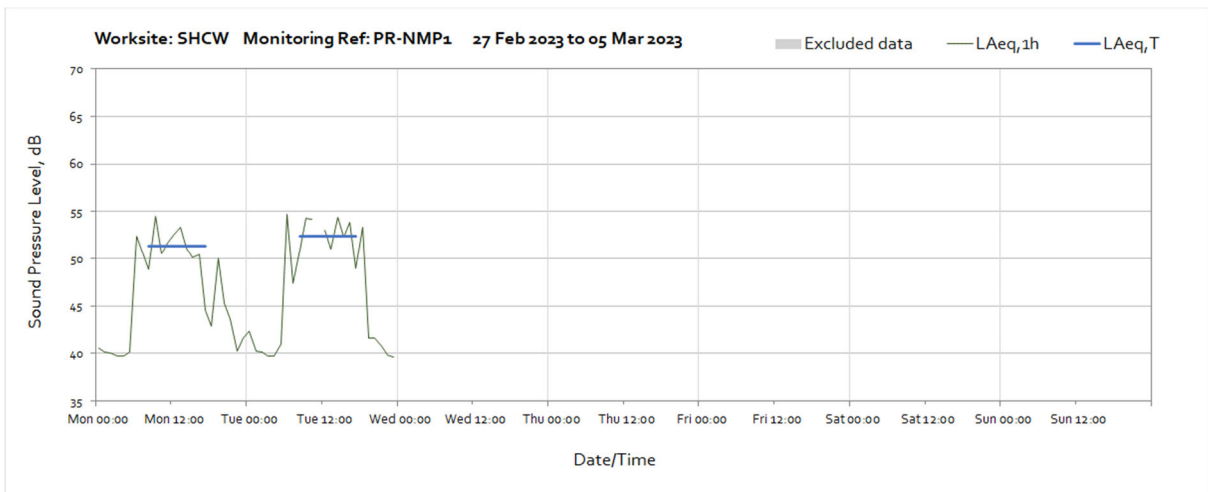


Worksite: SHCW – Monitoring Ref: PR-NMP1



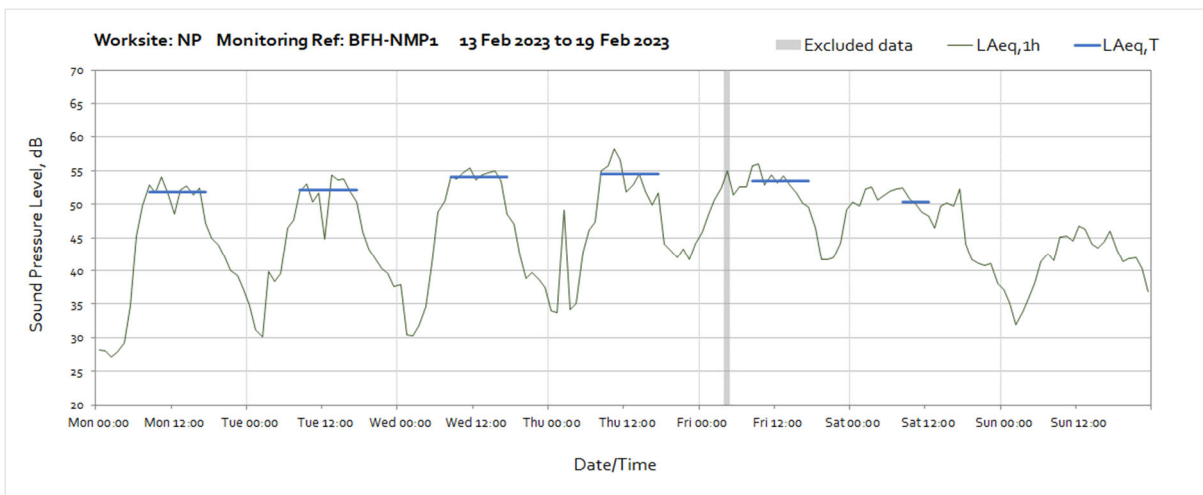
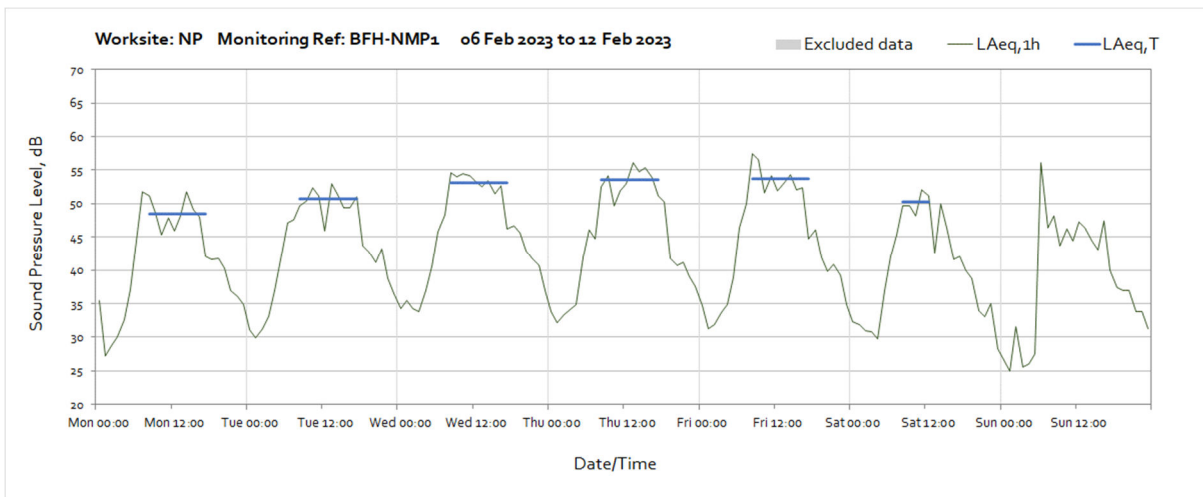
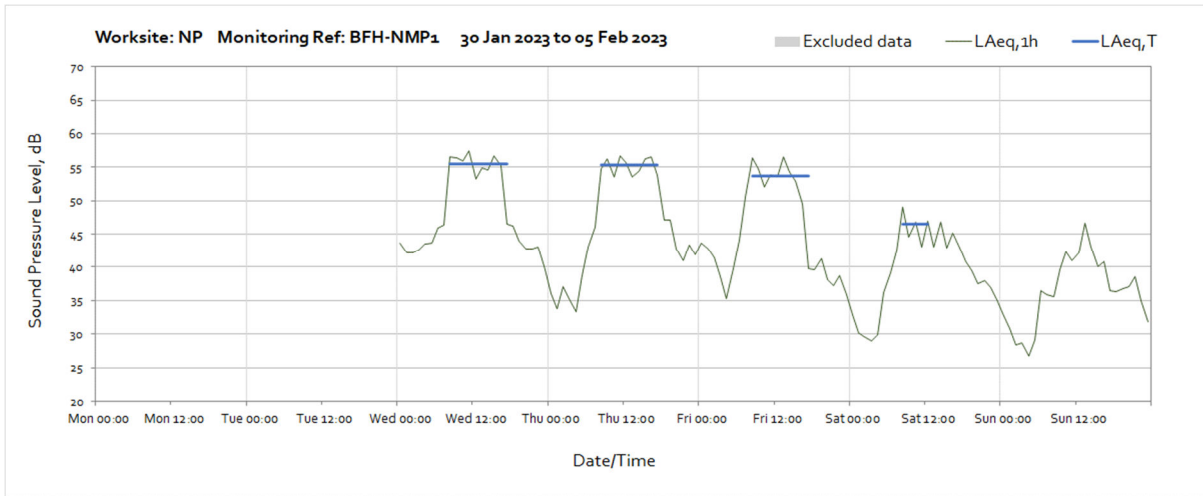


Note: Missing data between 11:00 and 12:00 on 22nd February was due to monitor maintenance.

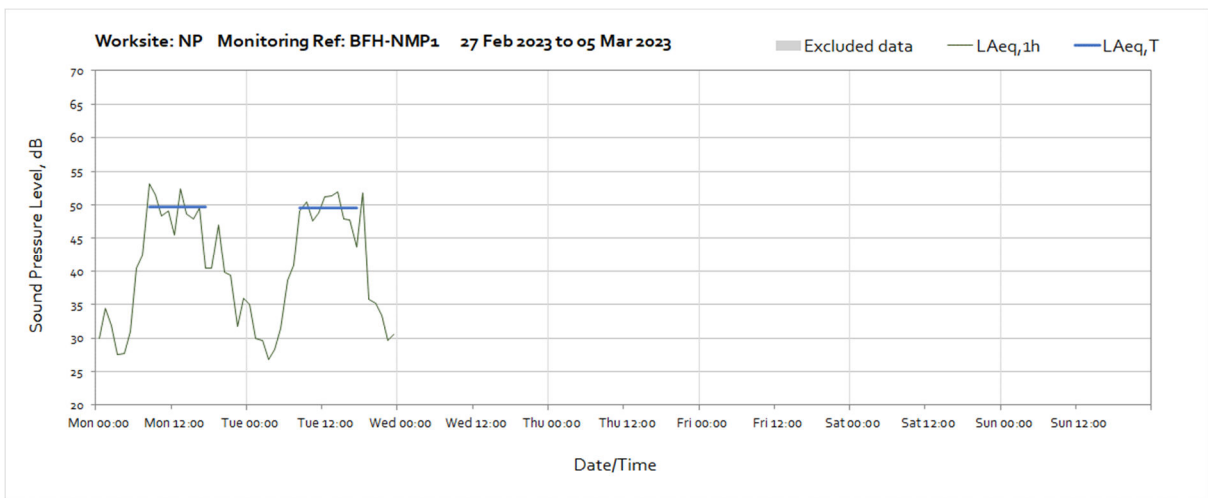
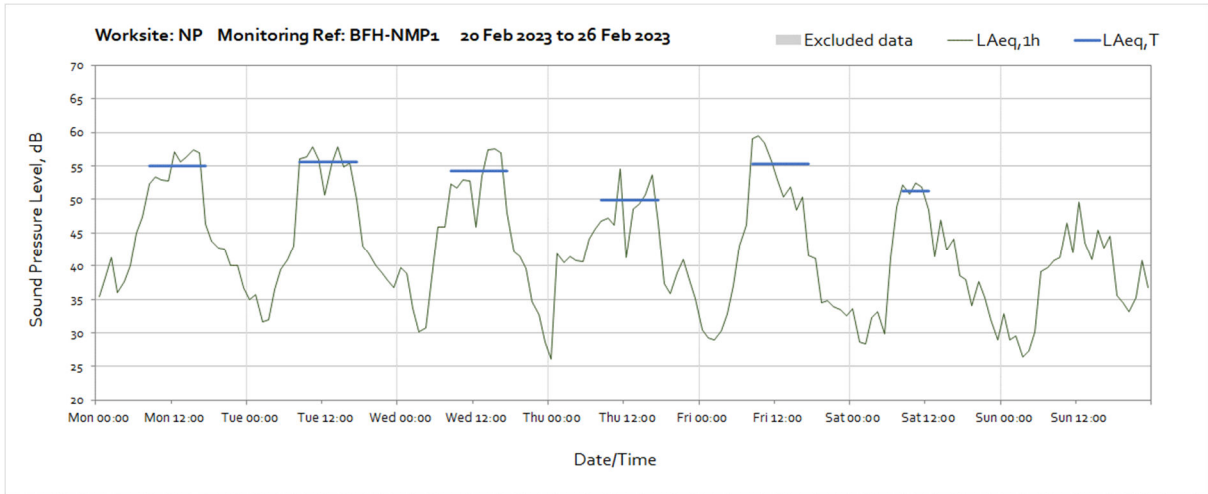


Note: Missing data between 11:00 and 12:00 on 28th February was due to monitor maintenance.

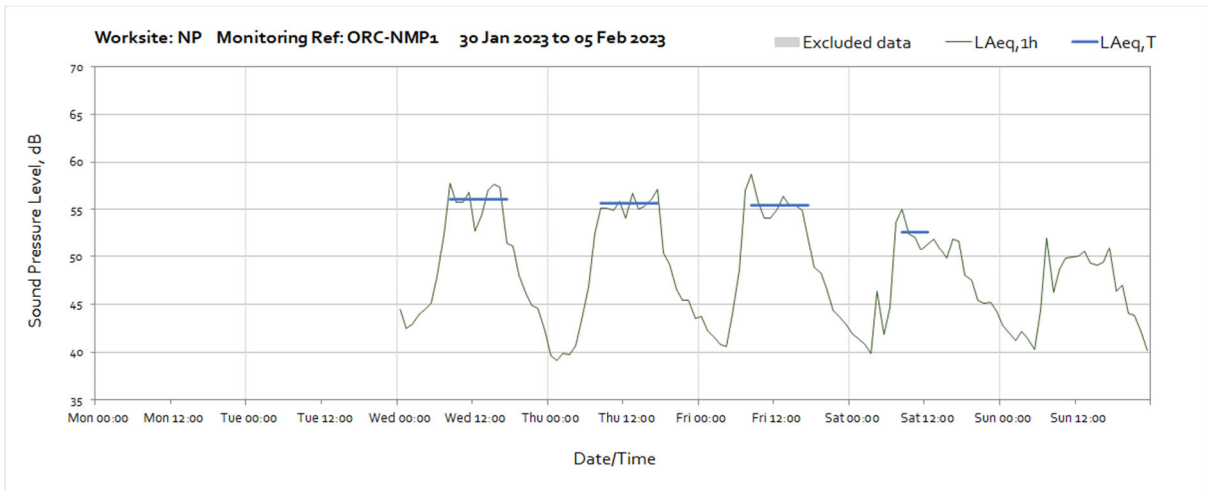
Worksite: NP – Monitoring Ref: BFH-NMP1

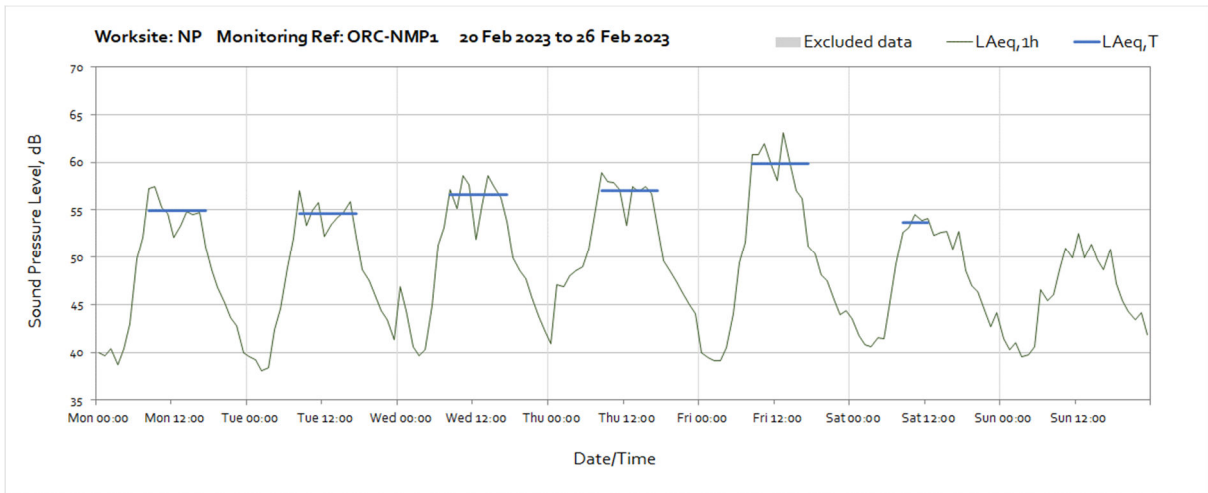
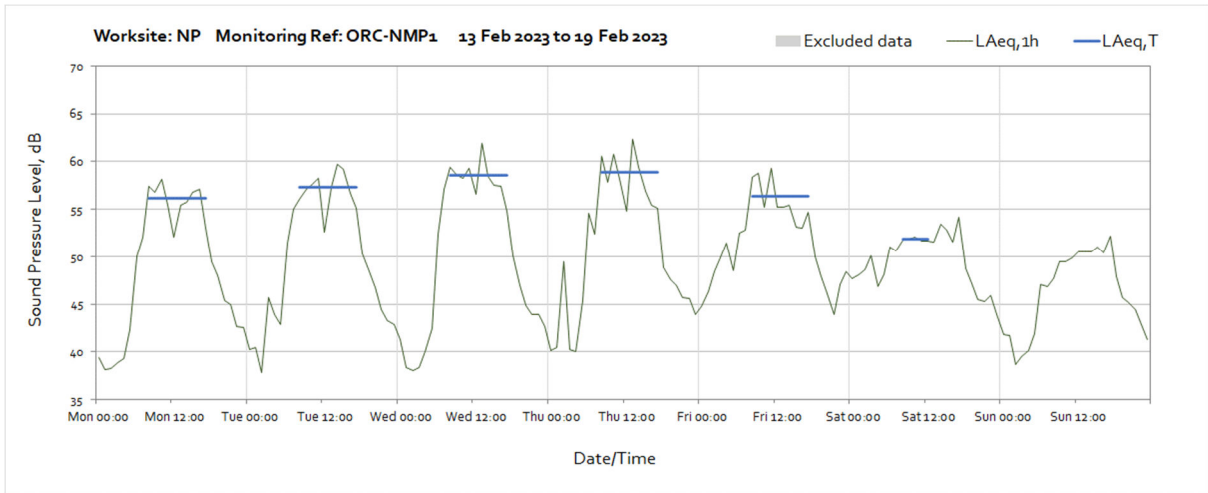
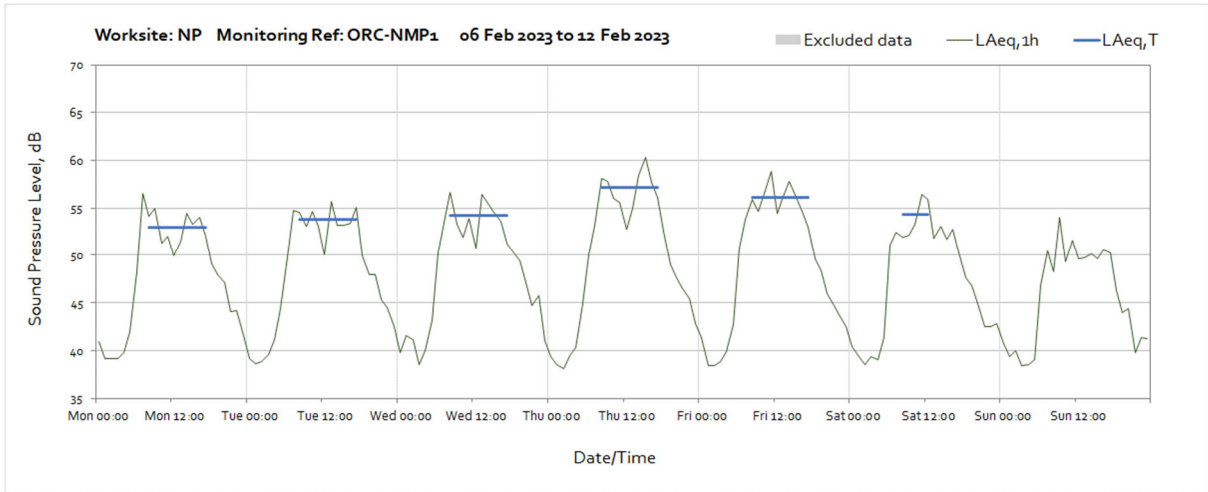


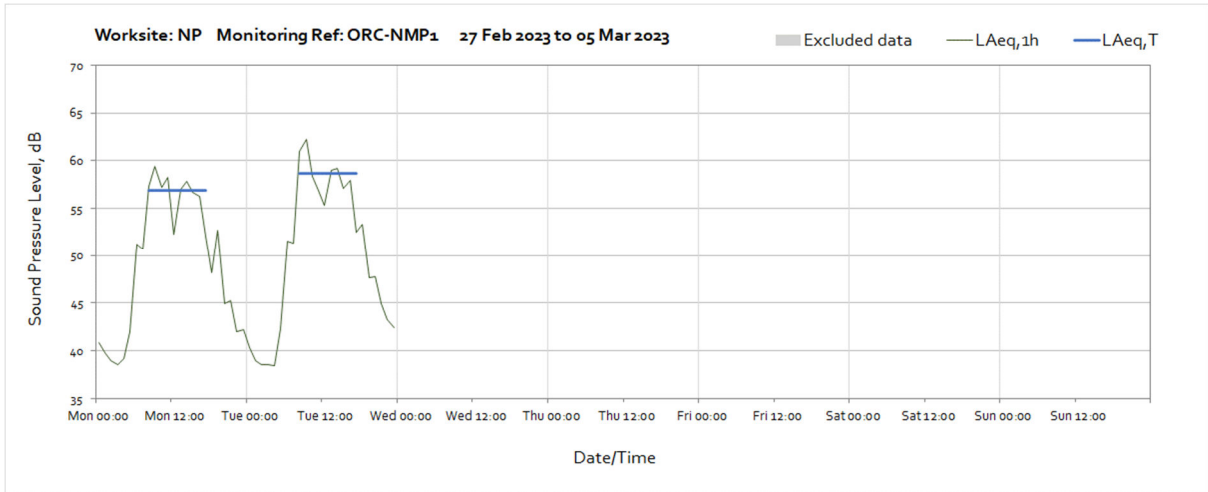
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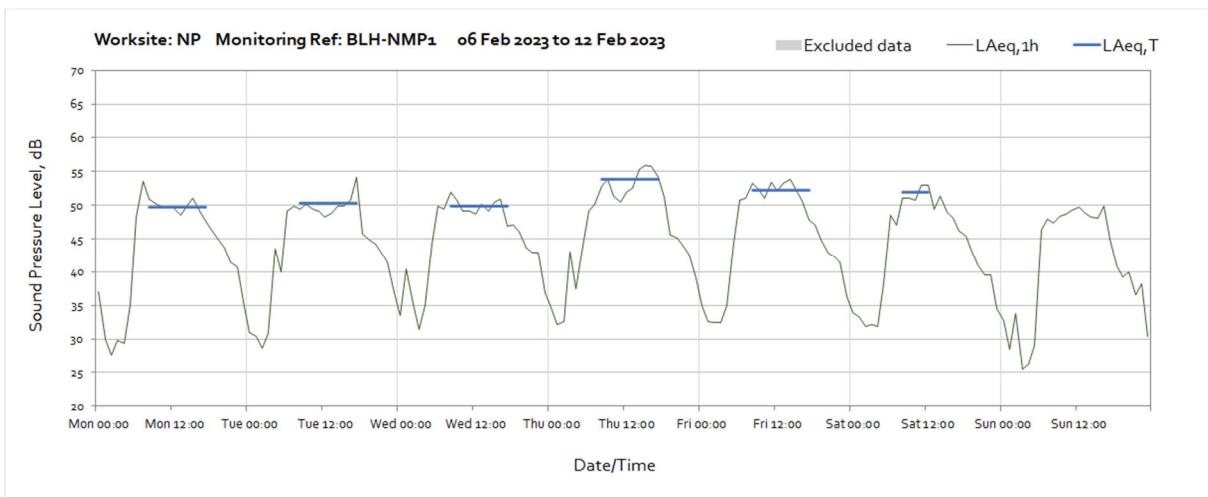
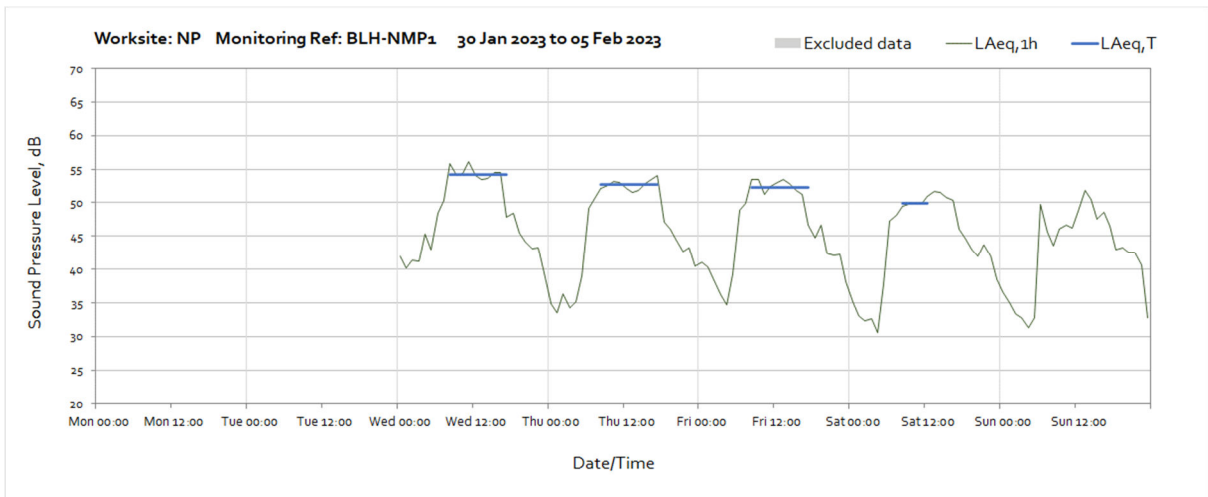
Worksite: NP – Monitoring Ref: ORC-NMP1

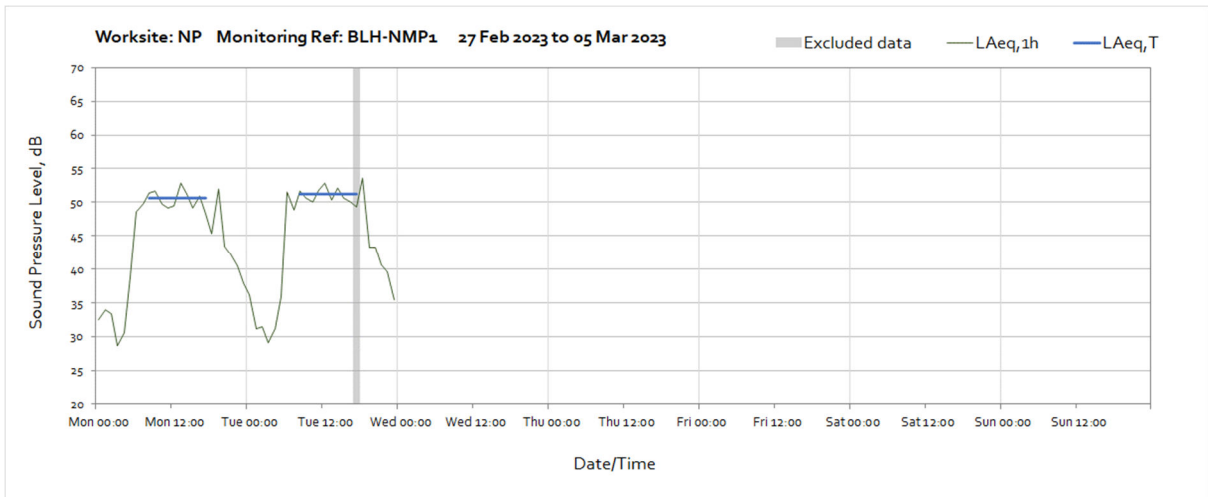
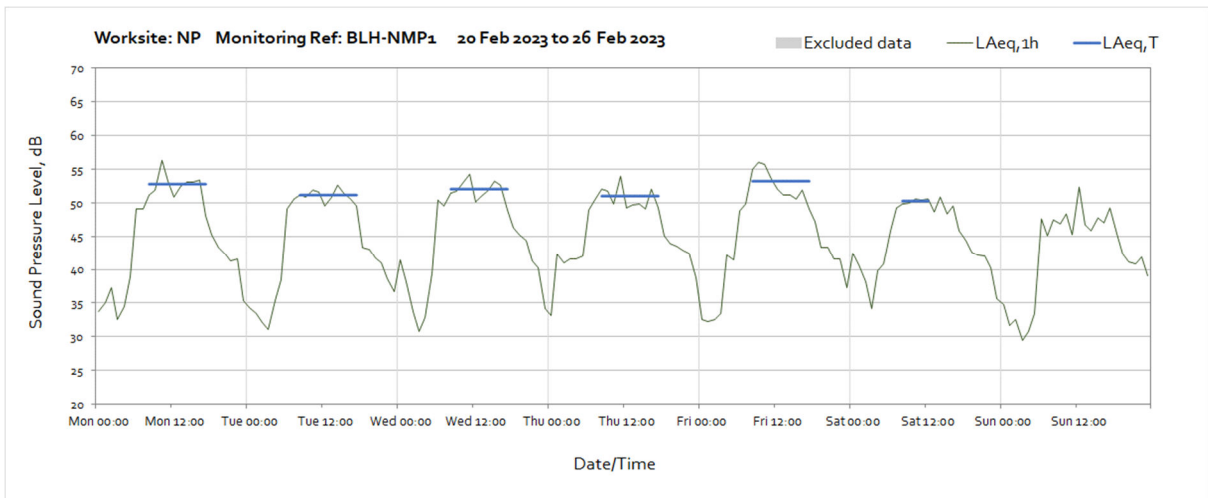
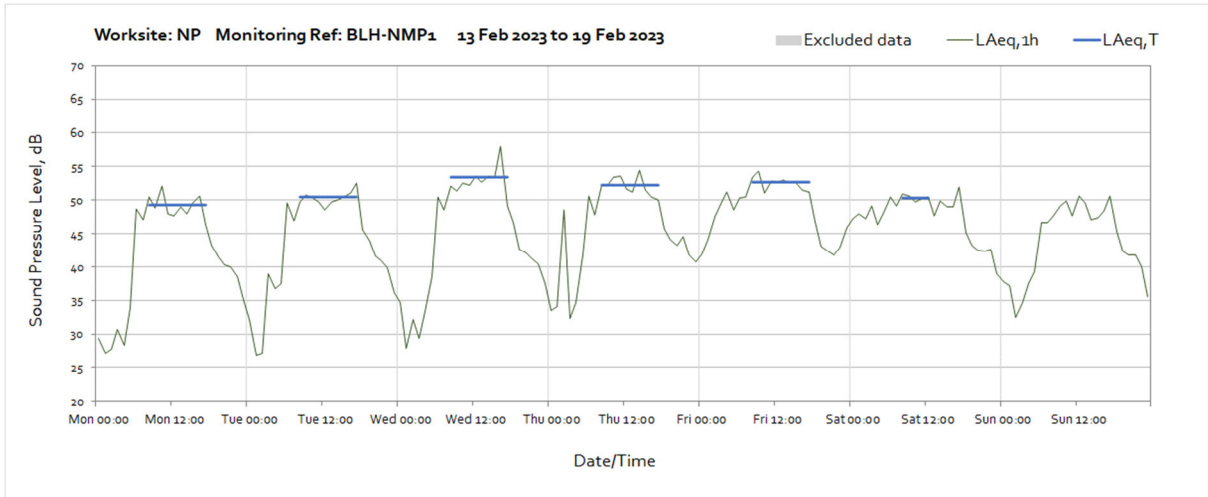




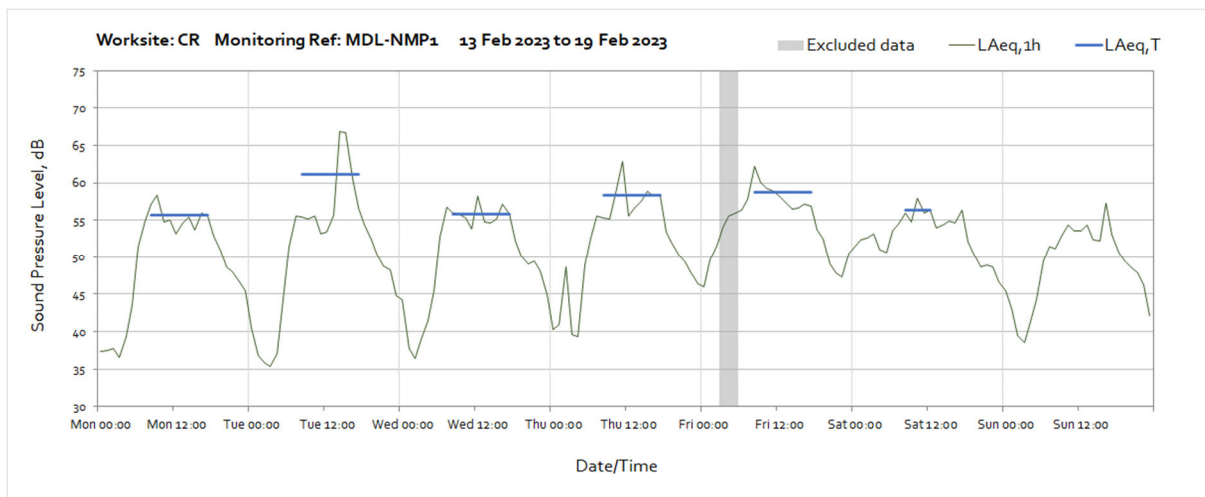
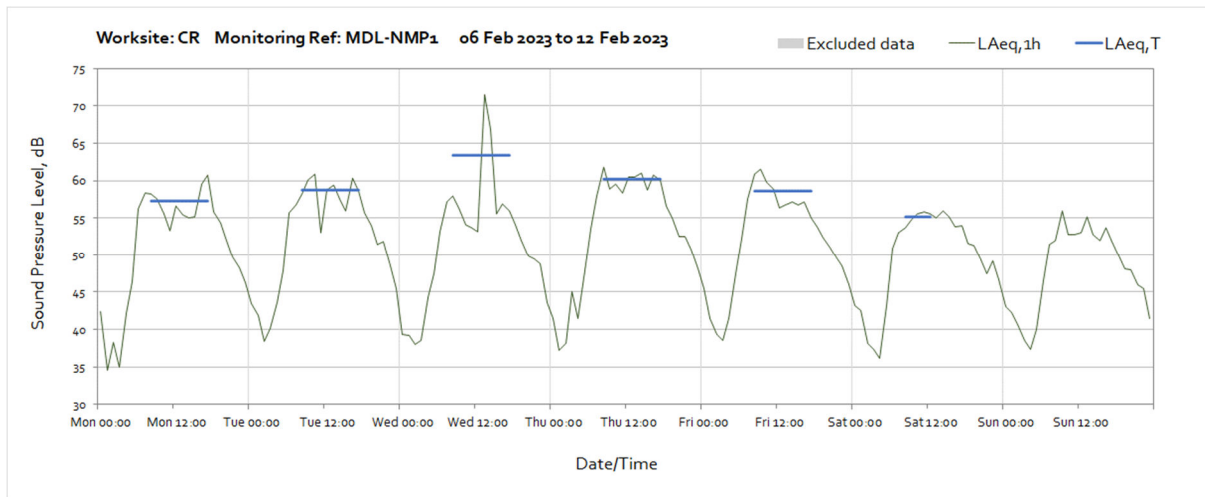
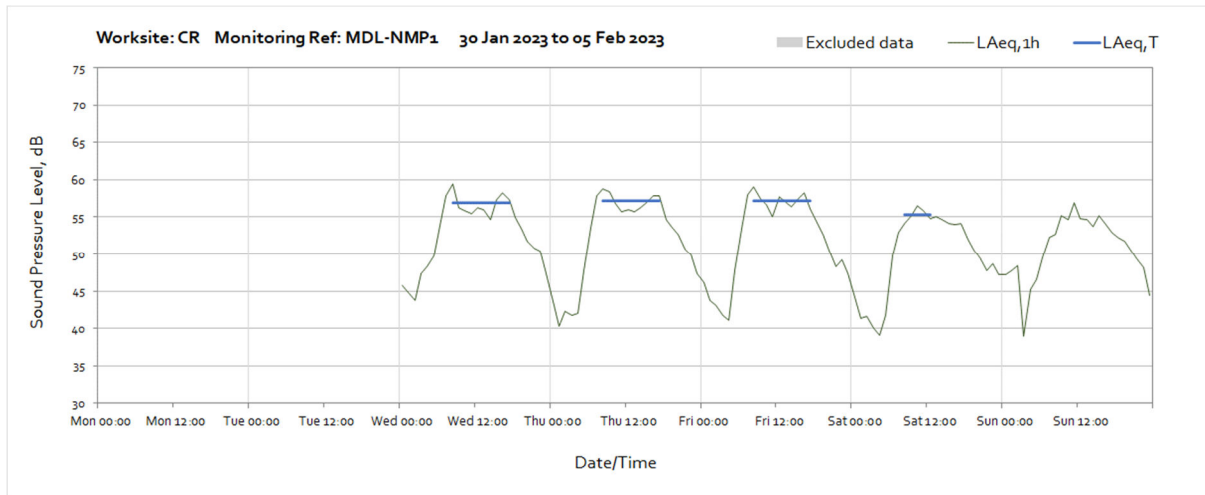


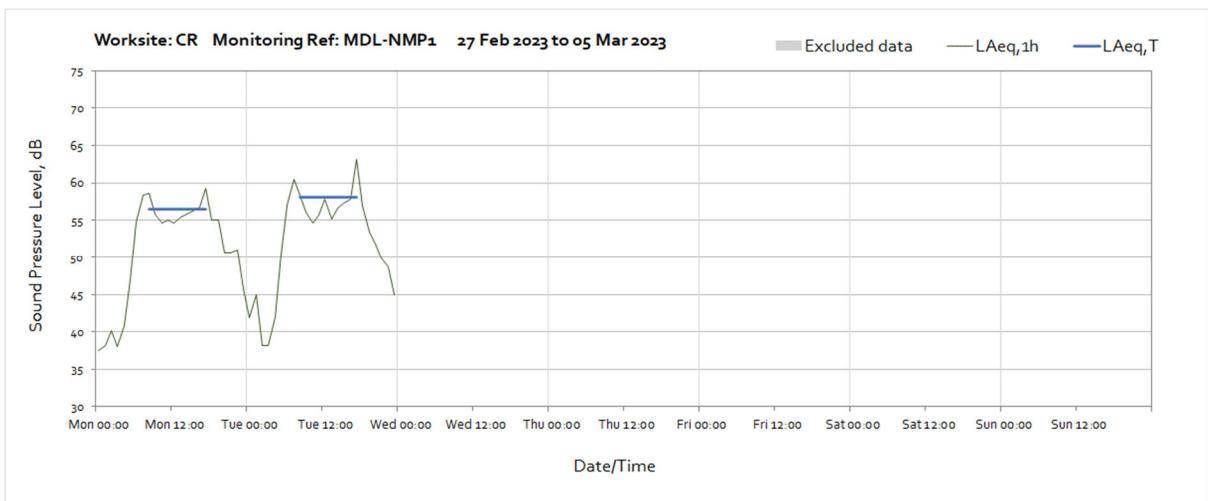
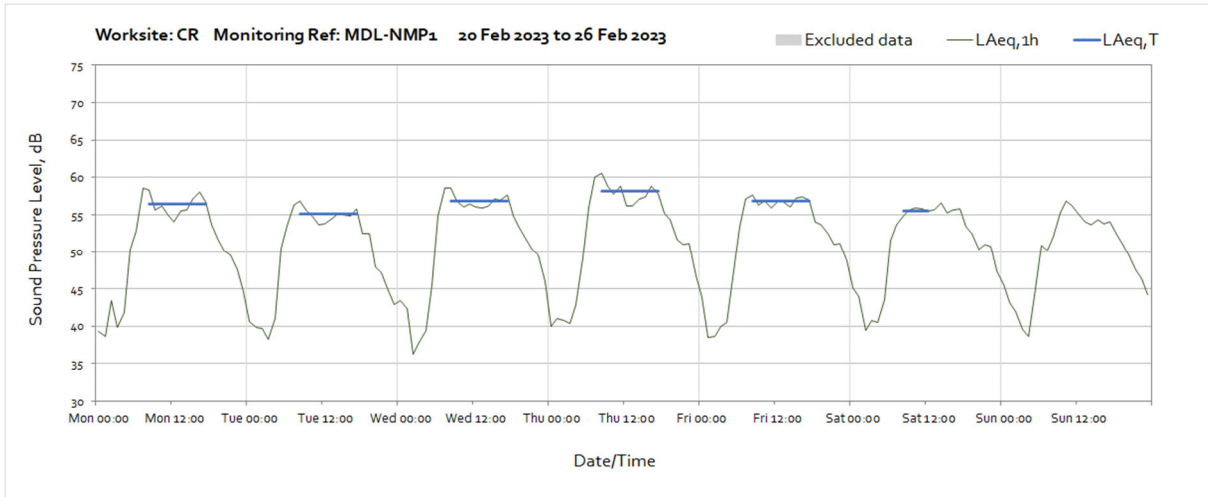
Worksite: NP - Monitoring Ref: BLH-NMP1



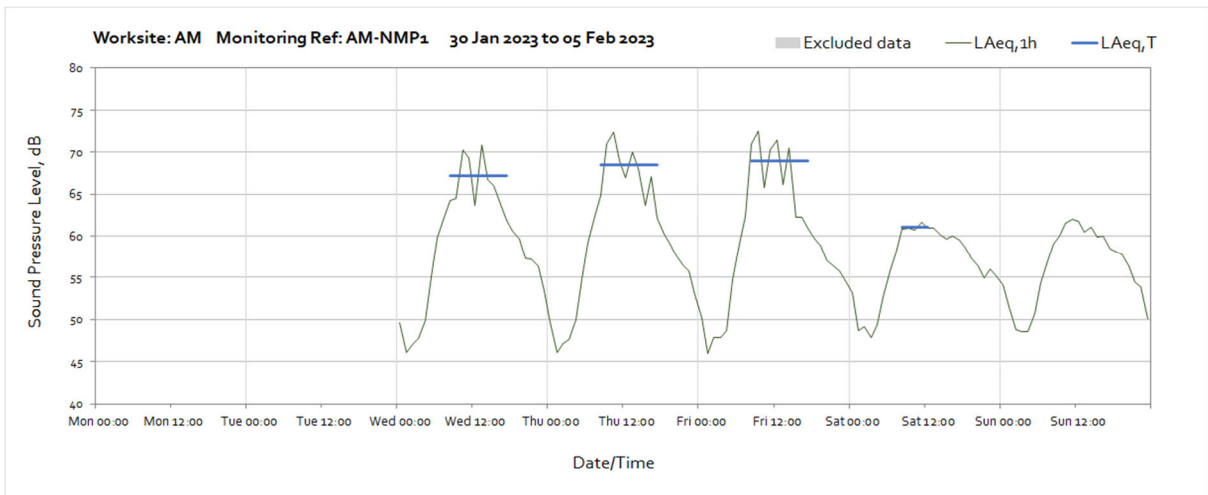


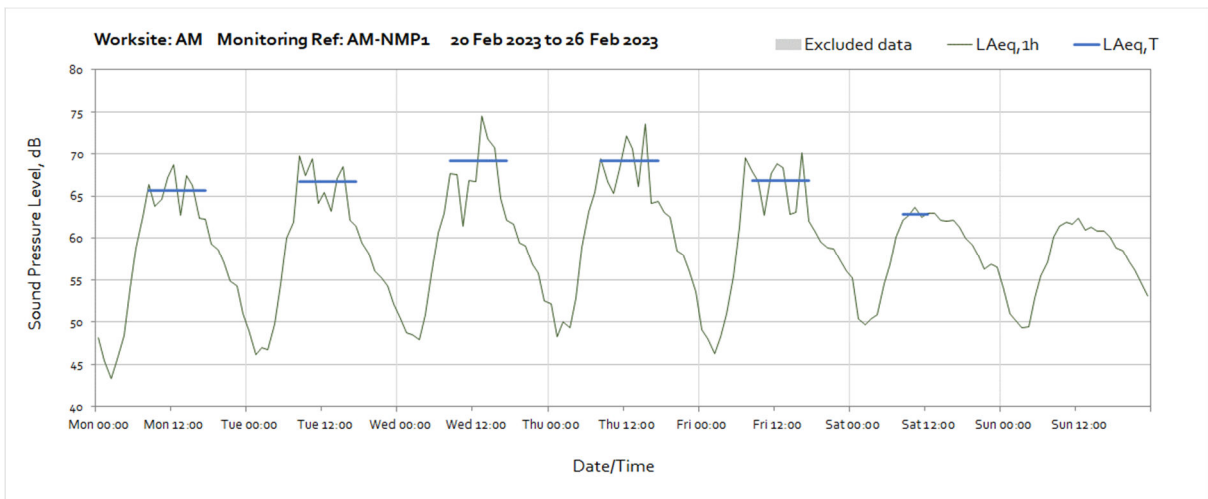
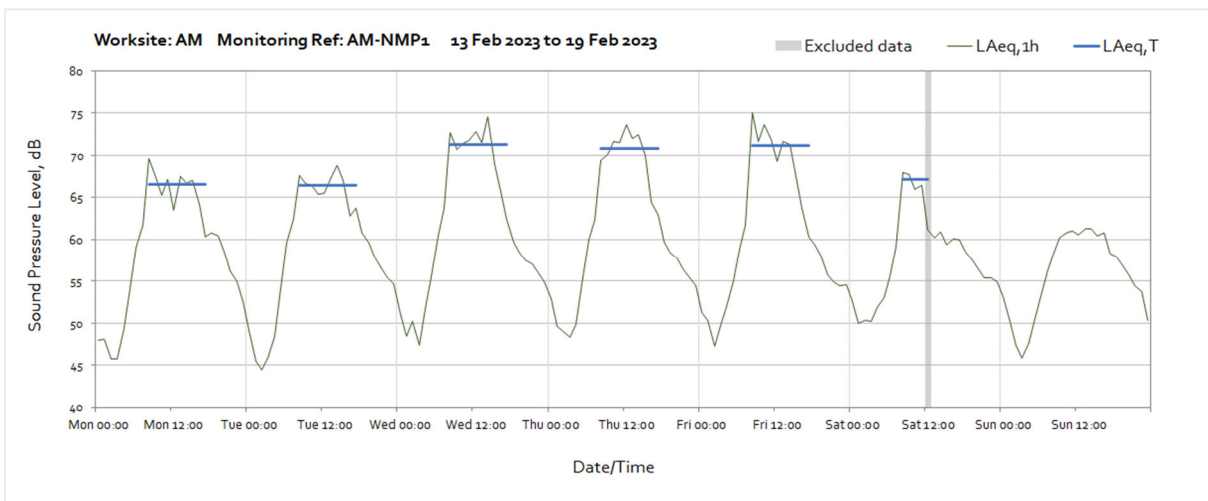
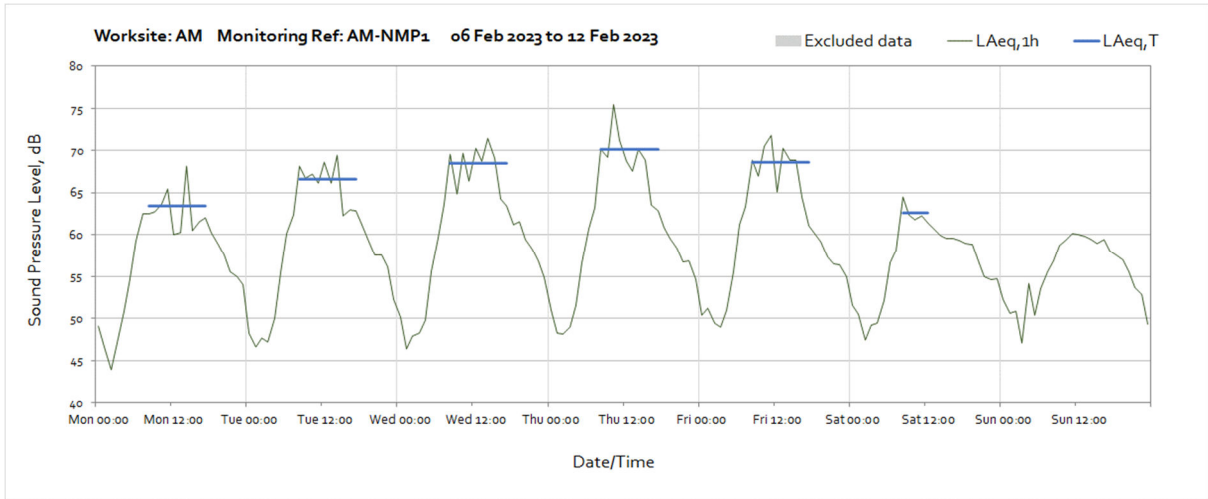
Worksite: CHSM - Monitoring Ref: MDL-NMP1

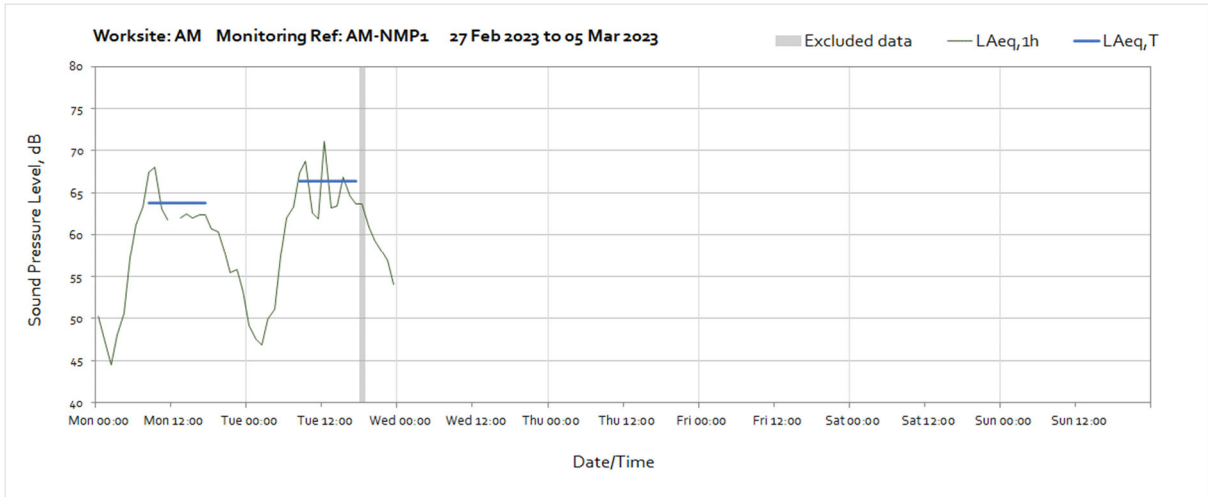




Worksite: AM - Monitoring Ref: AM-NMP1

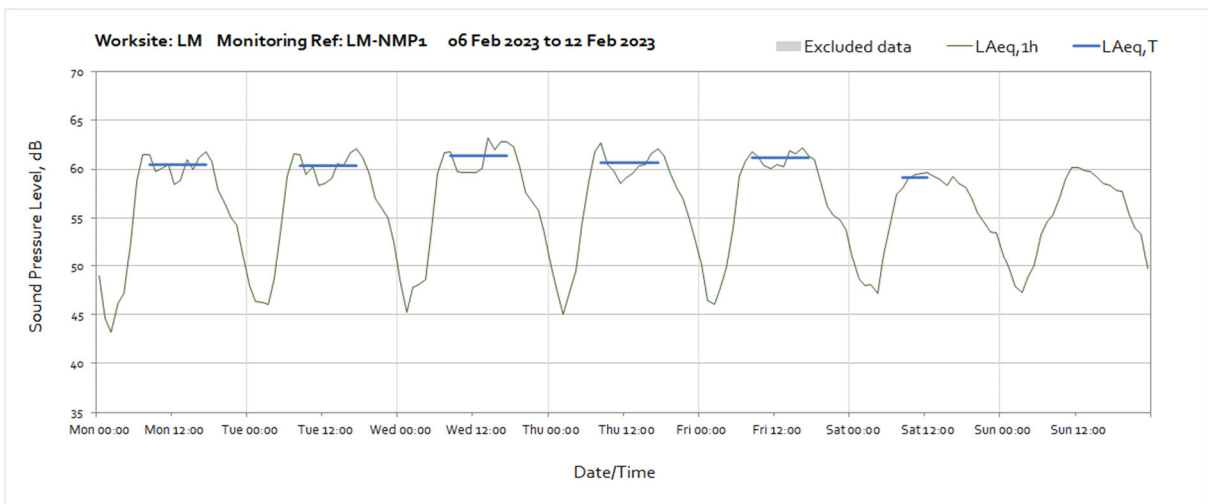
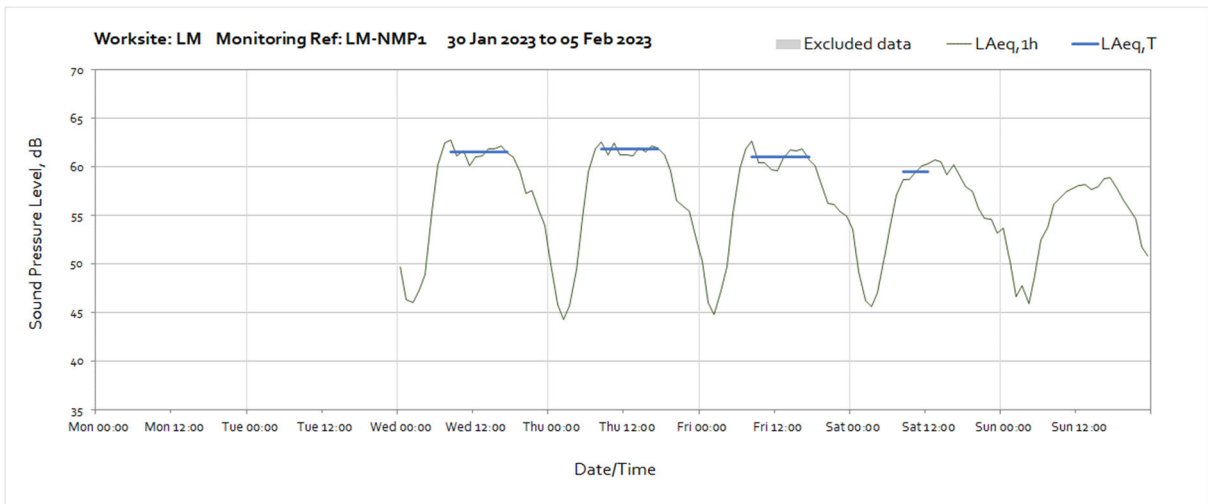


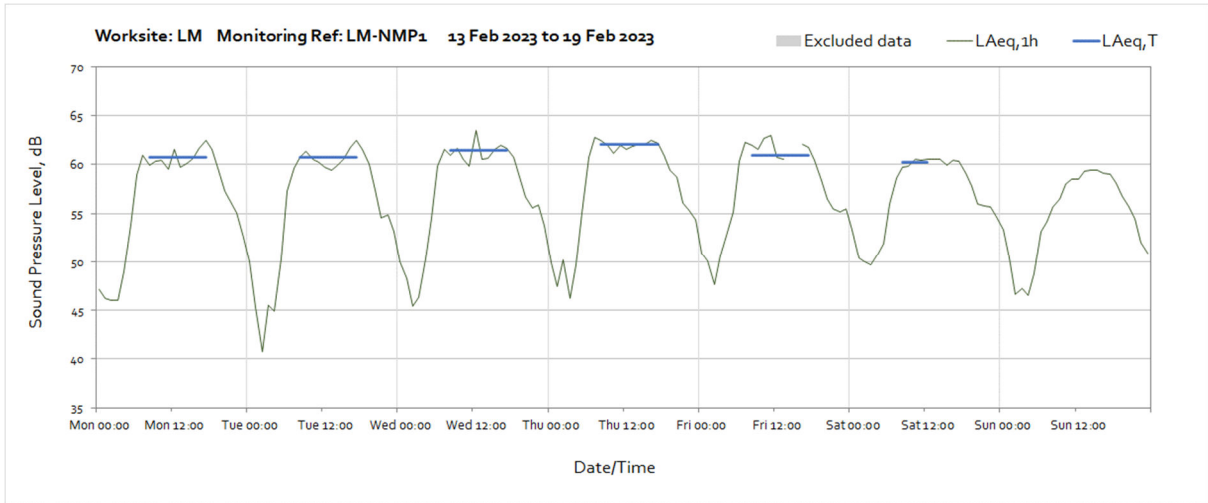




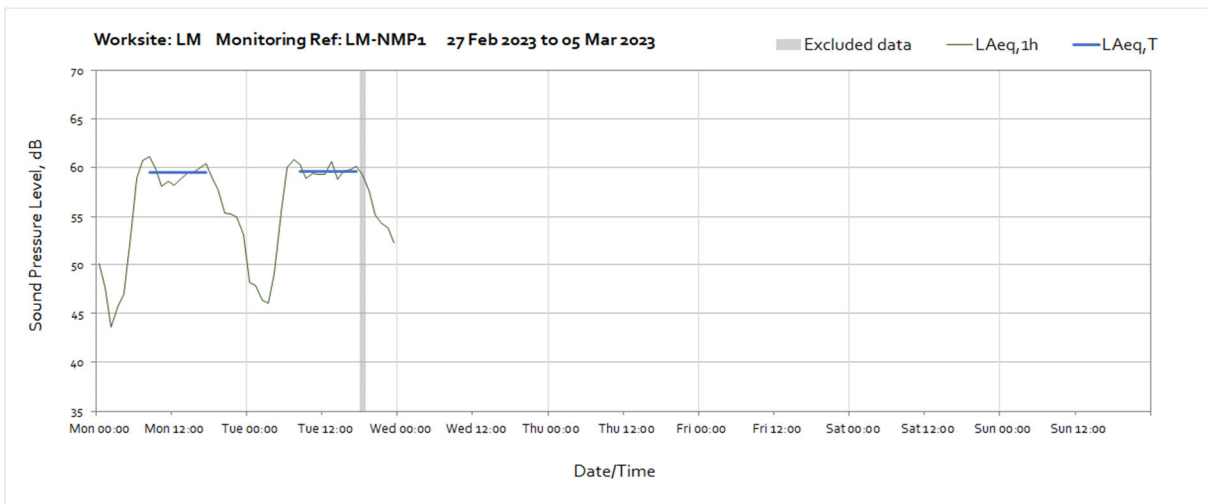
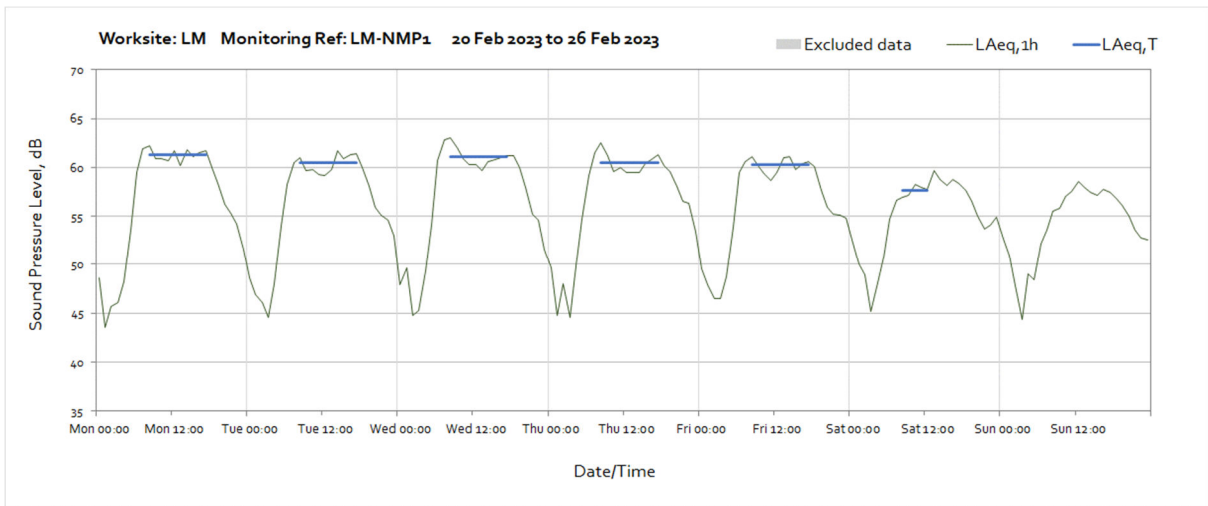
Note: Missing data **between 12:00 and 13:00 on 27th January** was due to monitor relocation.

Worksite: LM – Monitoring Ref: LM-NMP1

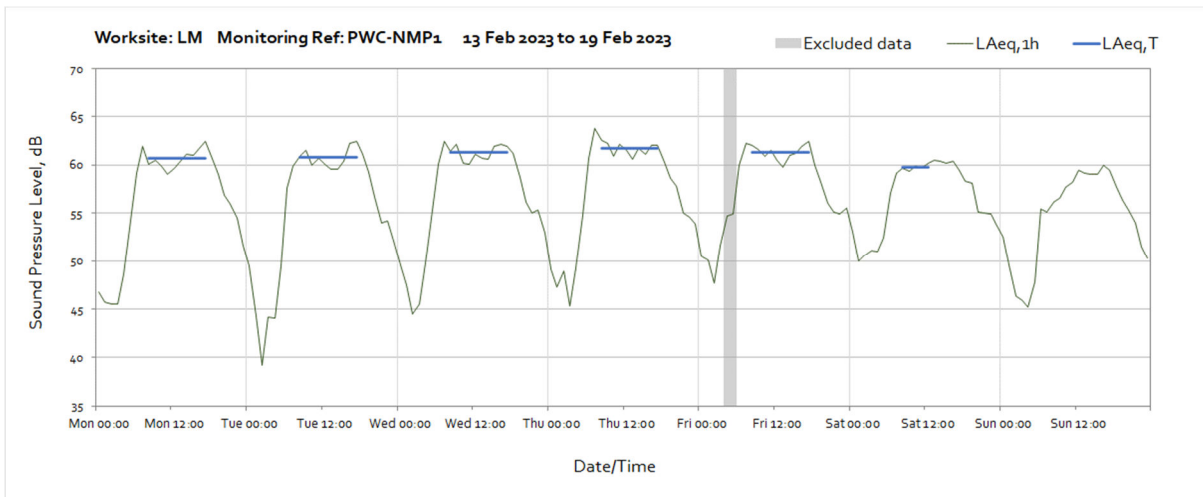
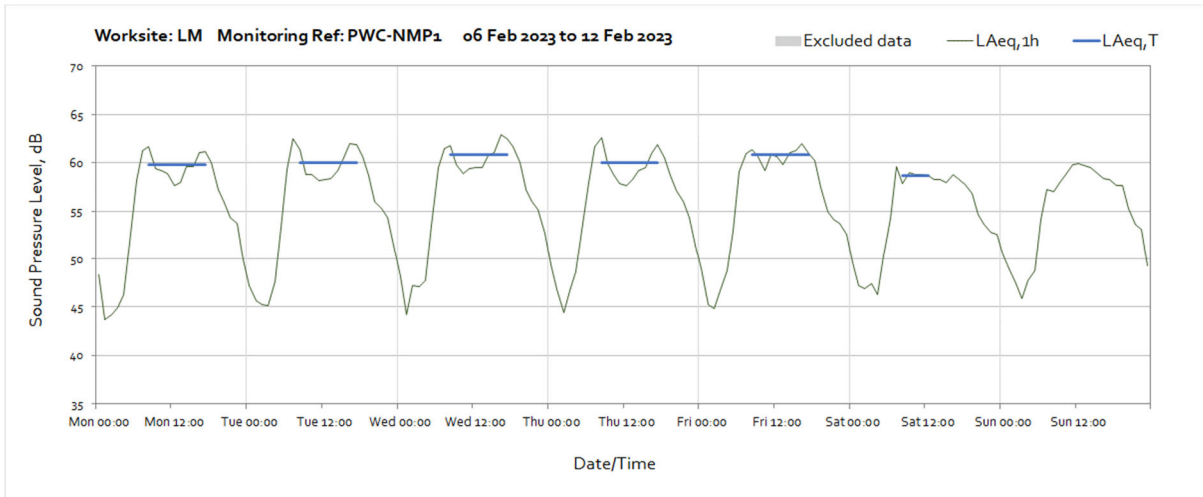
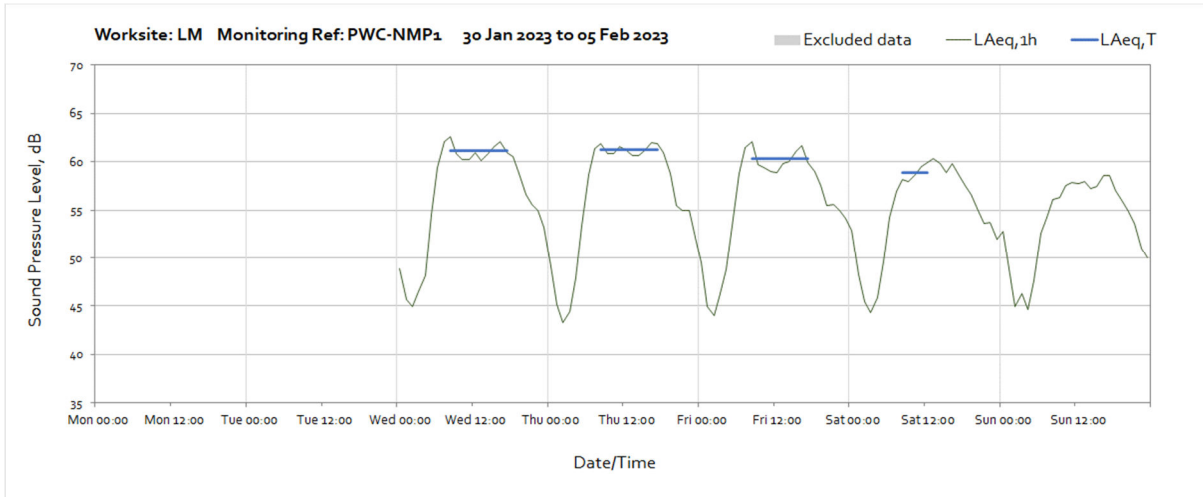




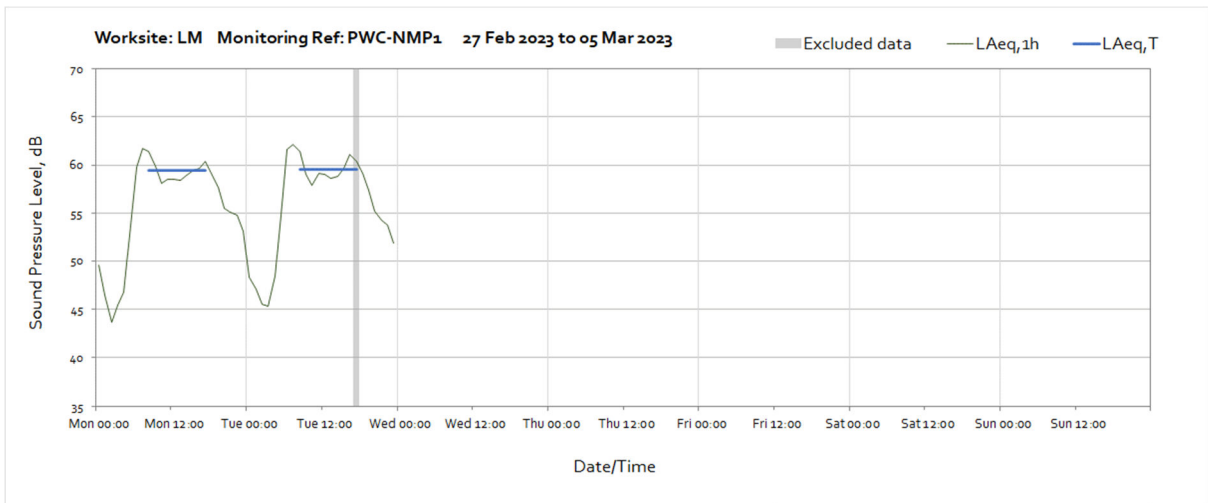
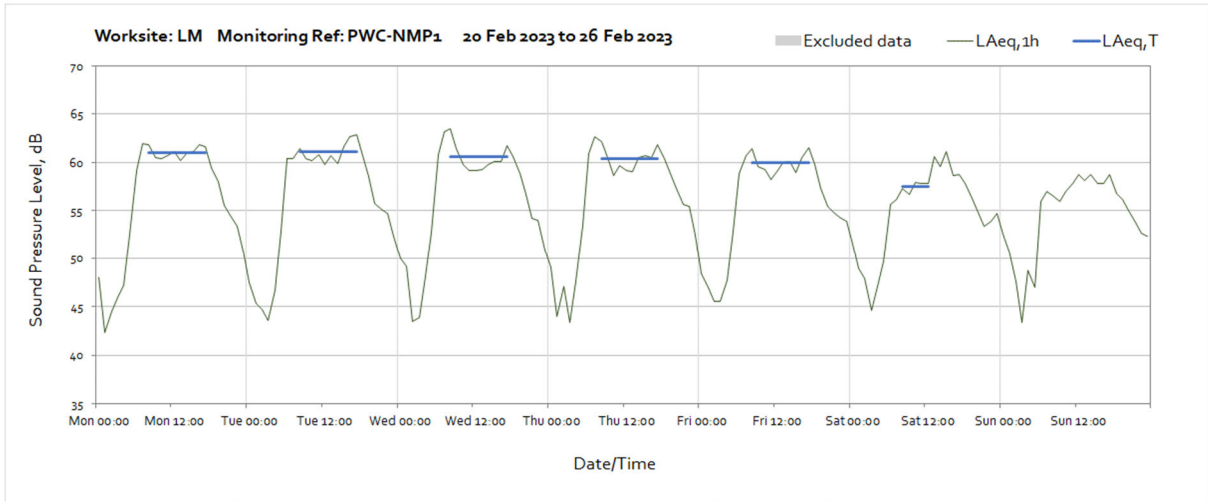
Note: Missing data between 14:00 and 16:00 on 17th January was due to monitor replacement.



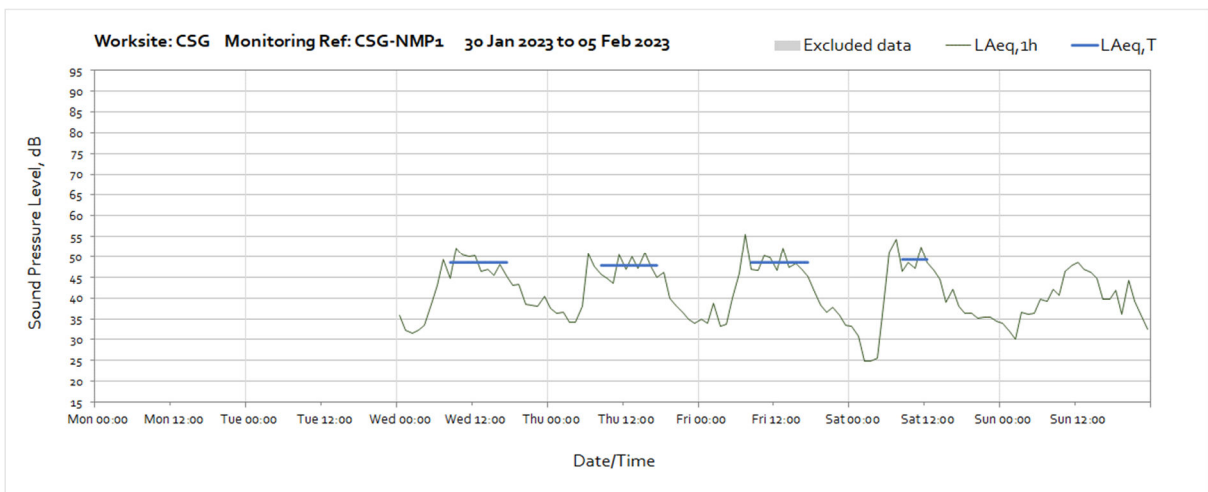
Worksite: LM – Monitoring Ref: PWC-NMP1

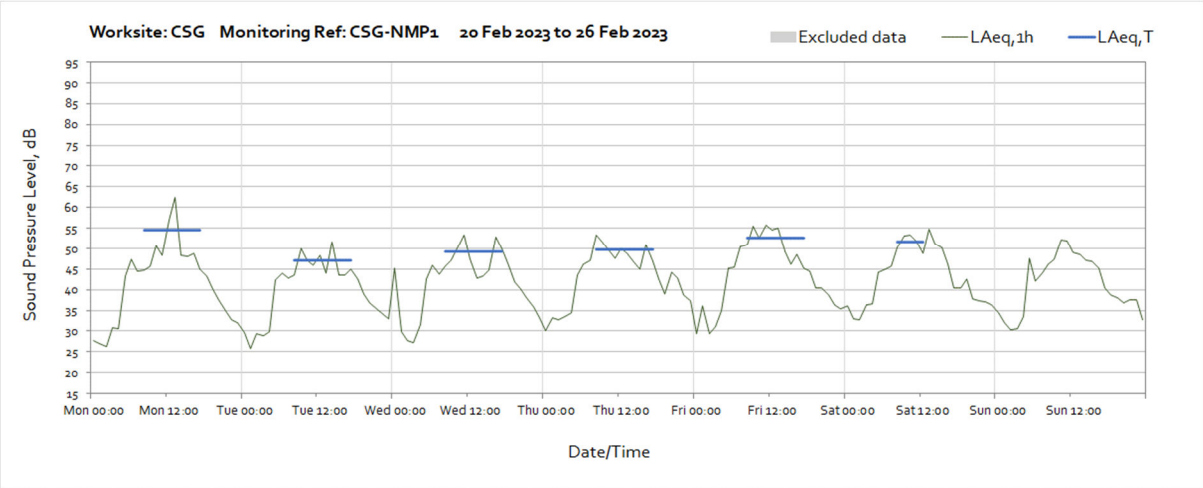
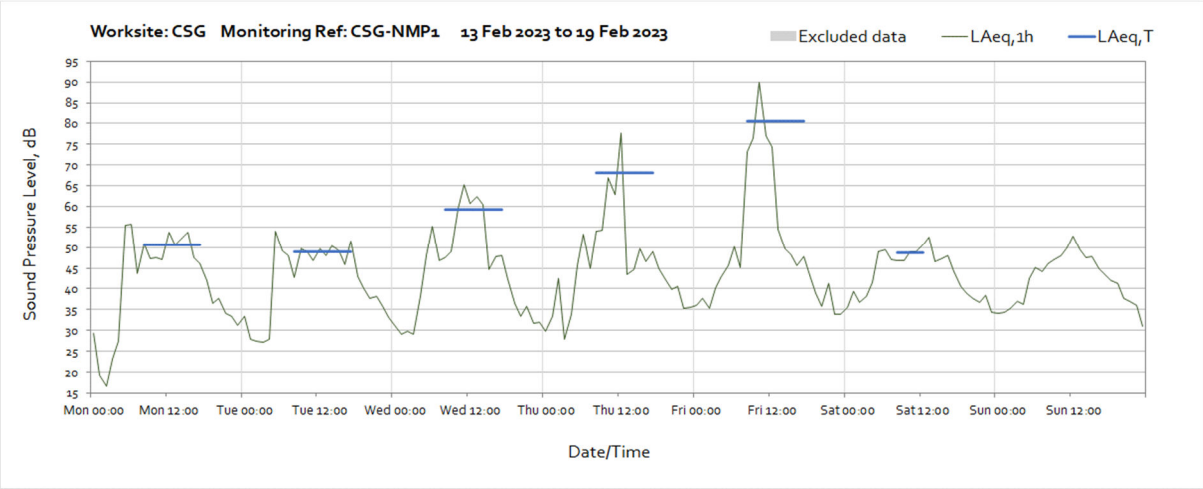
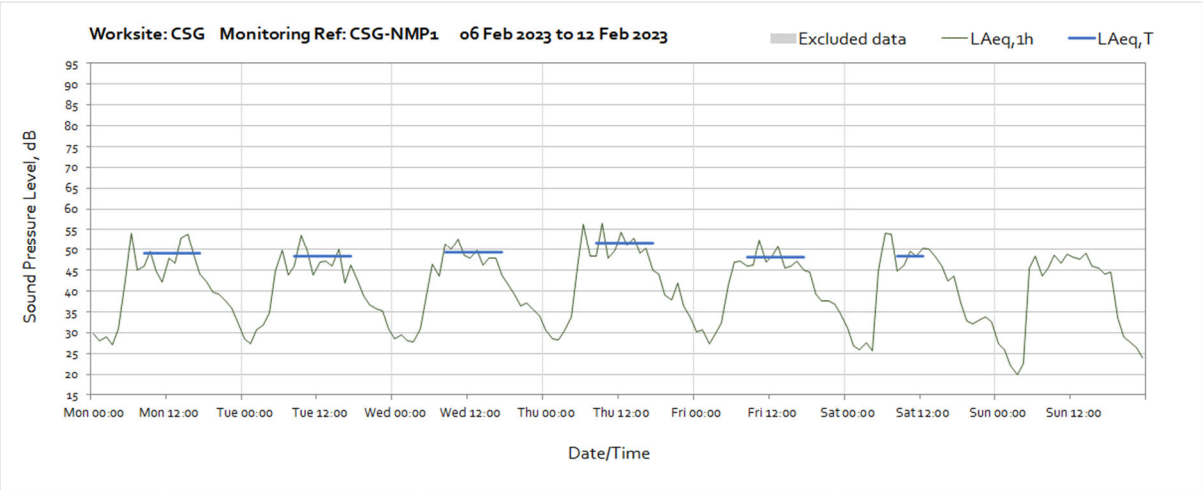


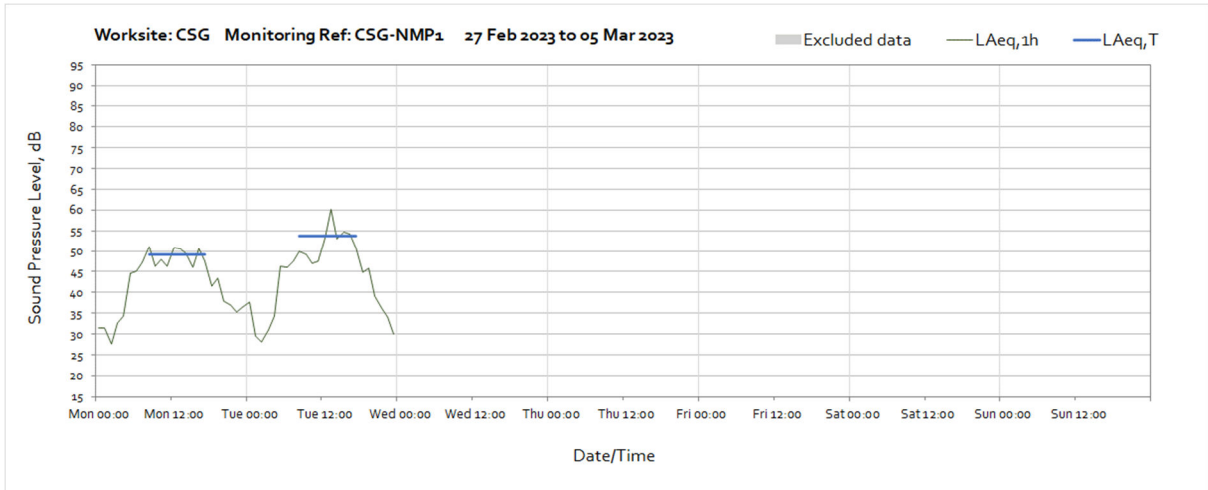
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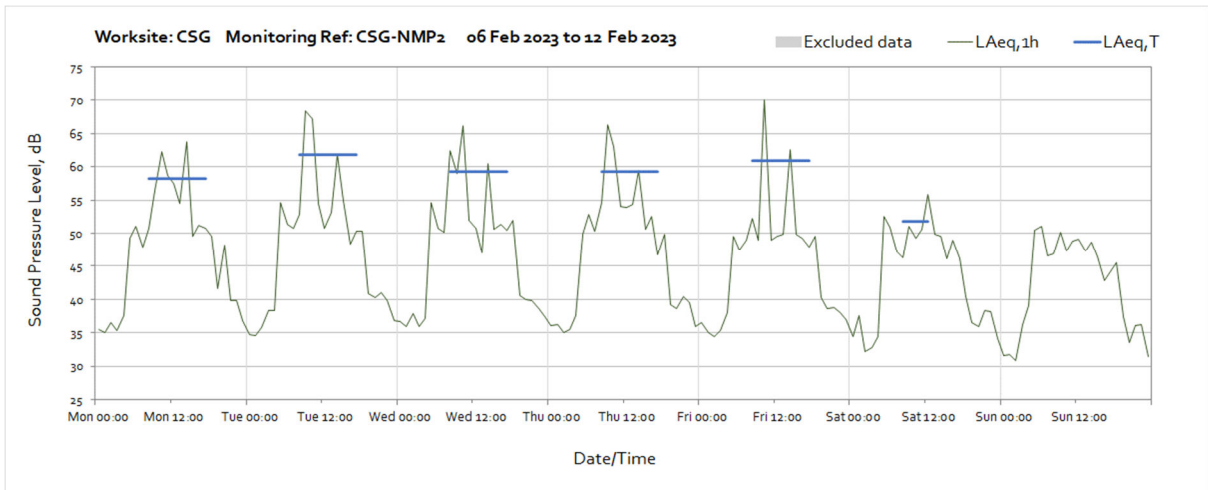
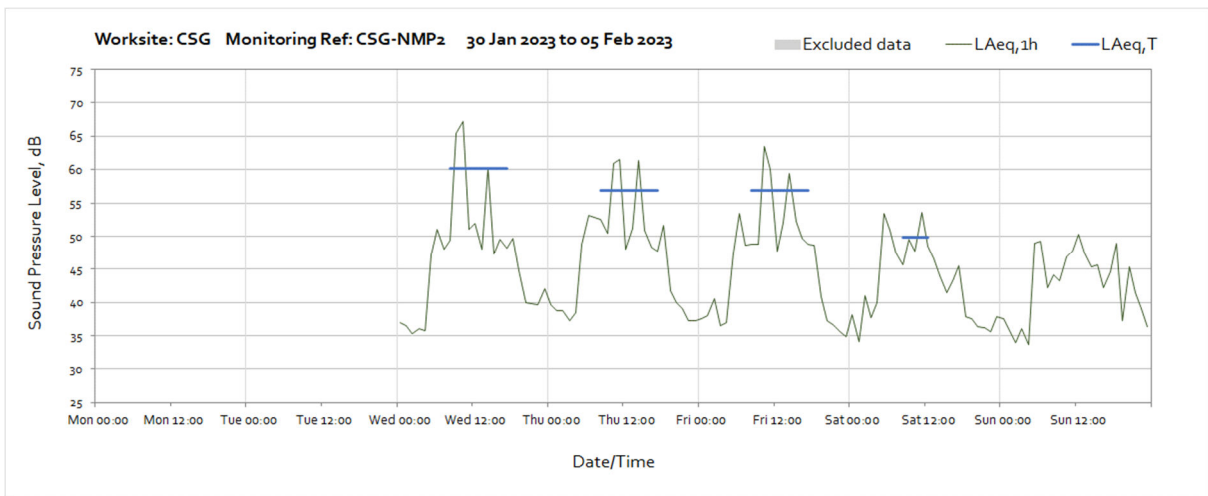
Worksite: CSG – Monitoring Ref: CSG-NMP1

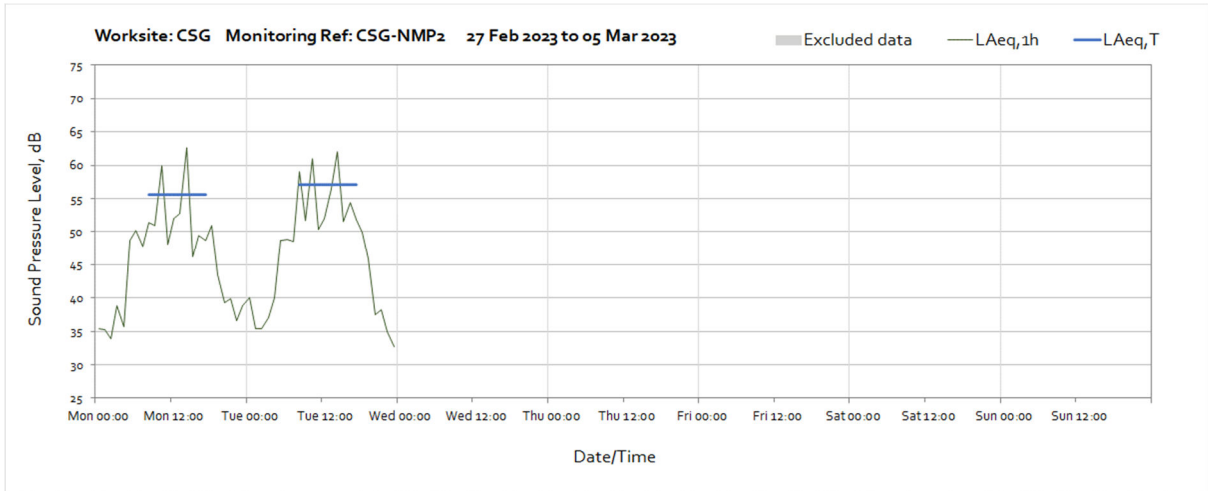
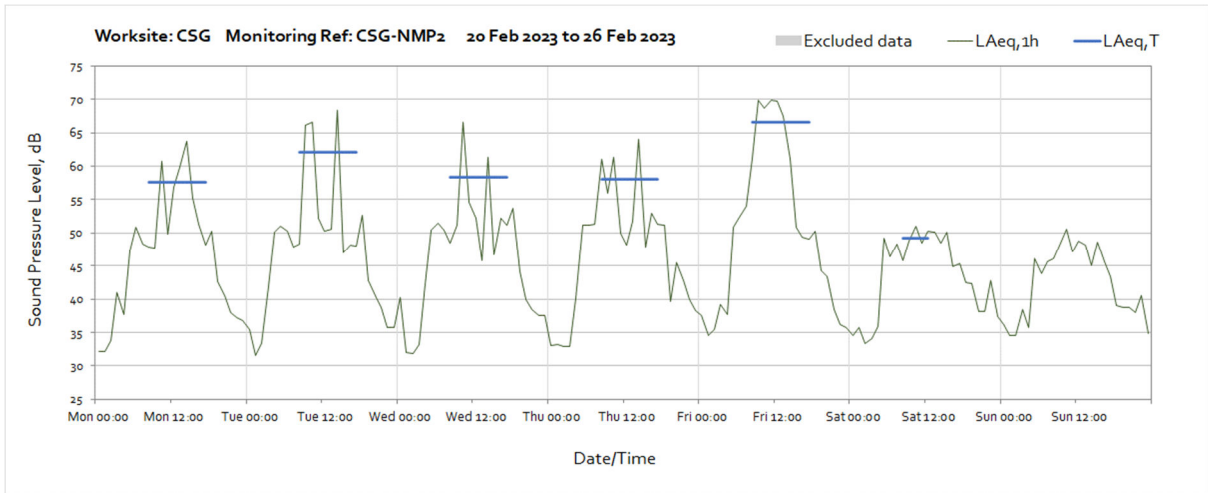
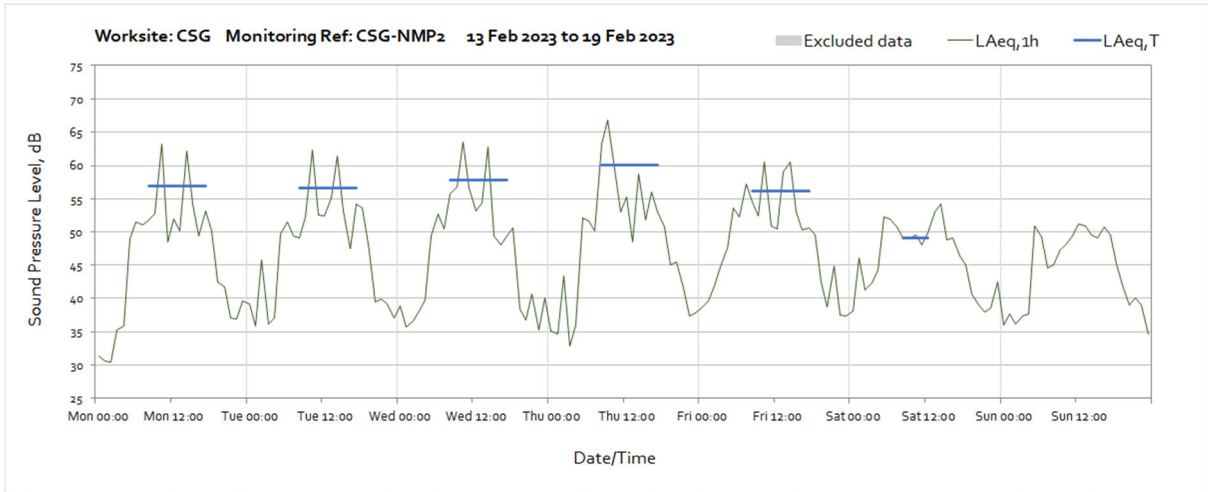




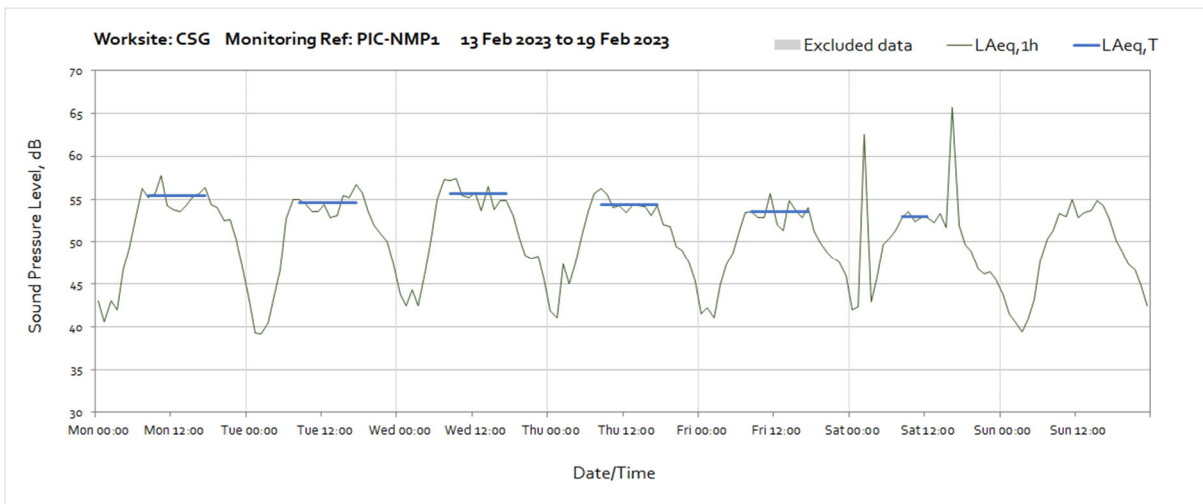
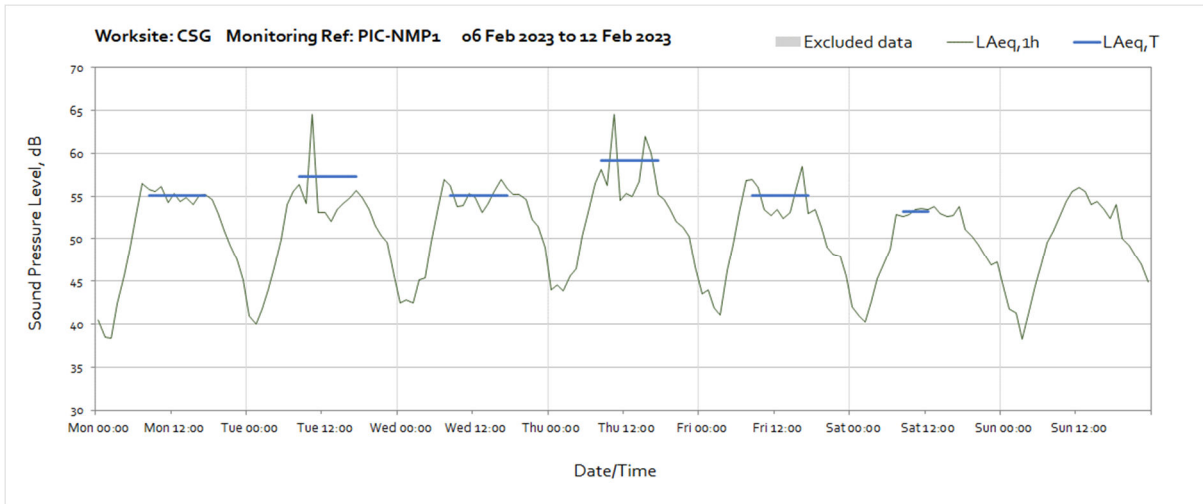
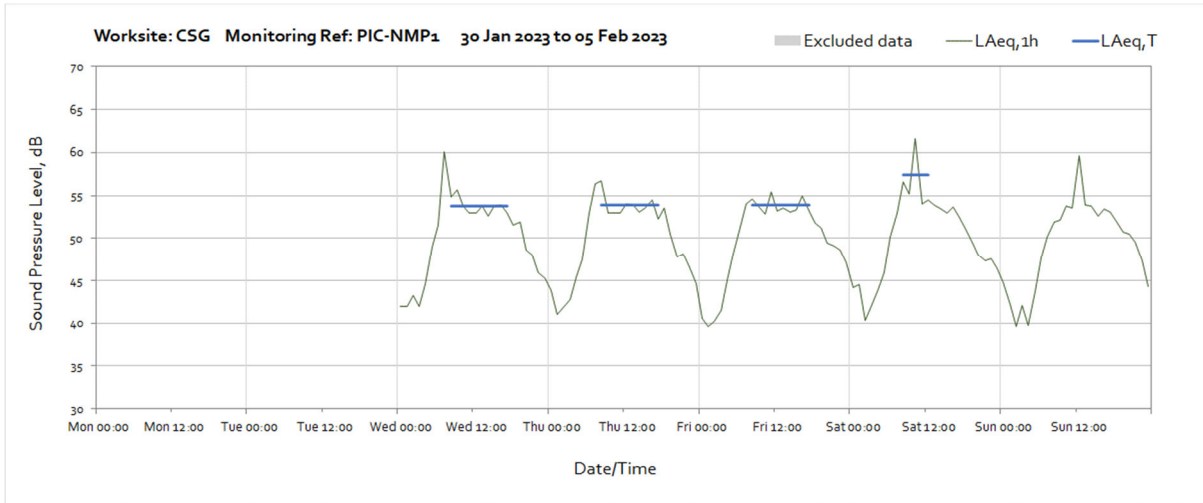


Worksite: CSG - Monitoring Ref: CSG-NMP2

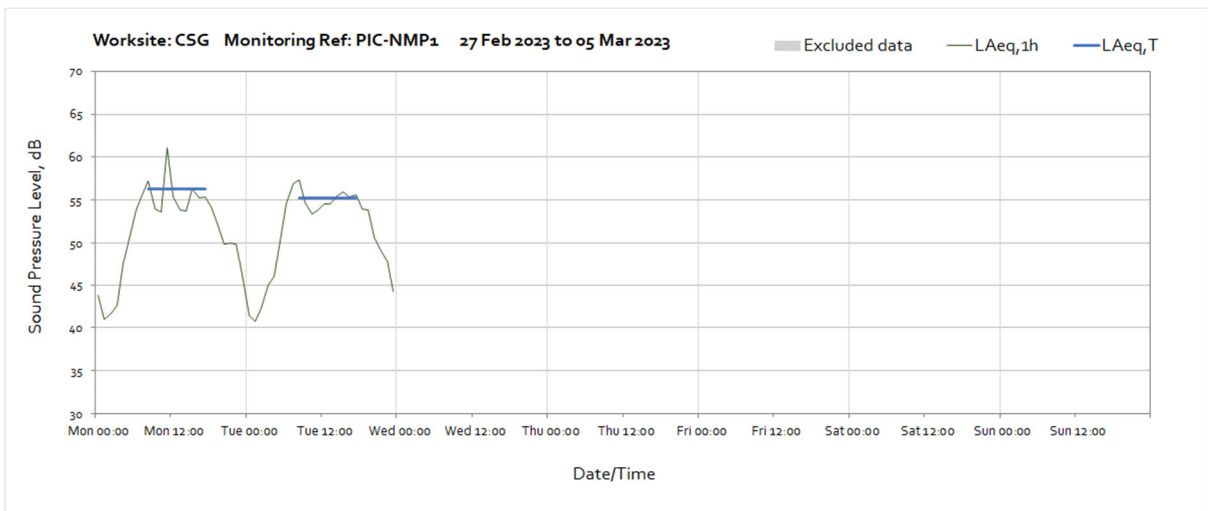
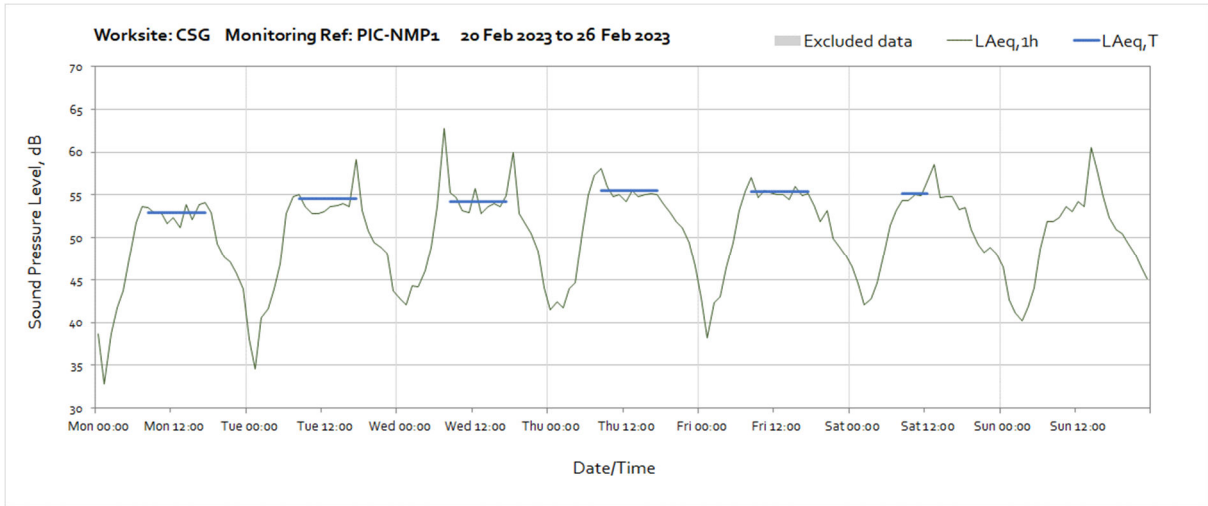




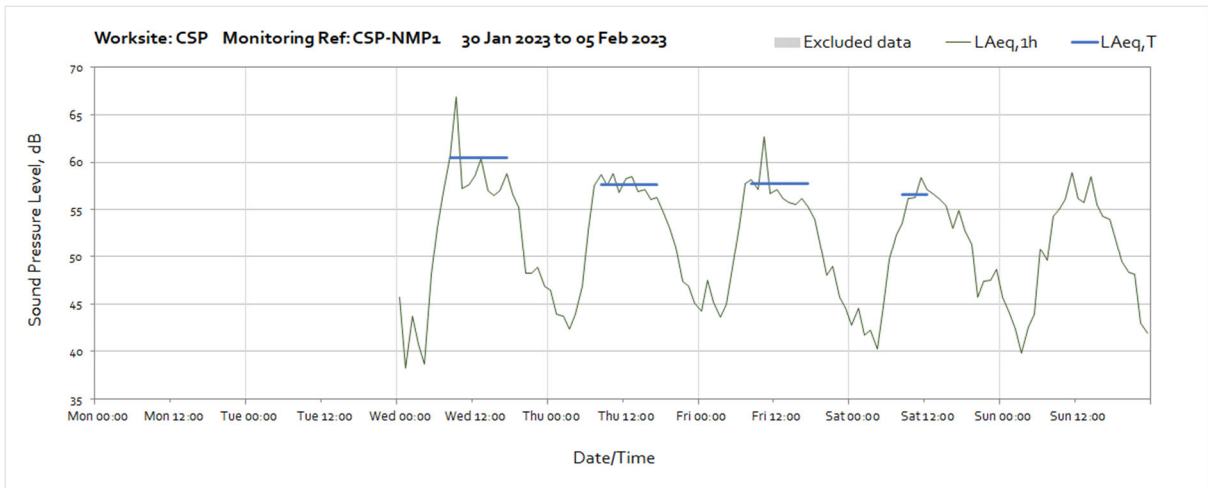
Worksite: CSG – Monitoring Ref: PIC-NMP1

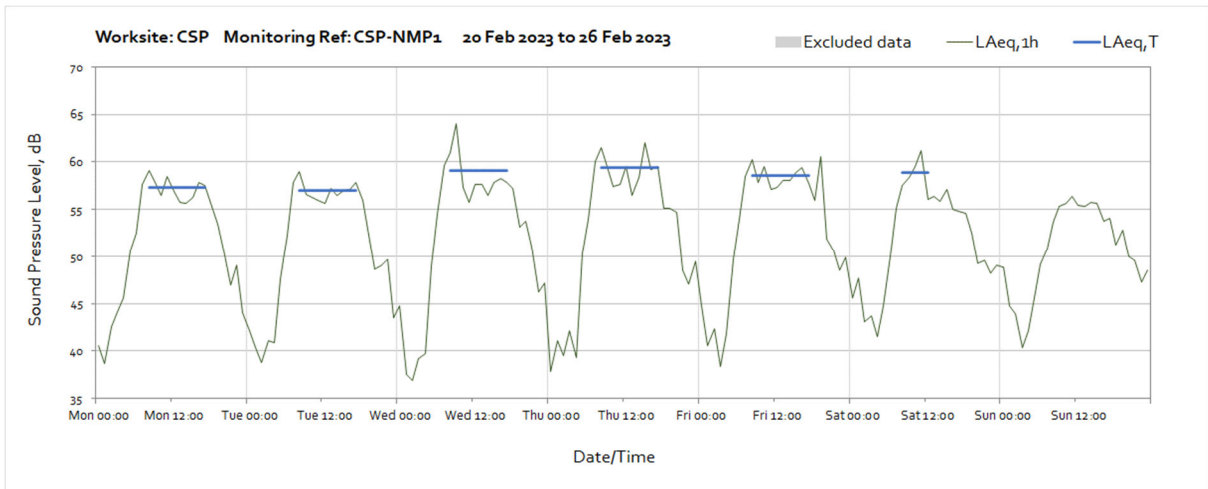
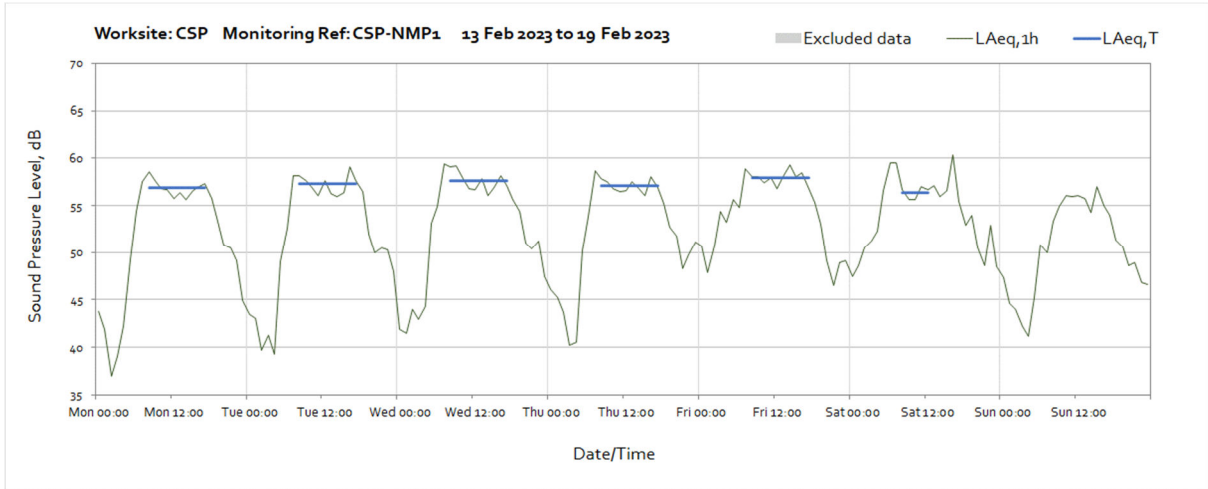
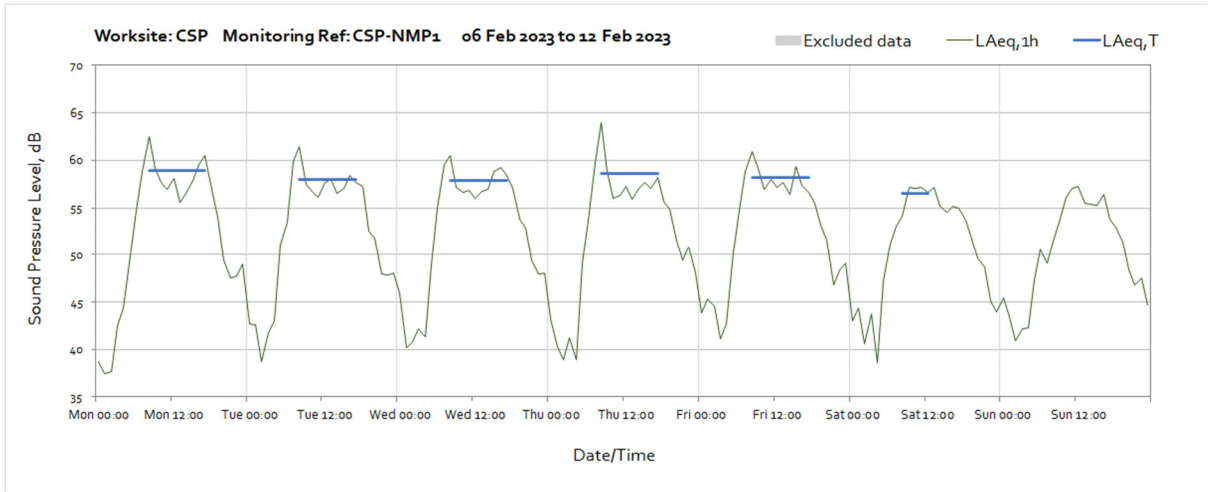


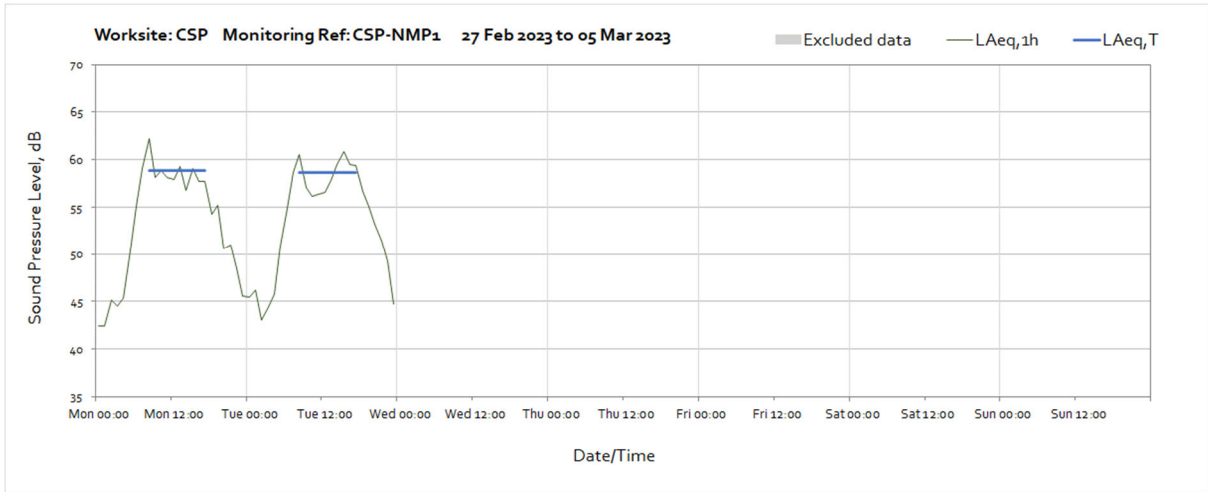
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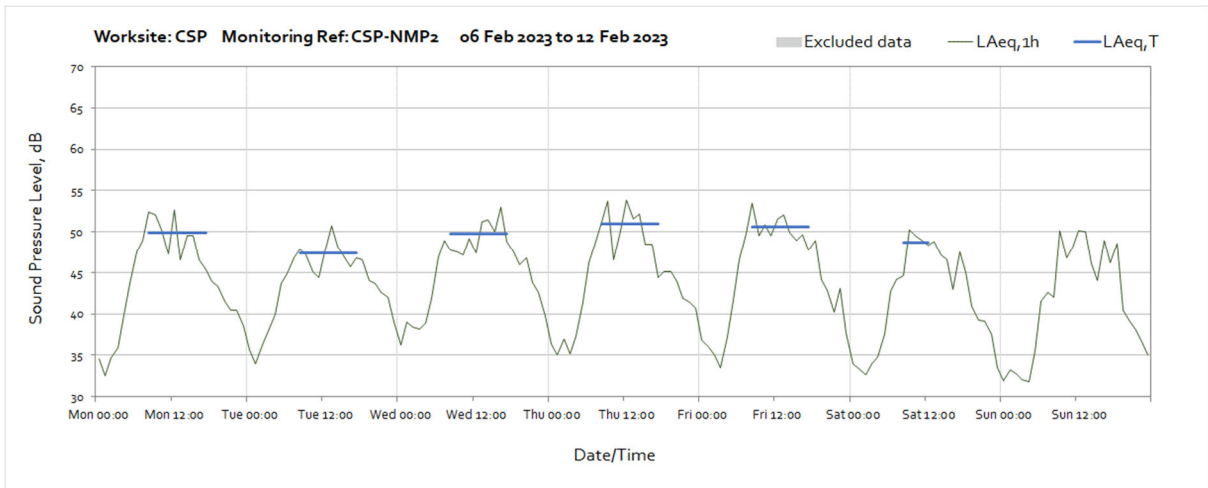
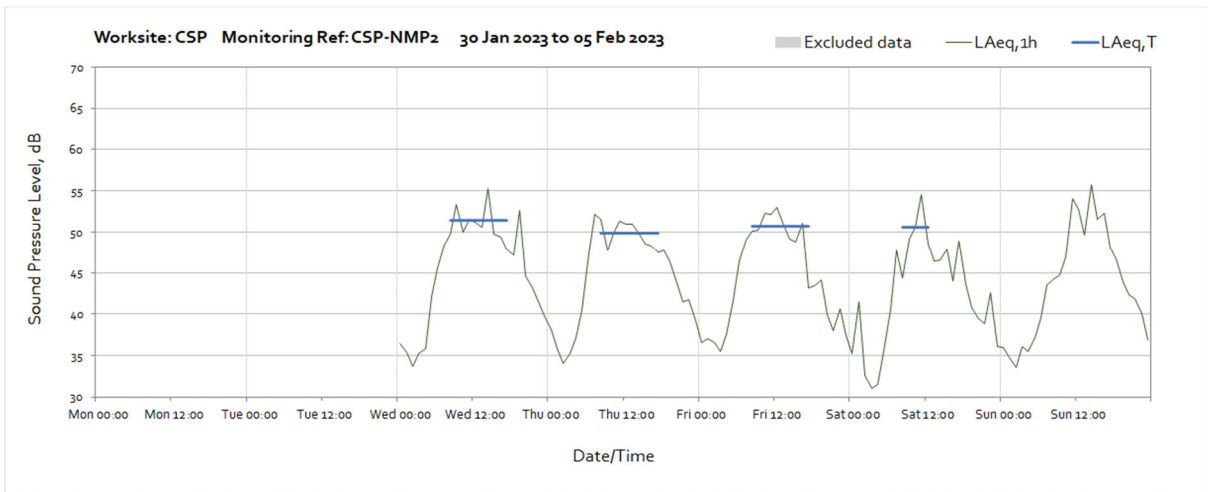
Worksite: CSP – Monitoring Ref: CSP-NMP1

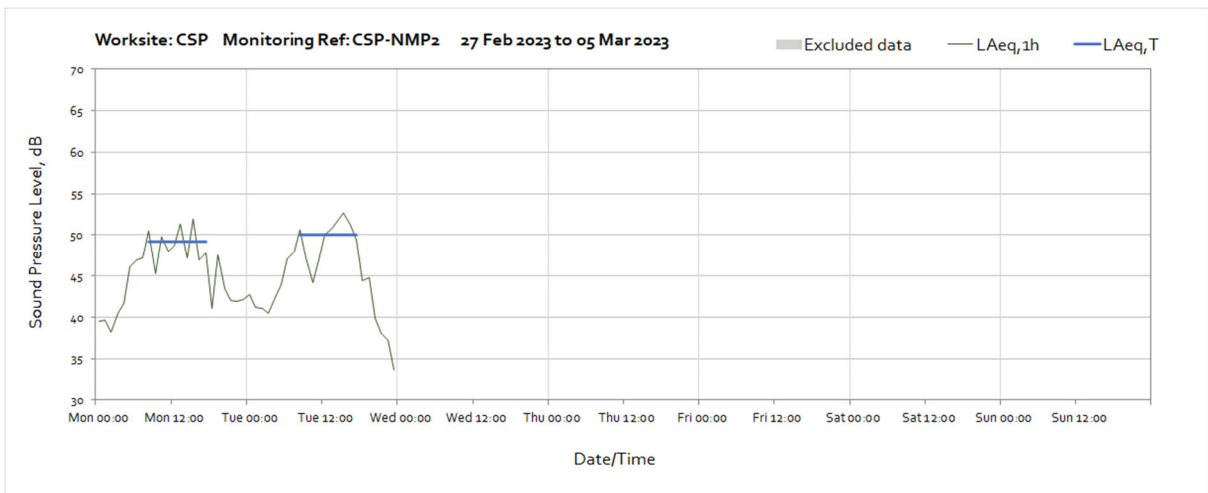
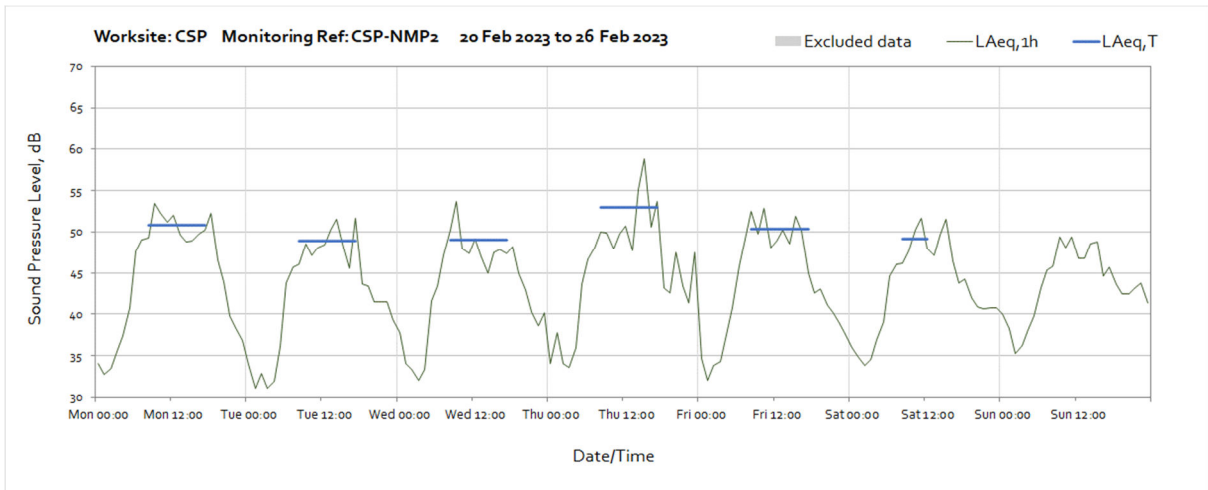
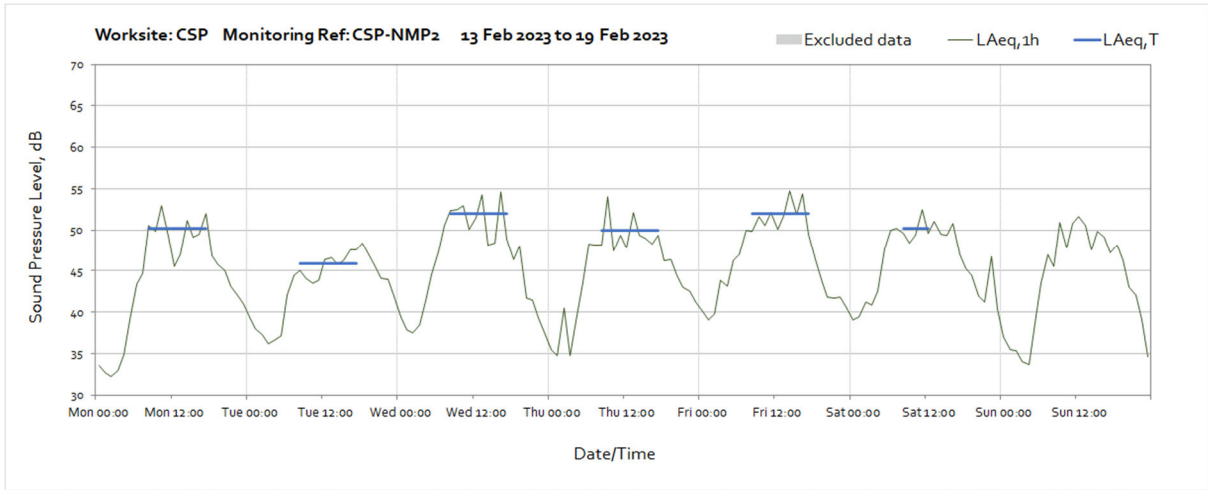




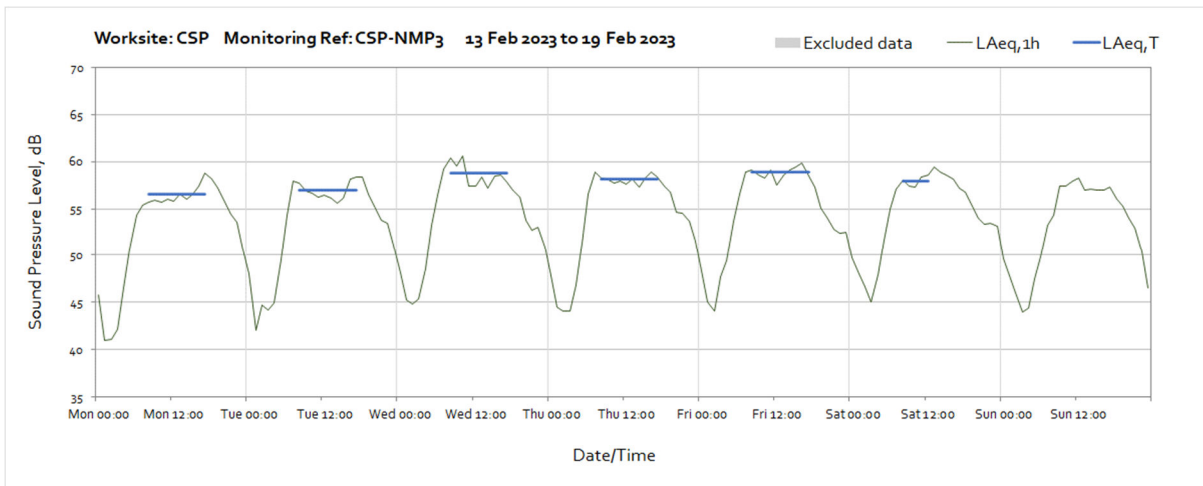
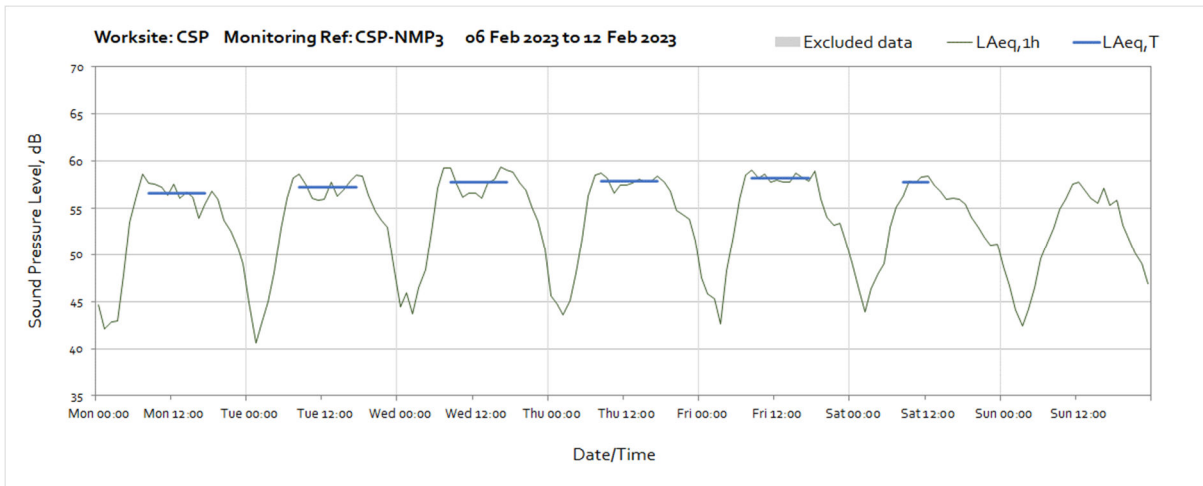
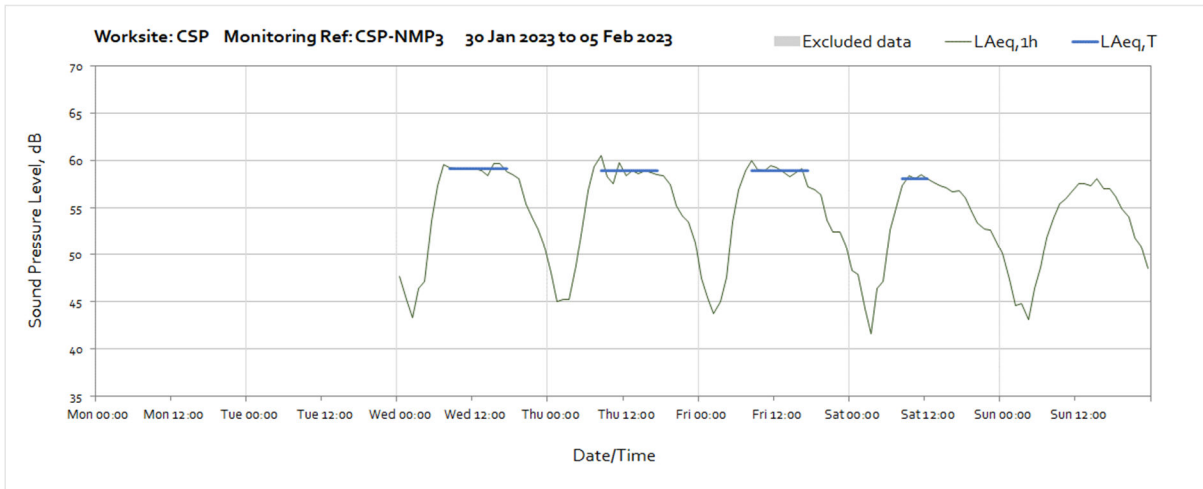


Worksite: CSP - Monitoring Ref: CSP-NMP2

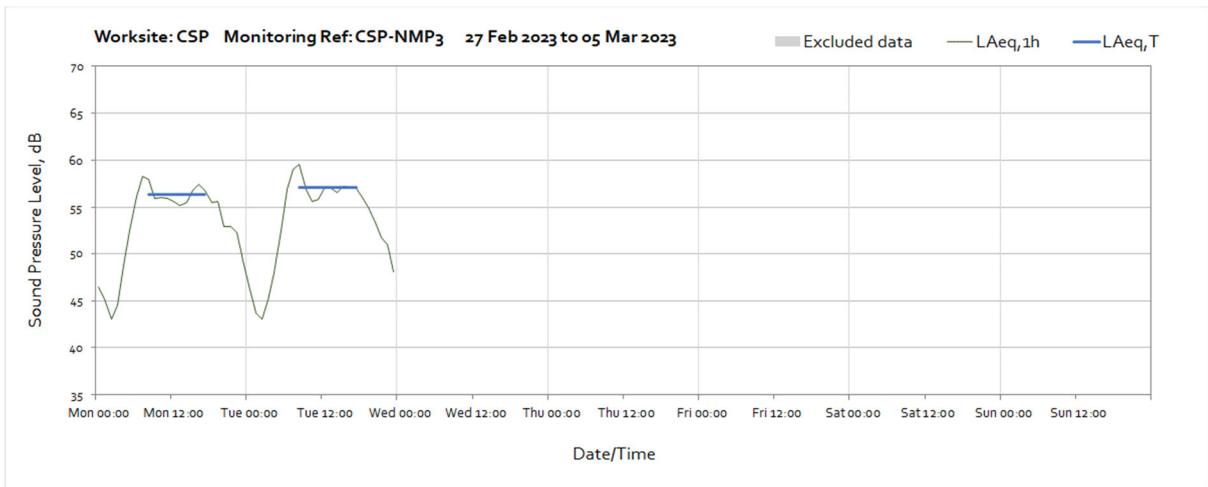
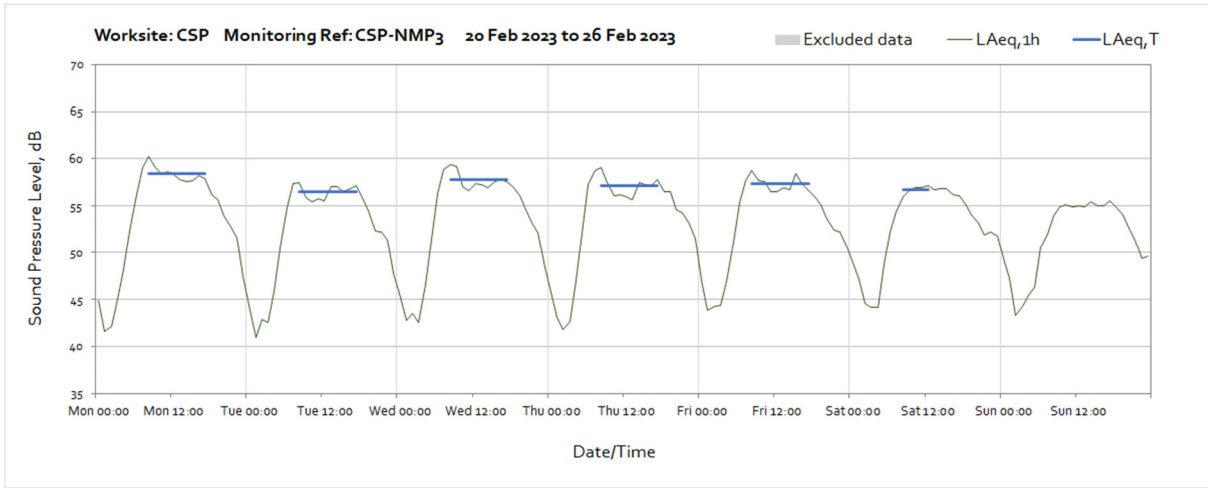




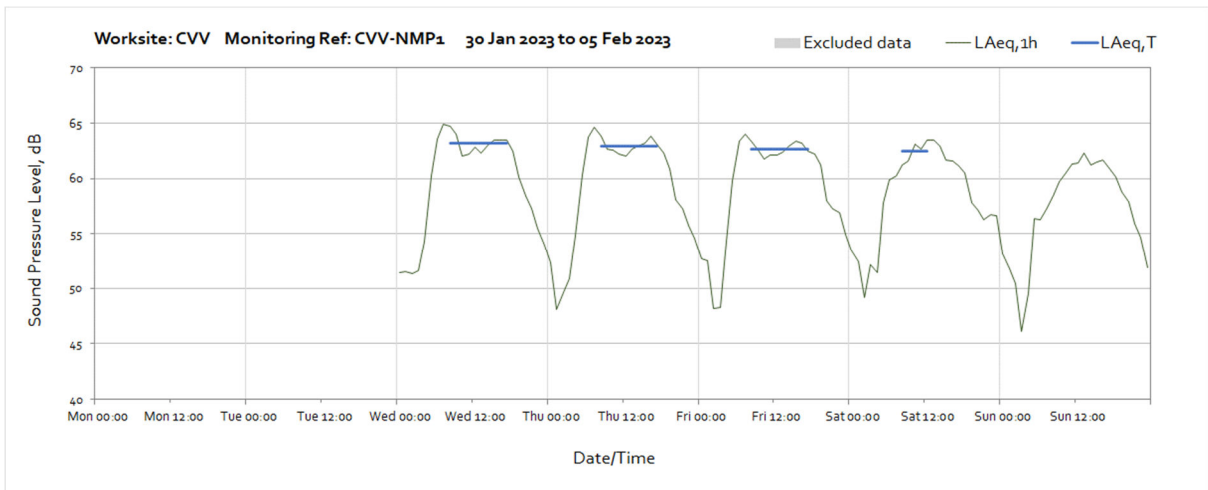
Worksite: CSP – Monitoring Ref: CSP-NMP3

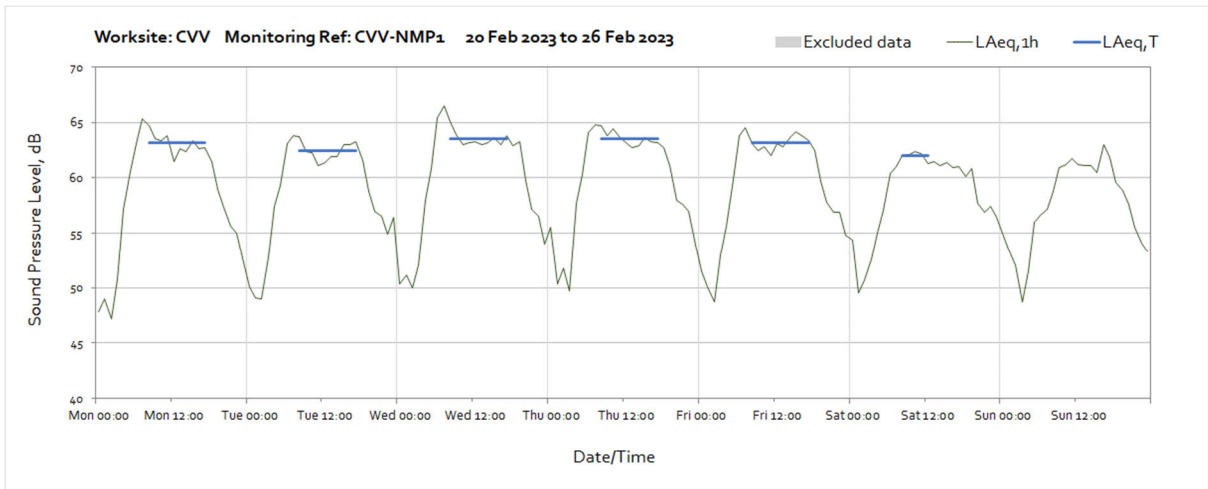
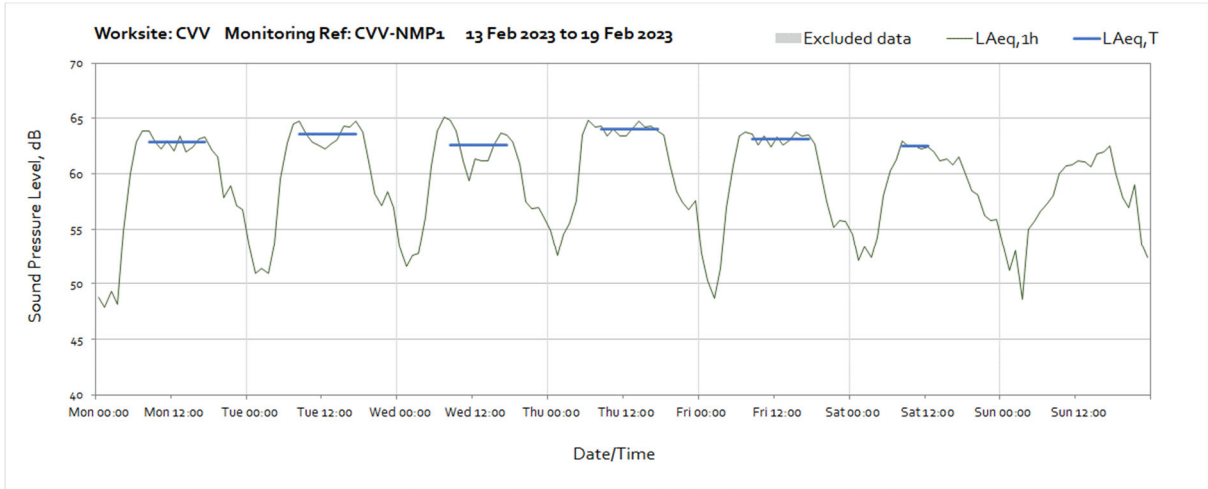
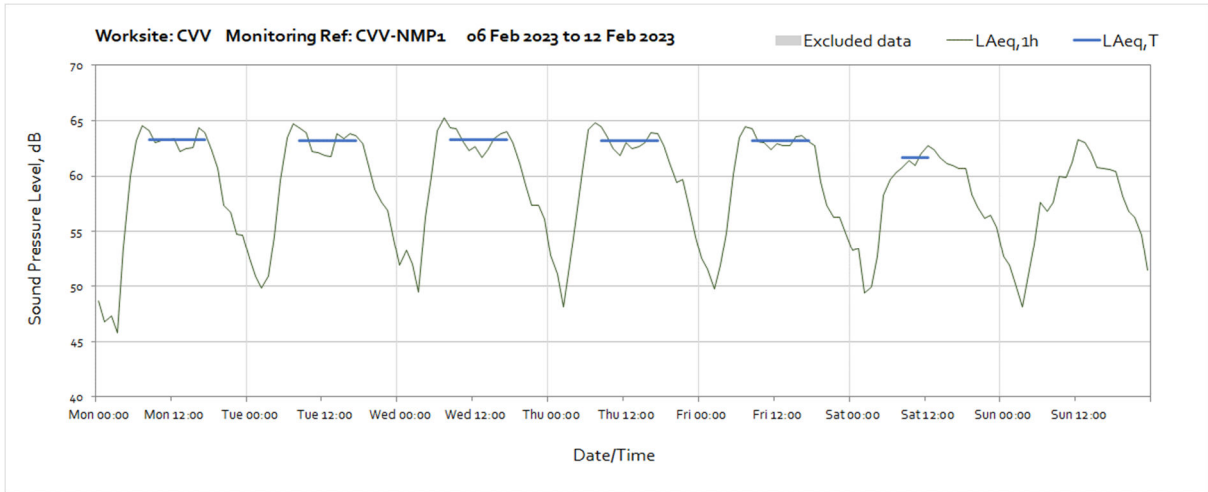


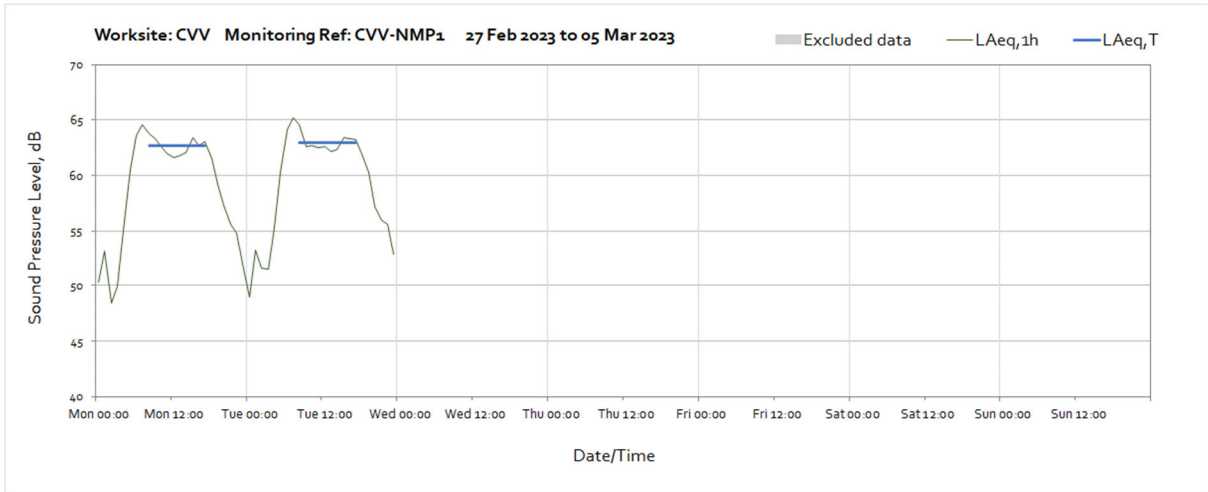
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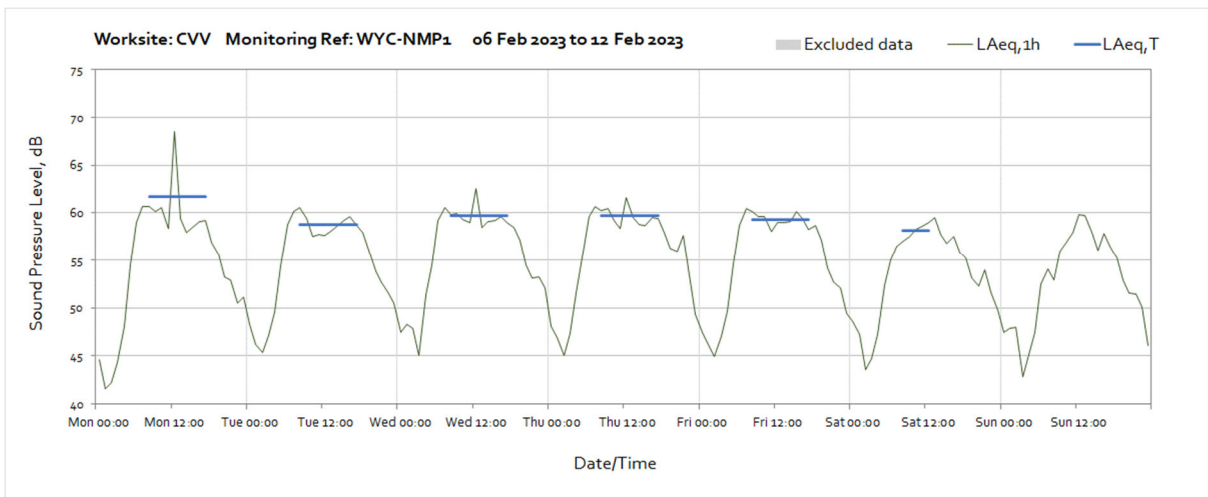
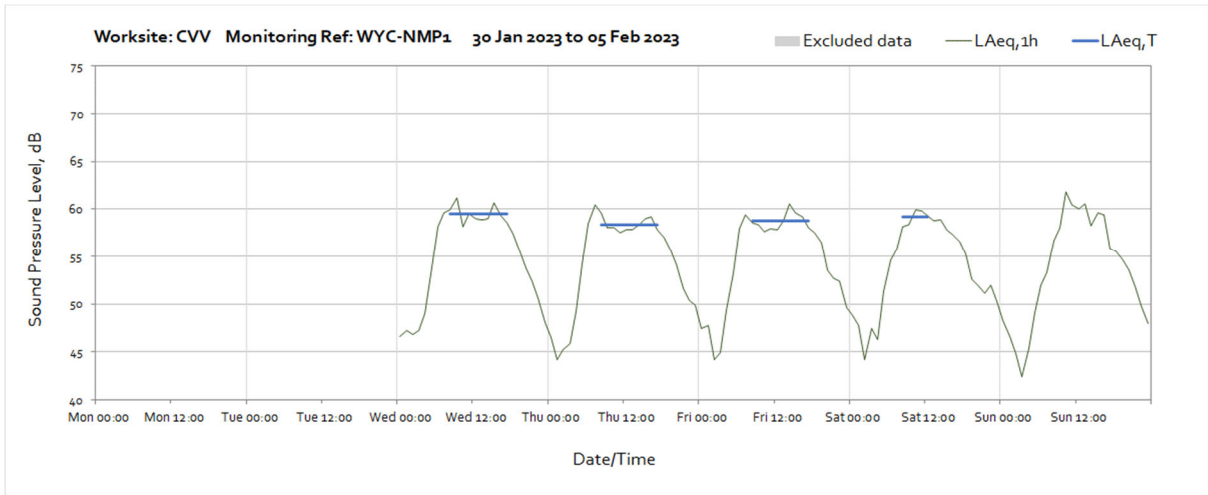
Worksite: CVV- Monitoring Ref: CVV-NMP1

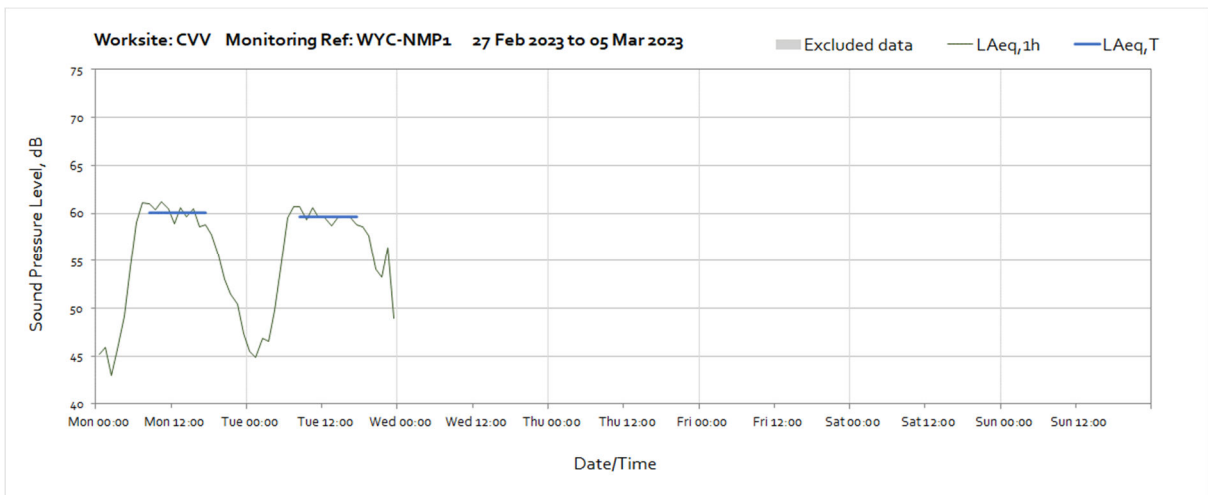
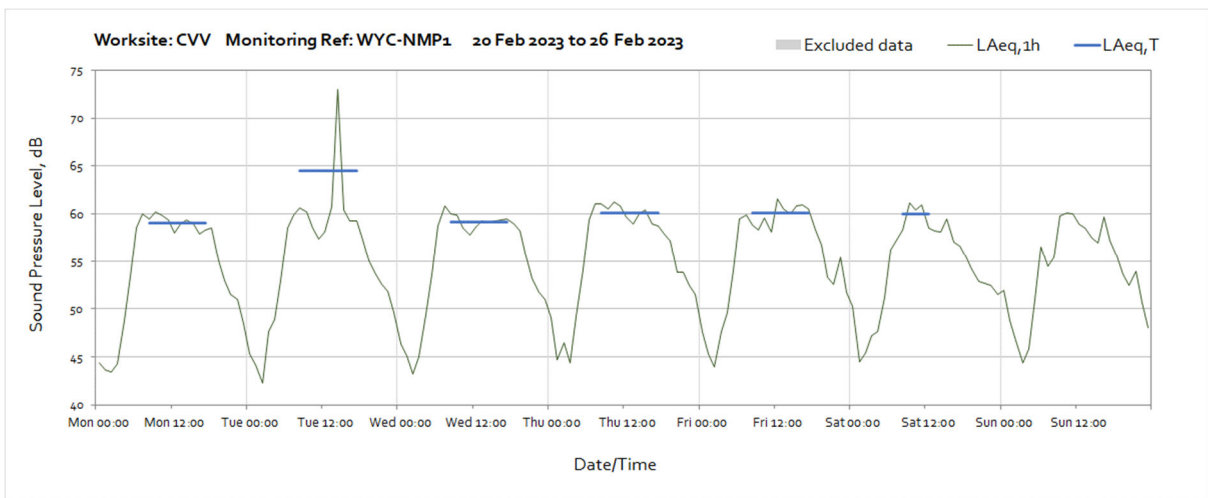
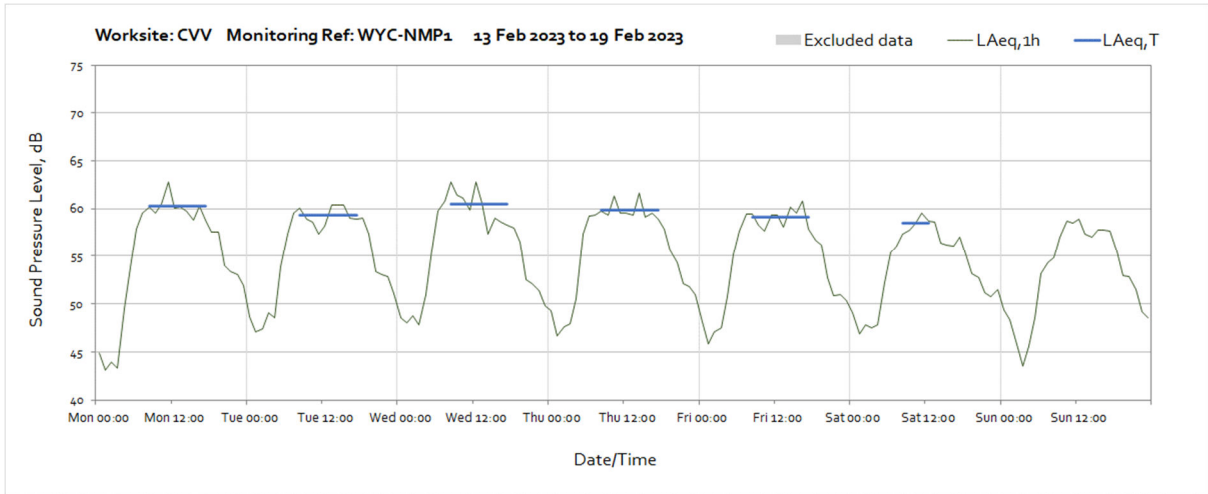




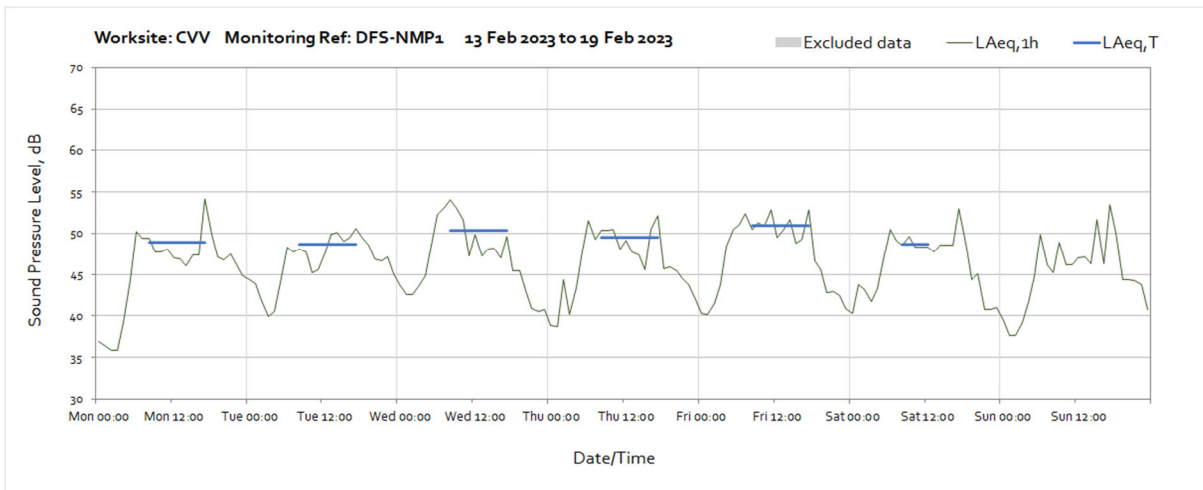
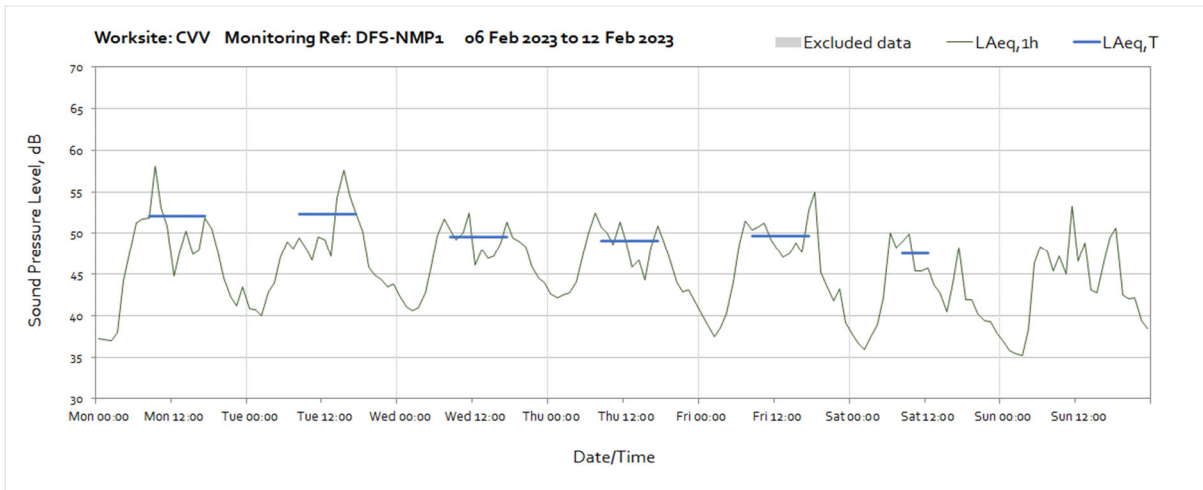
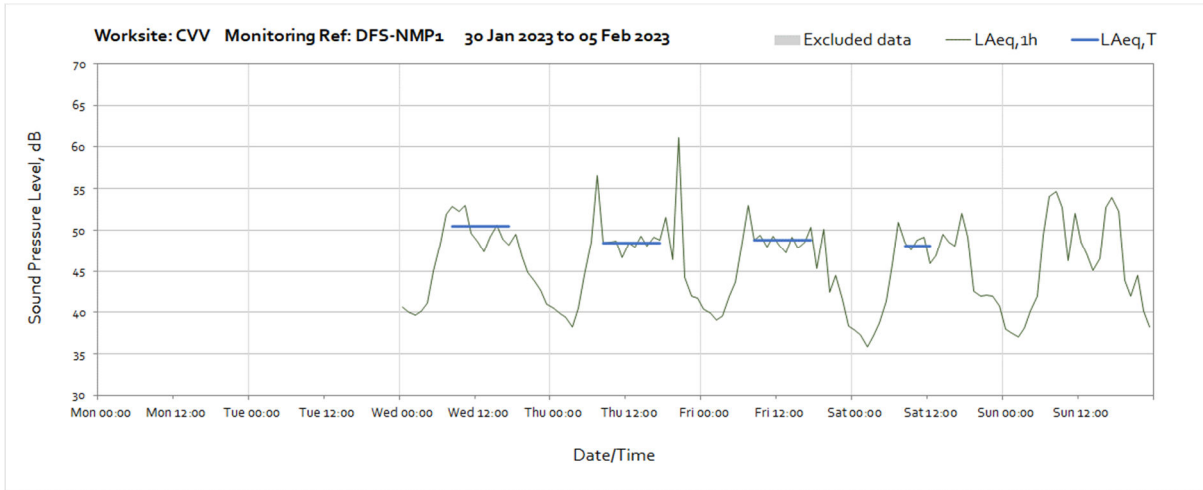


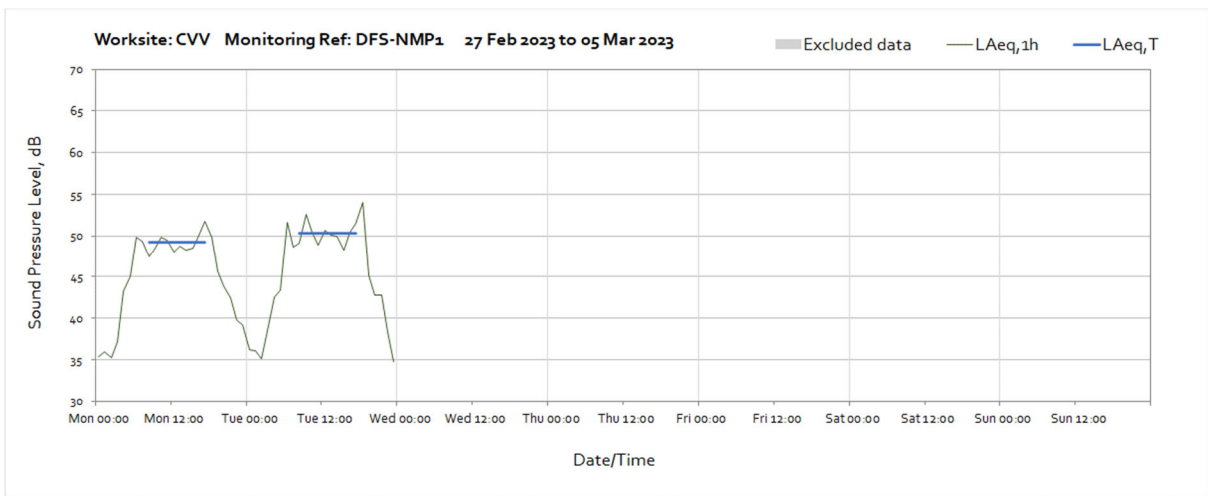
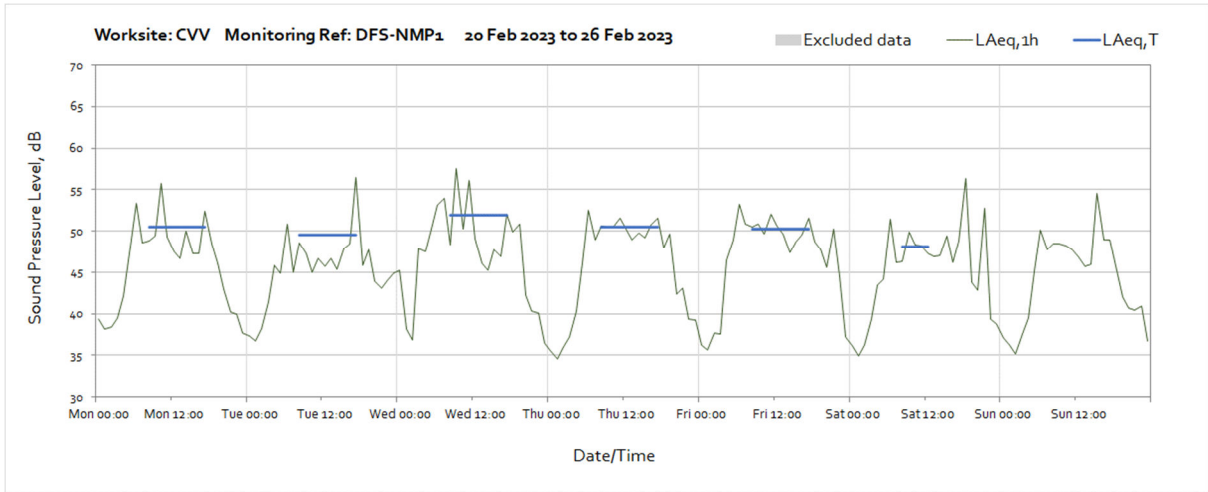
Worksite: CVV – Monitoring Ref: WYC-NMP1



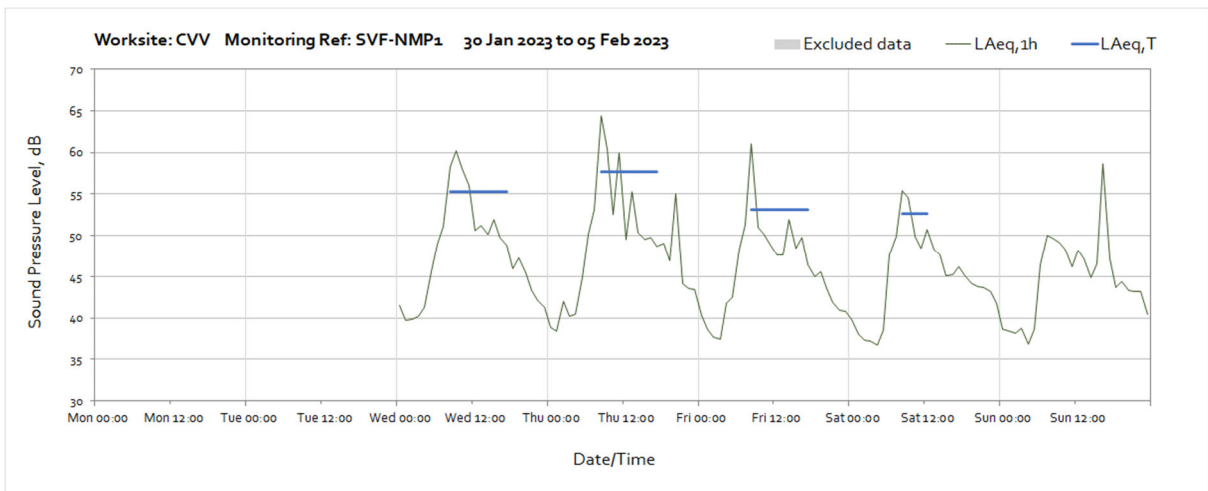


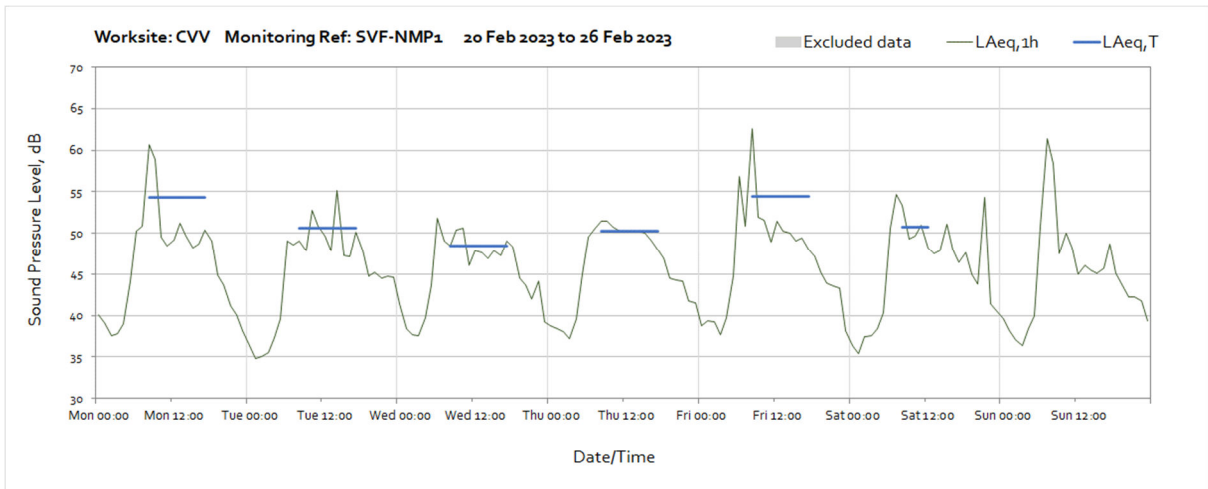
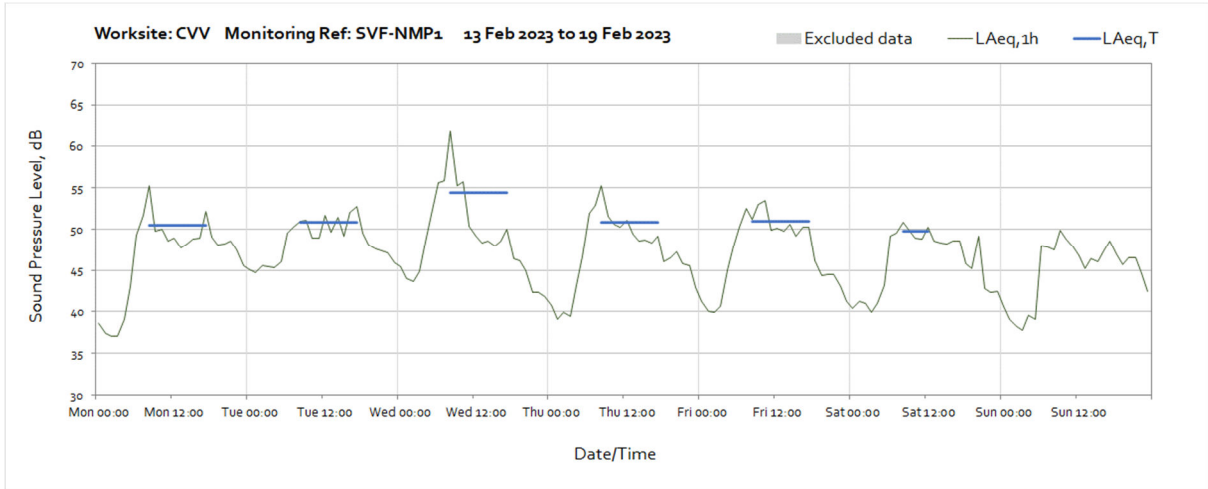
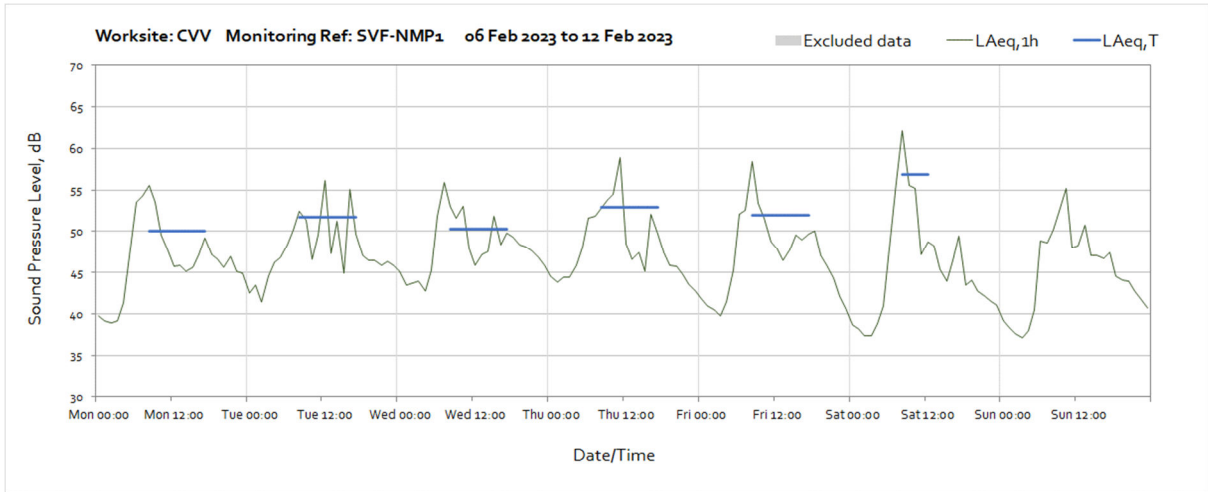
Worksite: CVV – Monitoring Ref: DFS-NMP1

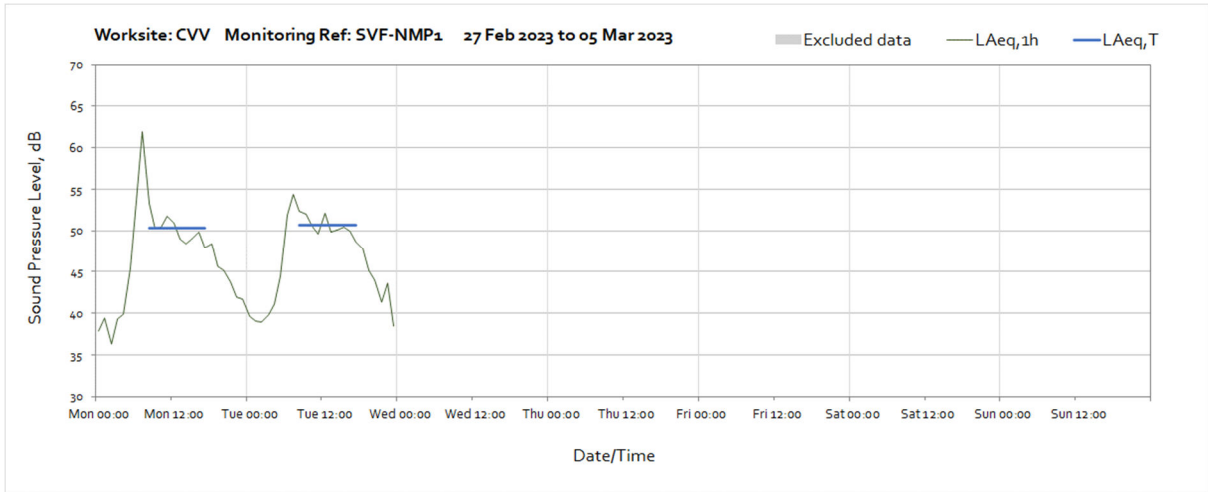




Worksite: CVV – Monitoring Ref: SVF-NMP1



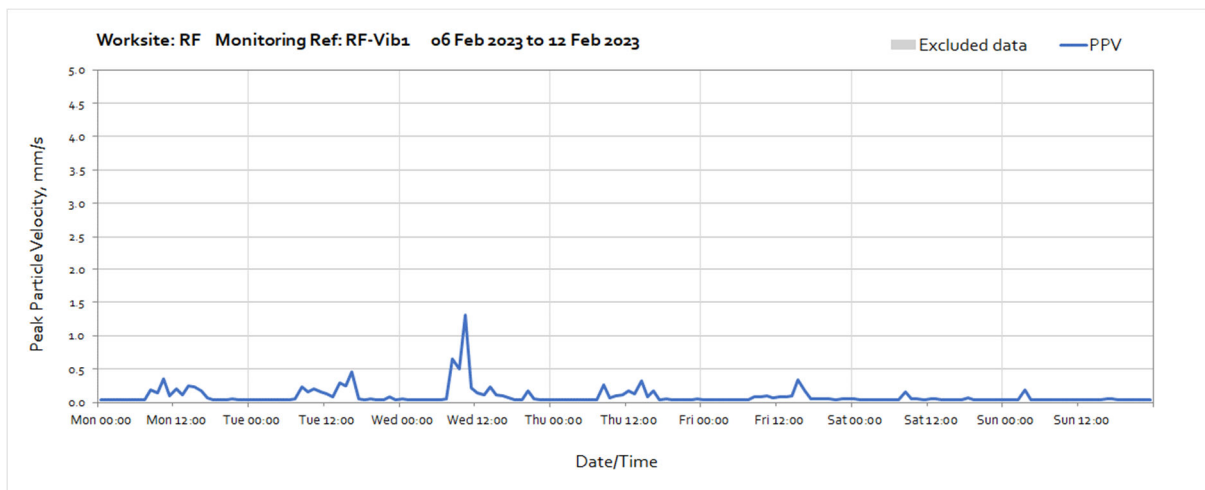
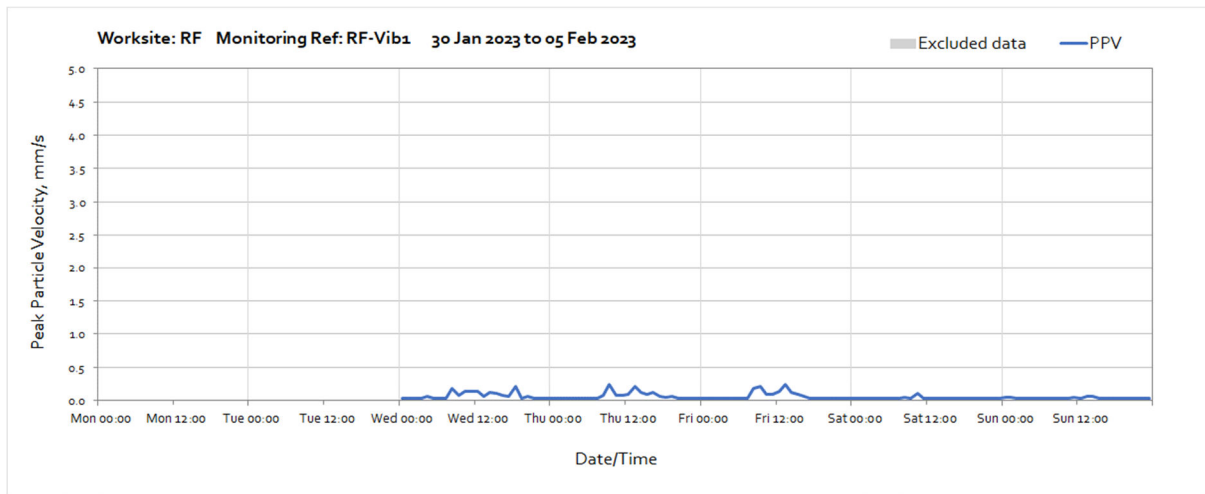


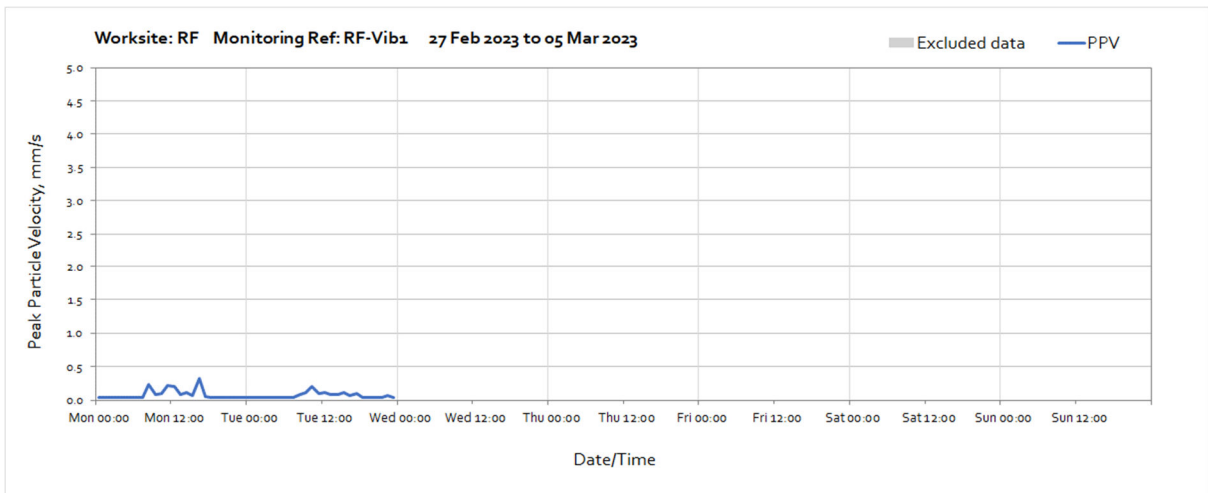
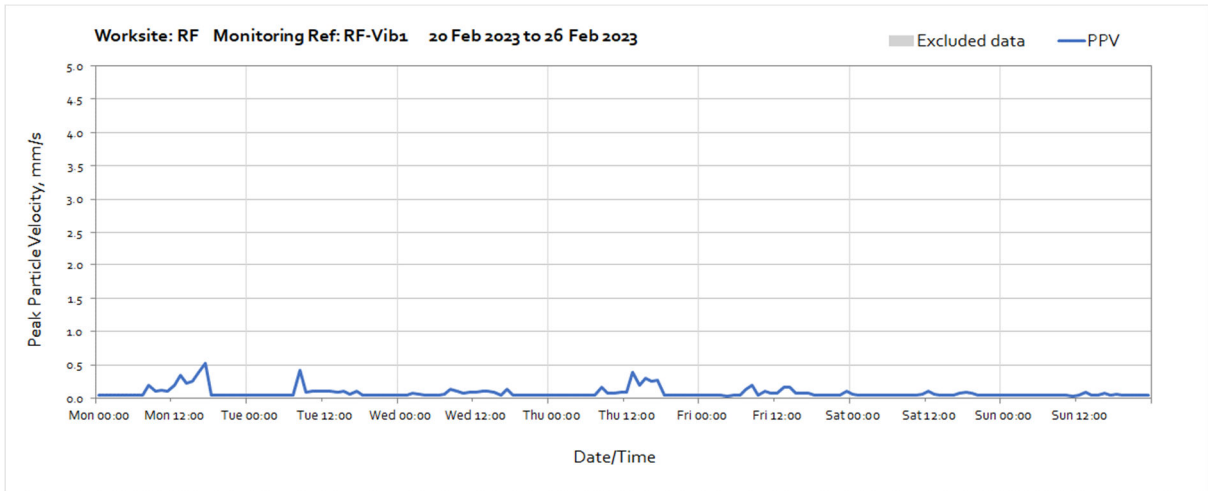
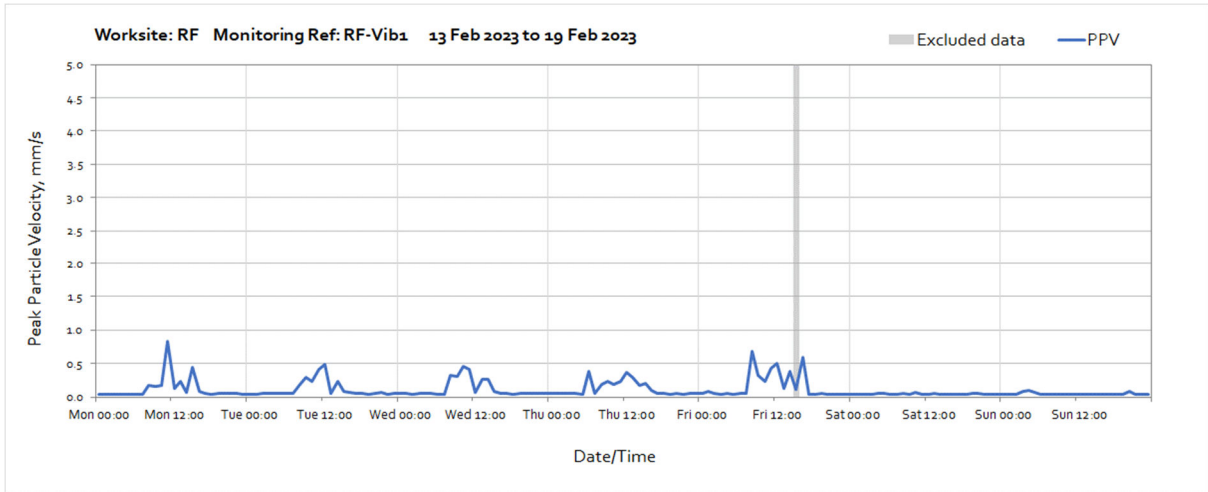


Vibration

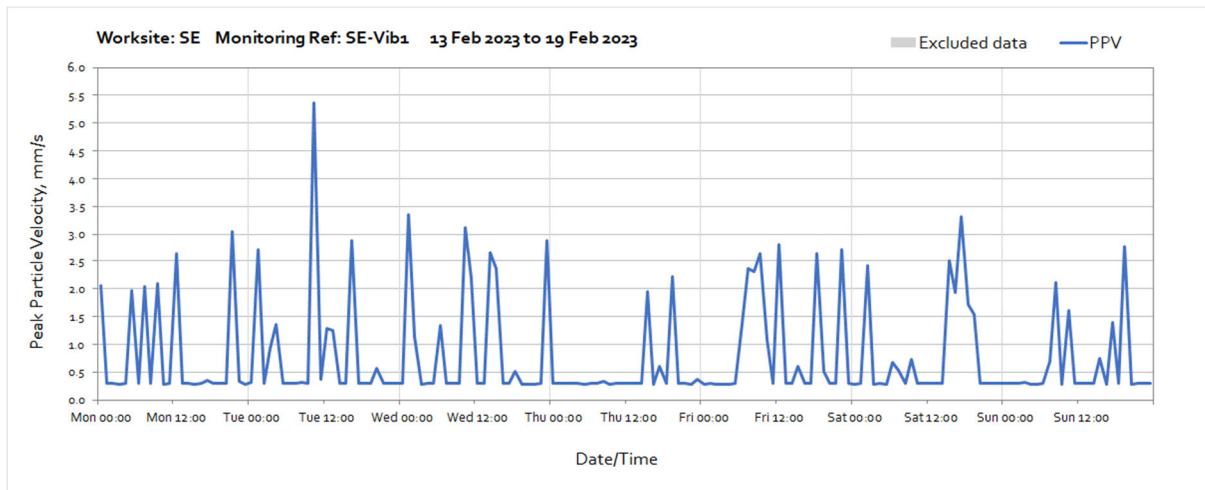
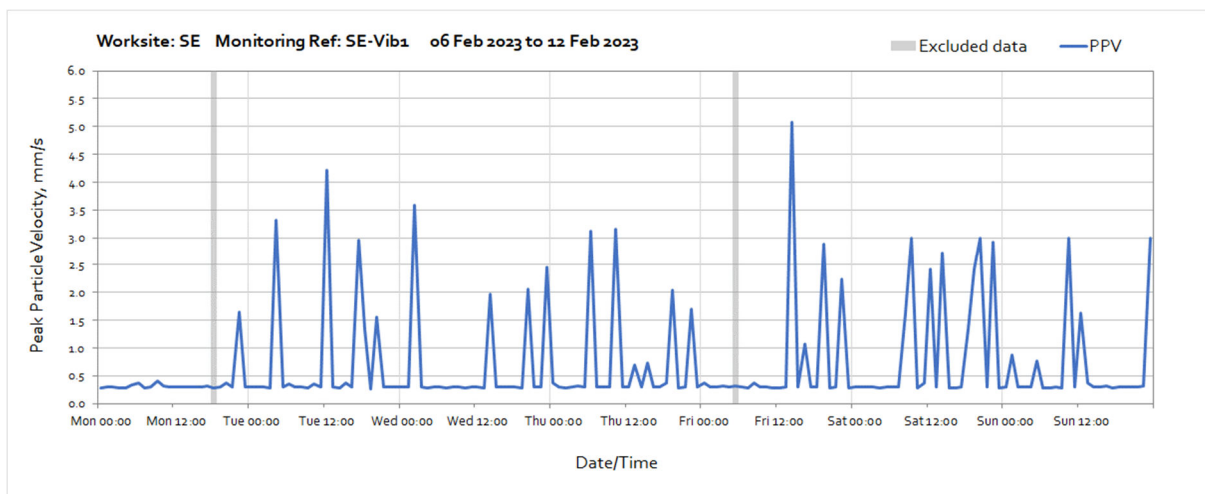
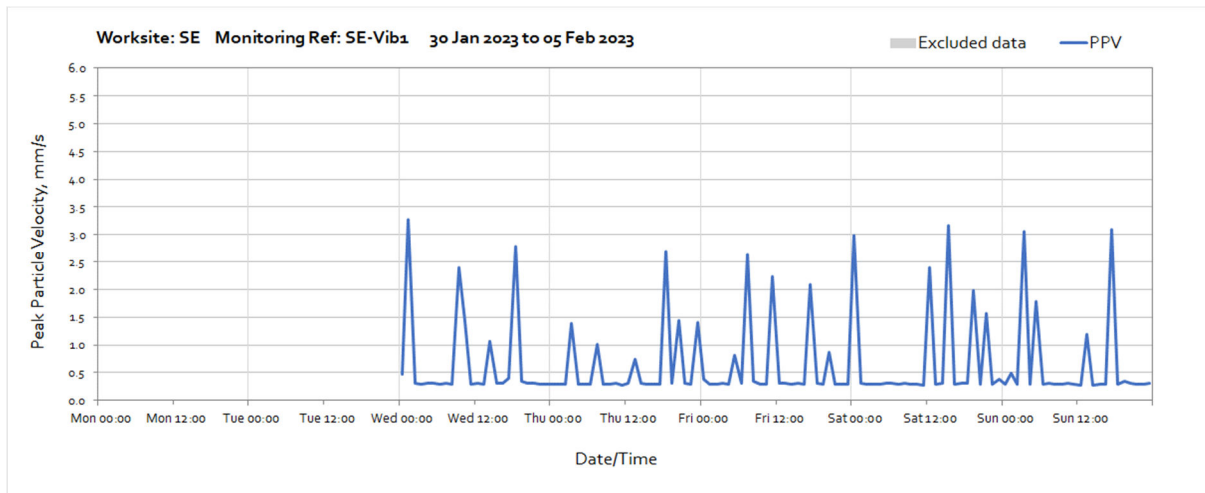
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axes x, y and z. Where high values of PPV were caused by local interference with the vibration monitor, which are not representative 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: RF – Monitoring Ref: RF-Vib 1

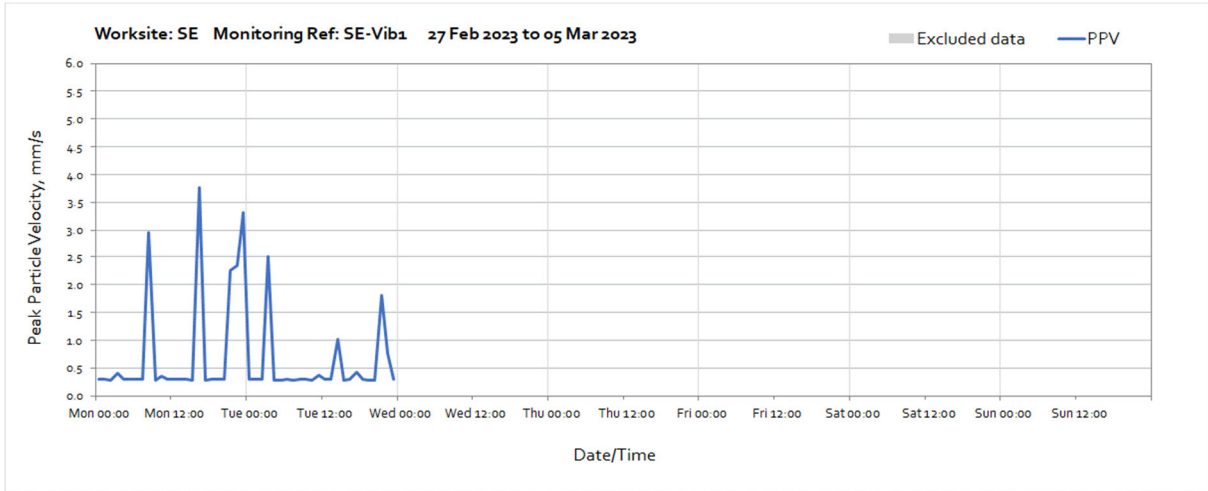
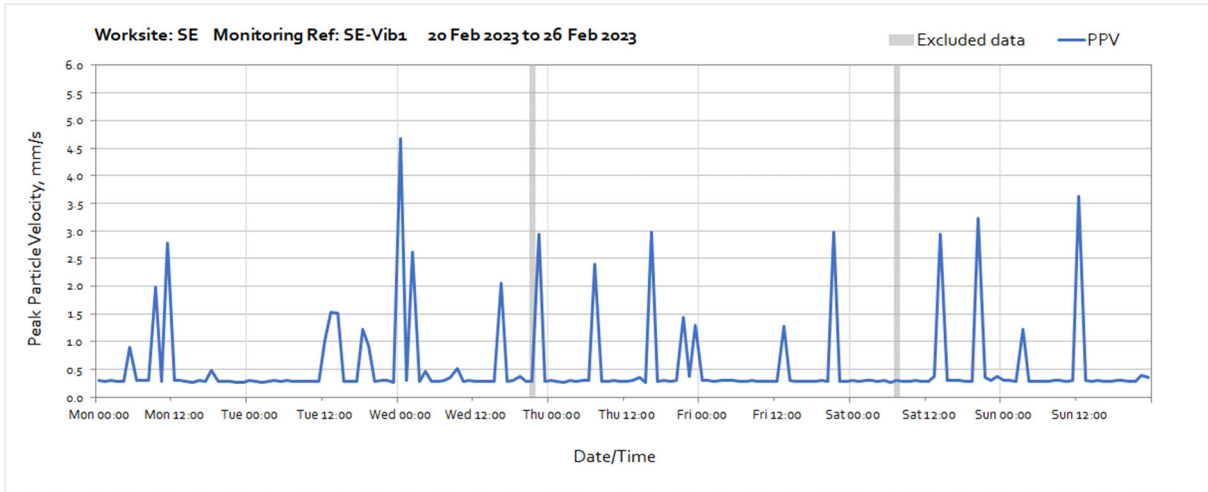




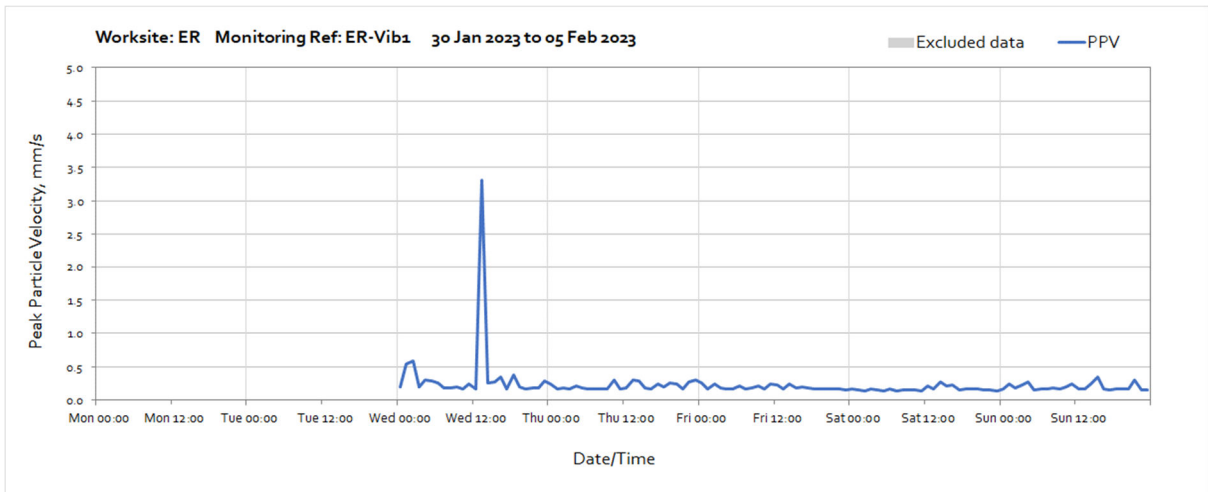
Worksite: SE – Monitoring Ref: SE-Vib 1

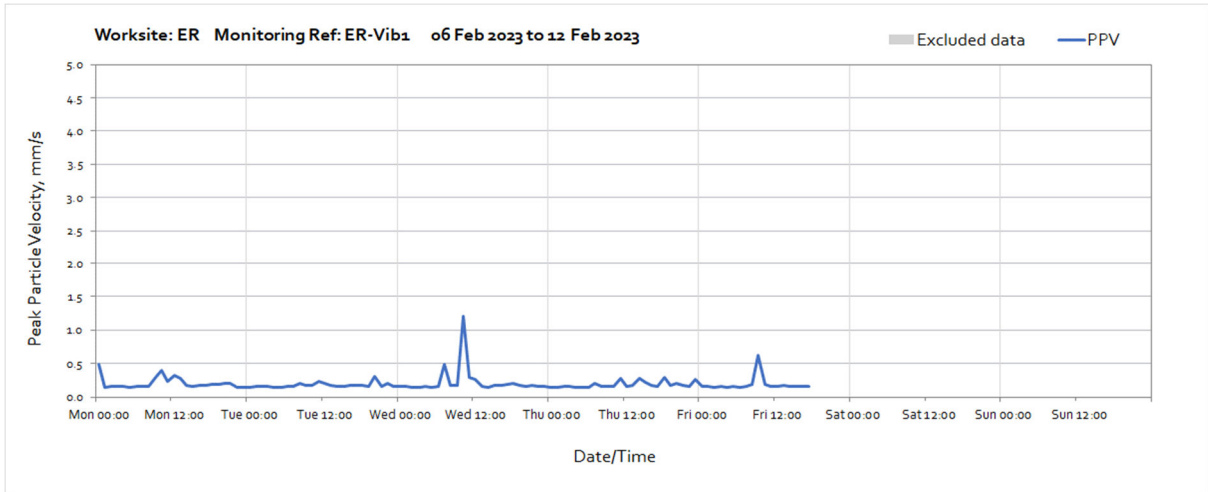


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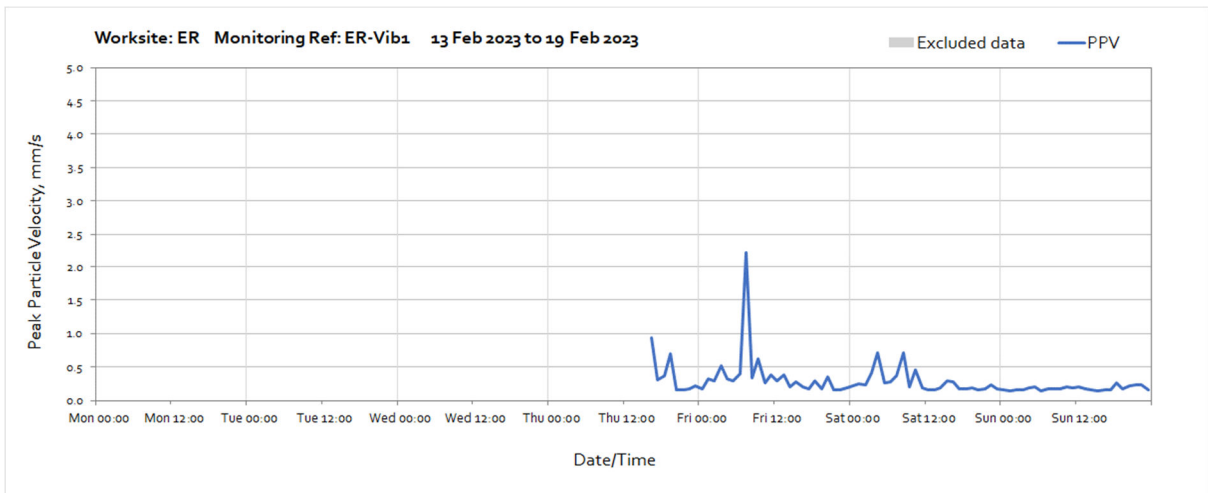


Worksite: WGT - Monitoring Ref: ER-Vib 1

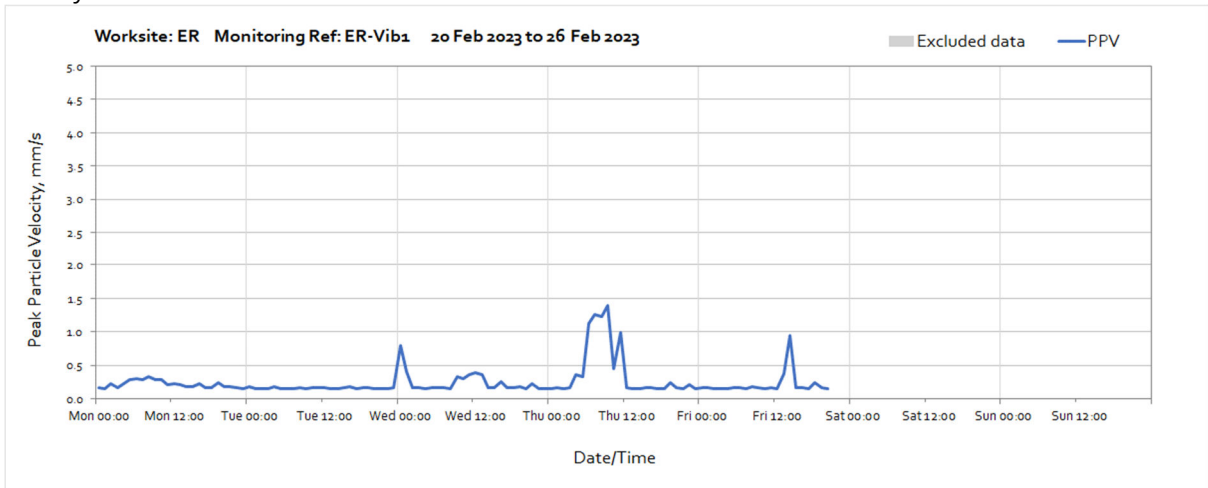




Note: Missing data from 18:00 on 10th February until 16:00 on 16th February was due to depleted monitor battery.

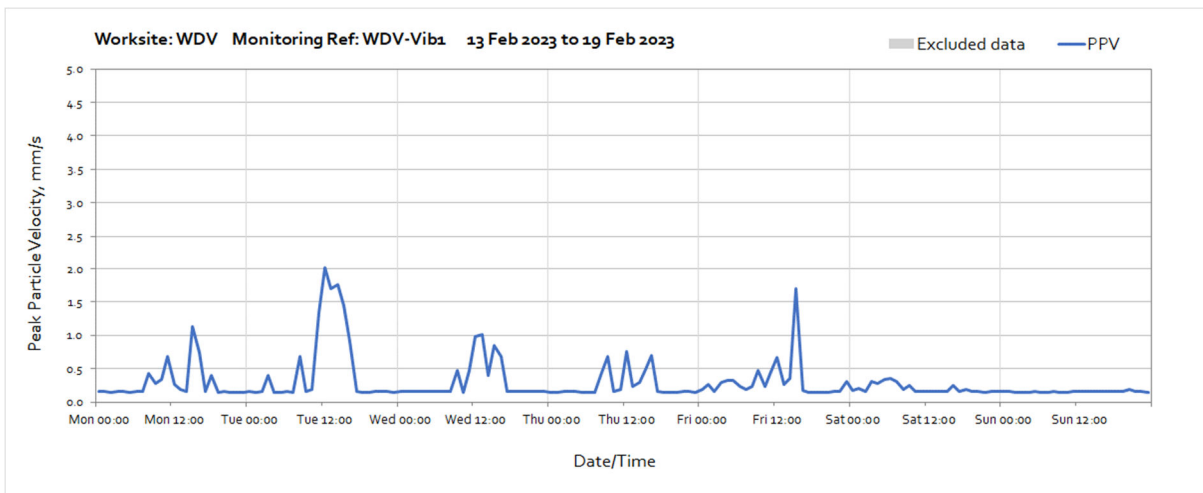
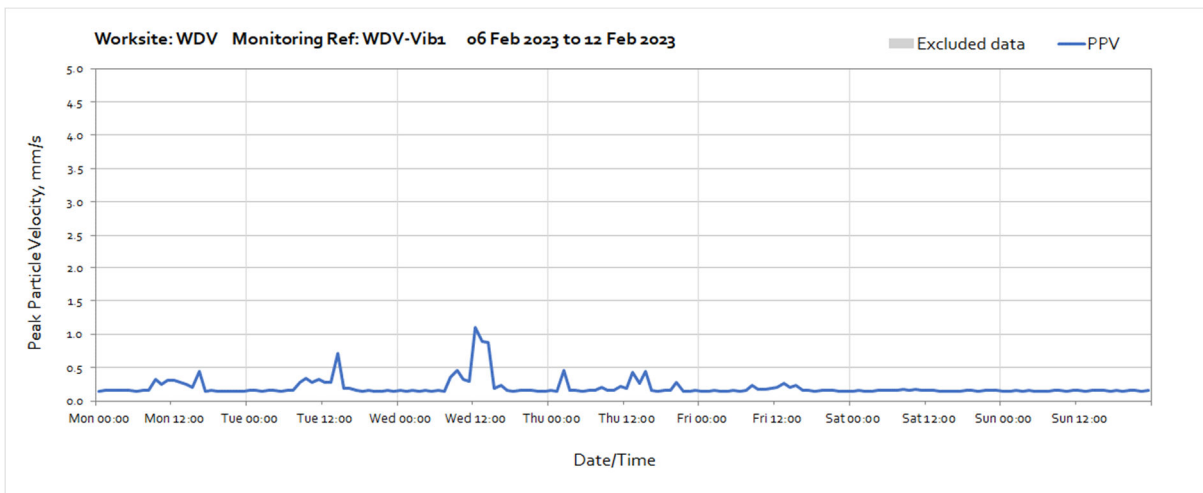
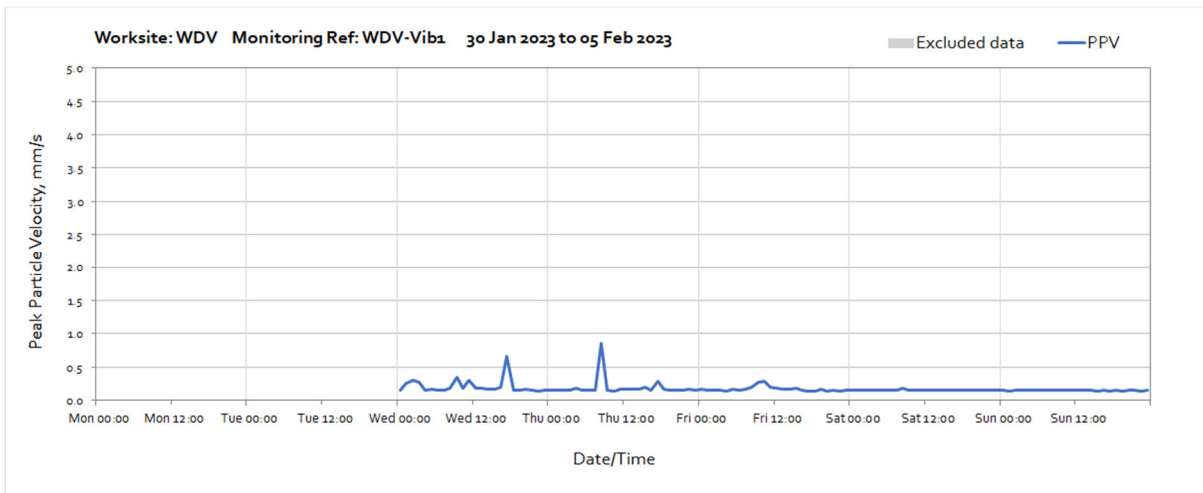


Note: Missing data from 18:00 on 10th February until 16:00 on 16th February was due to depleted monitor battery.

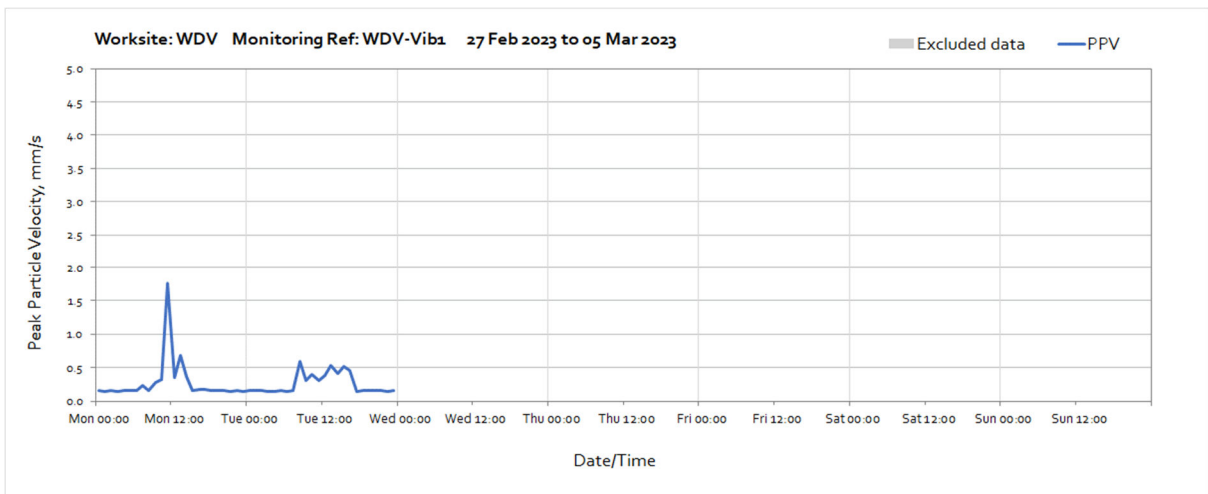
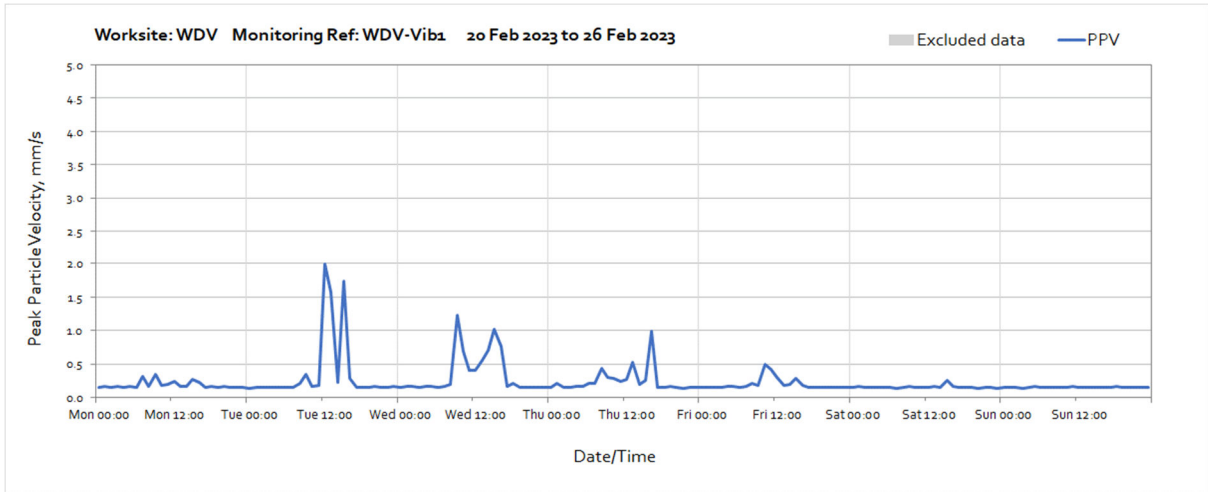


Note: Missing data from 21:00 on 24th February until month end was due to depleted monitor battery.

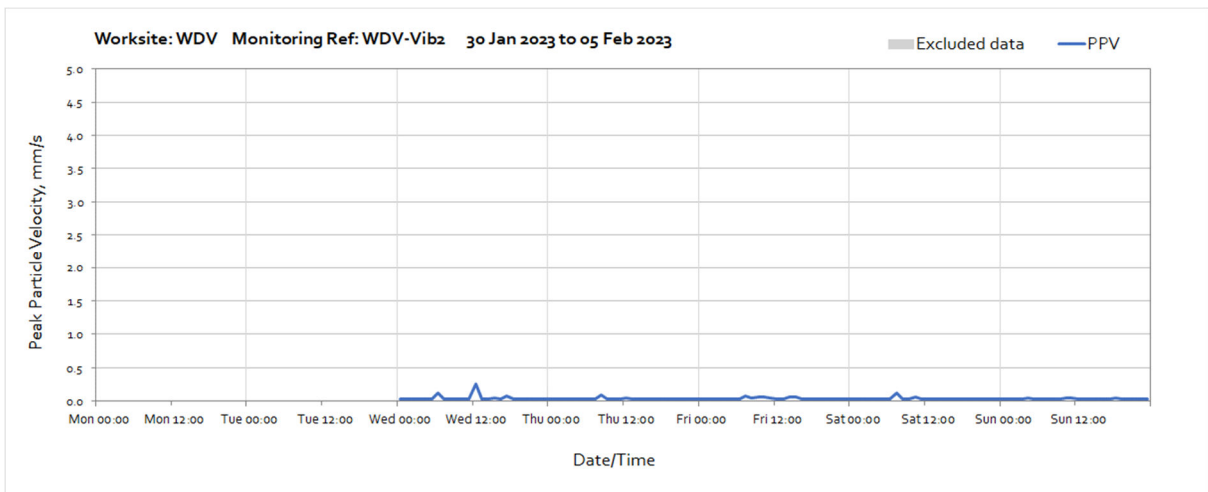
Worksite: WDV – Monitoring Ref: WDV-Vib 1

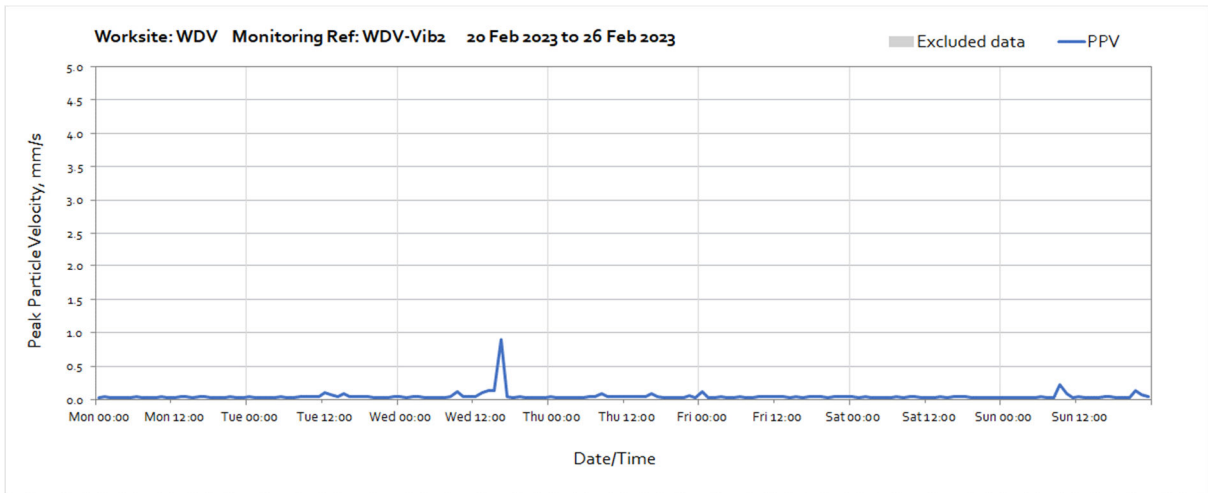
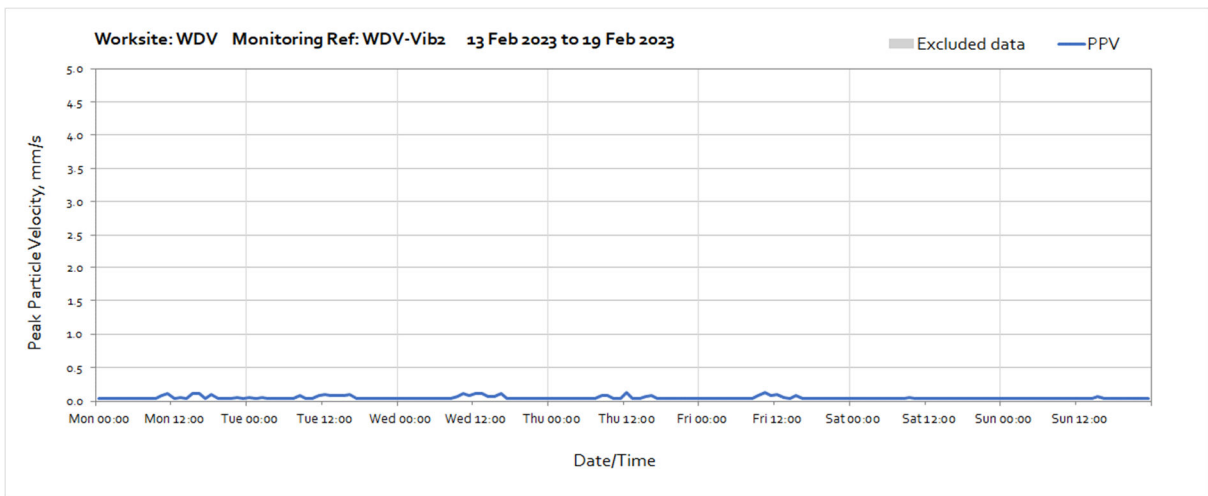
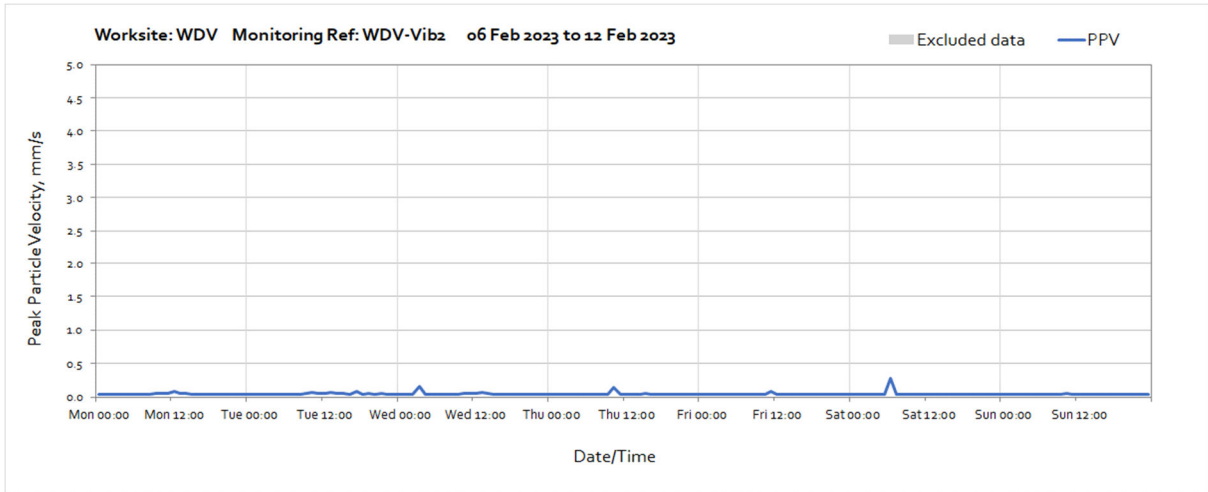


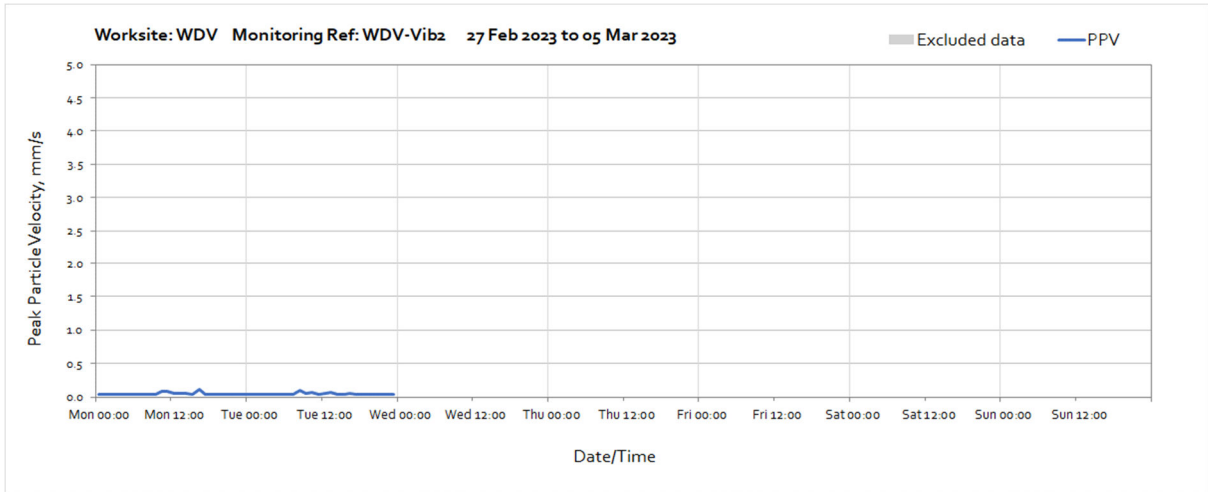
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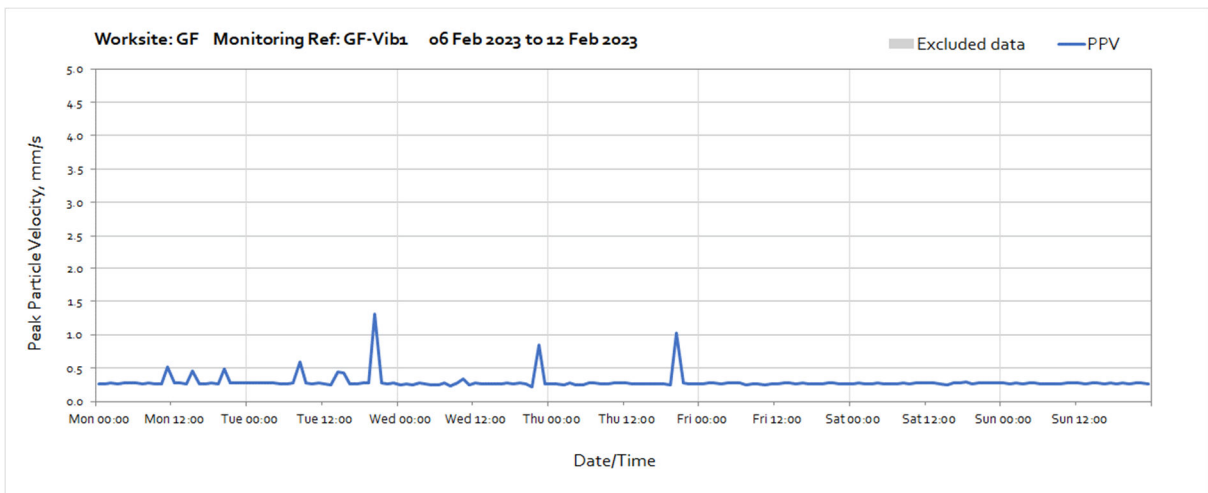
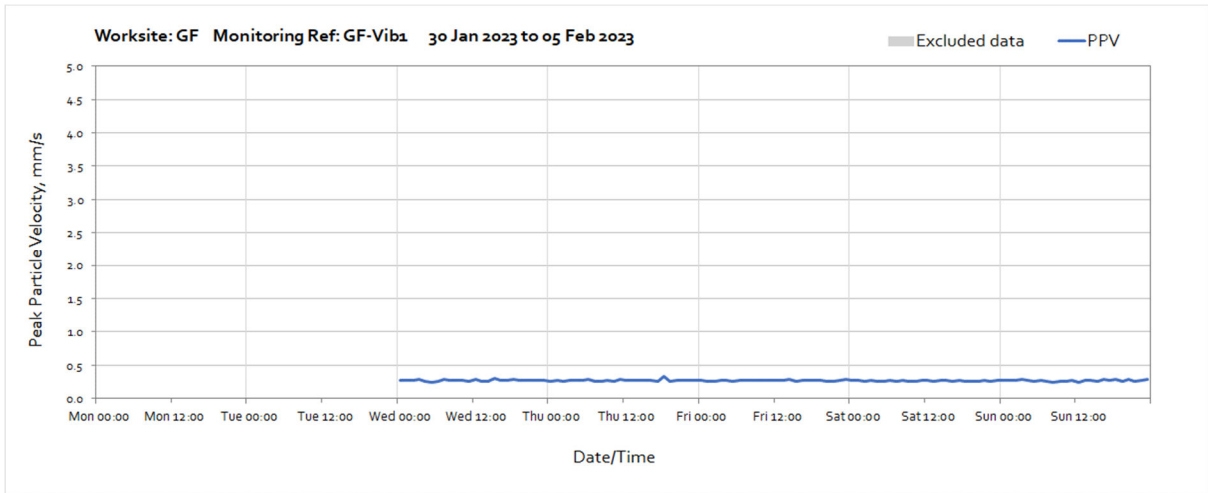
Worksite: WDV – Monitoring Ref: WDV-Vib 2

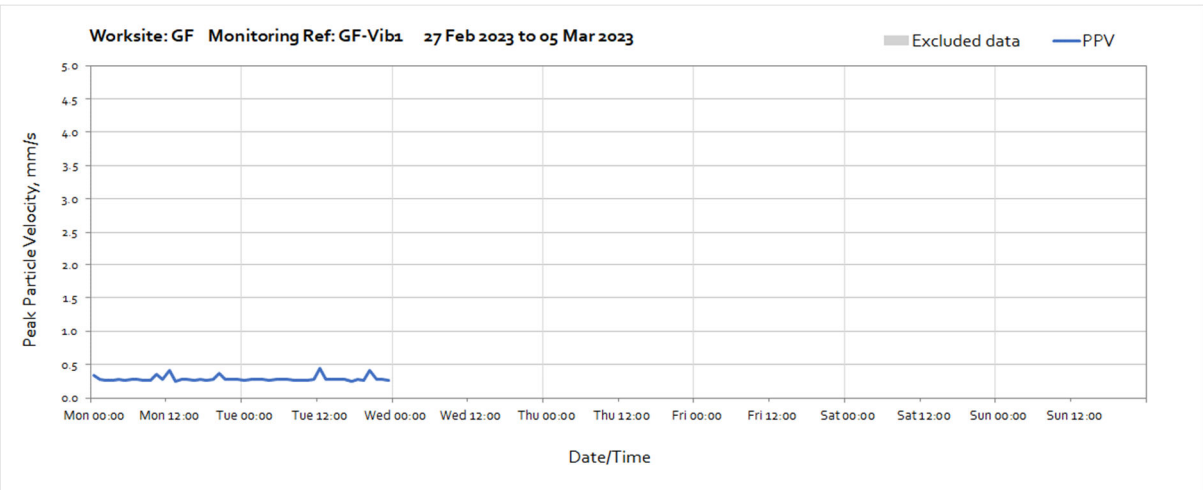
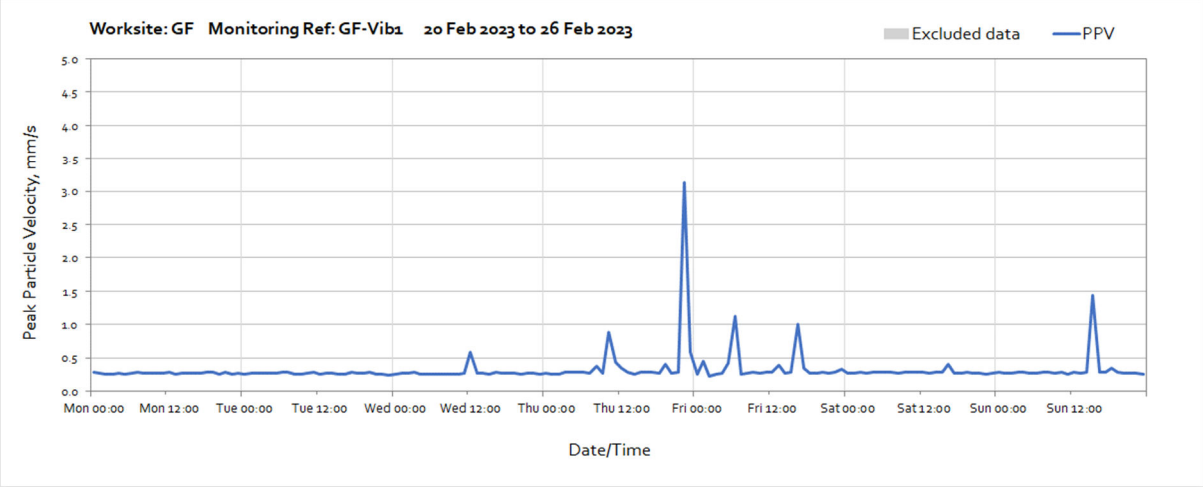
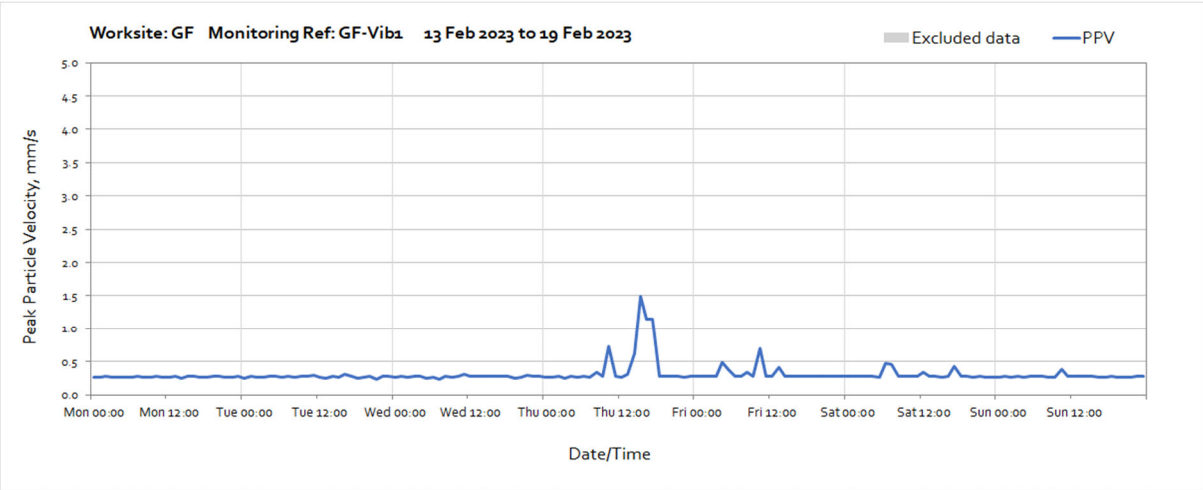




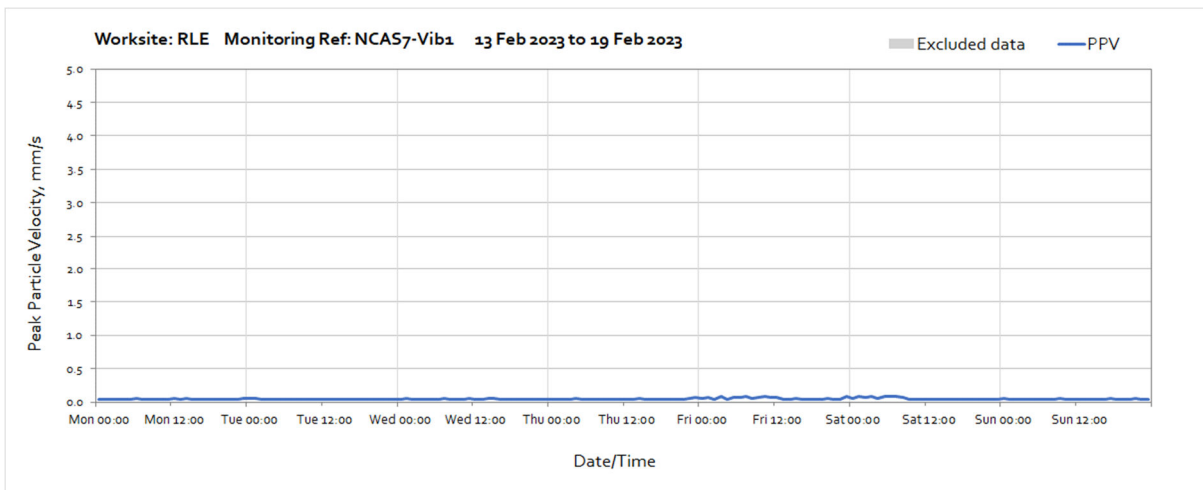
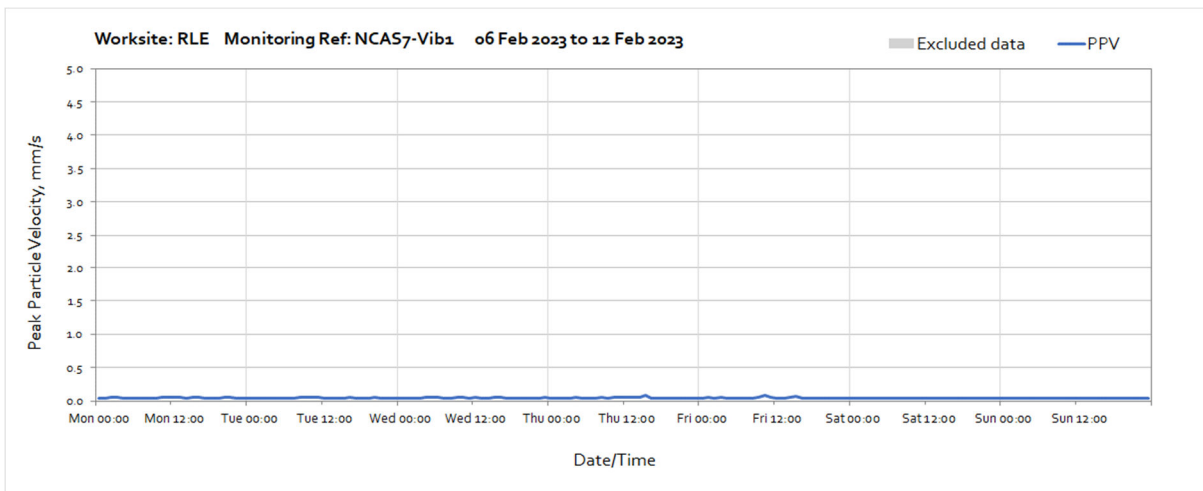
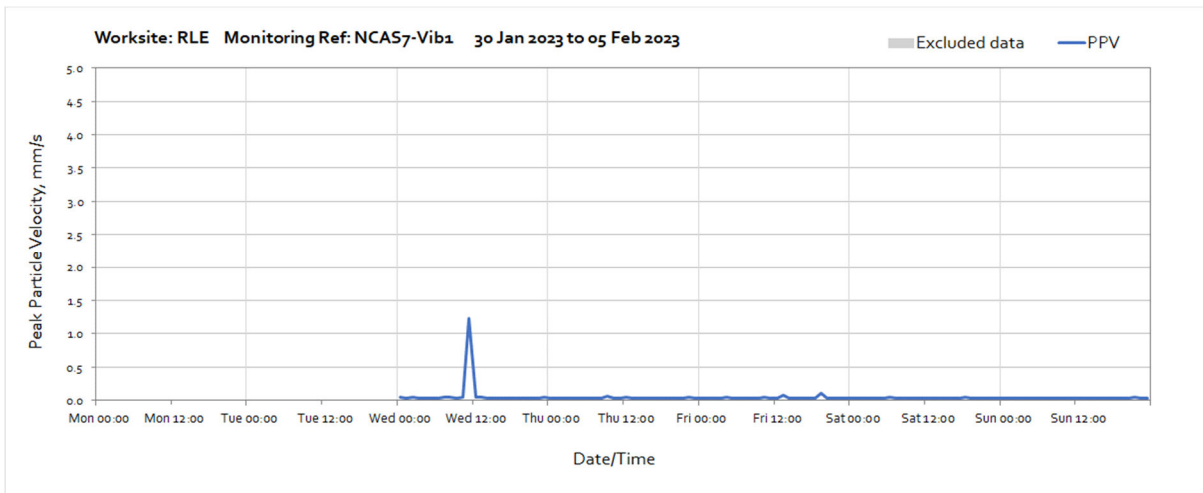


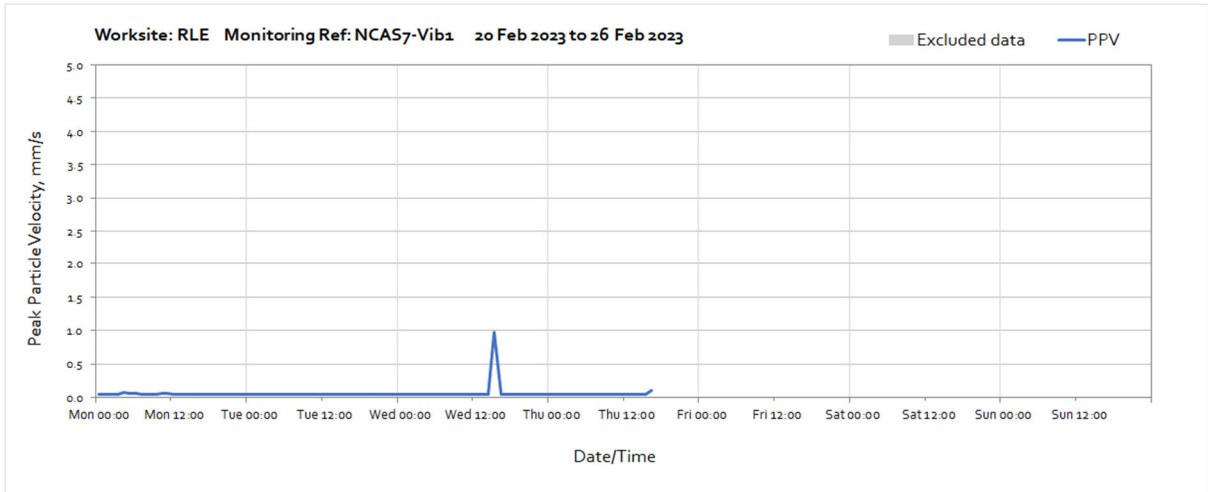
Worksite: GF - Monitoring Ref: GF-Vib1





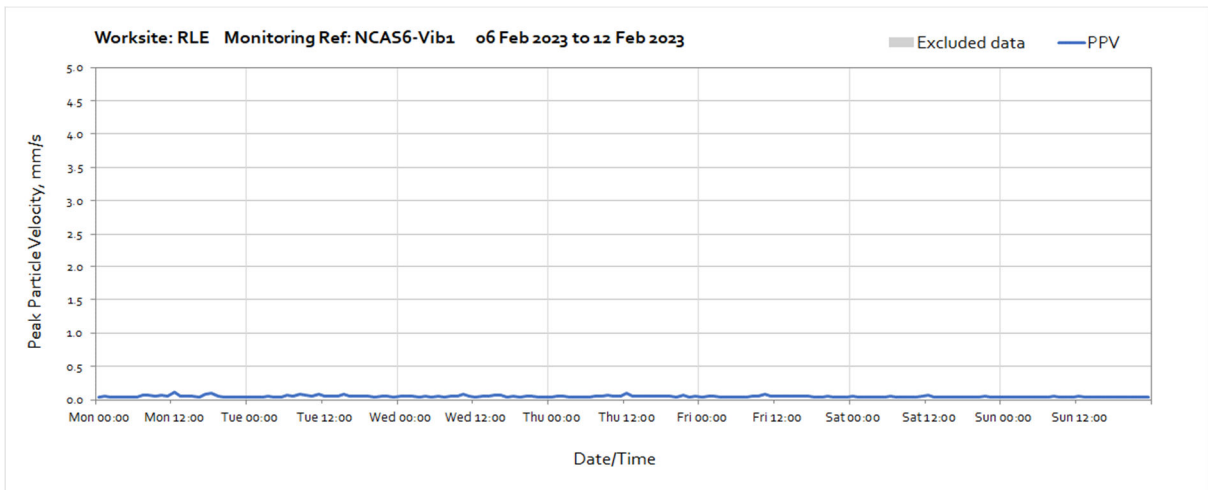
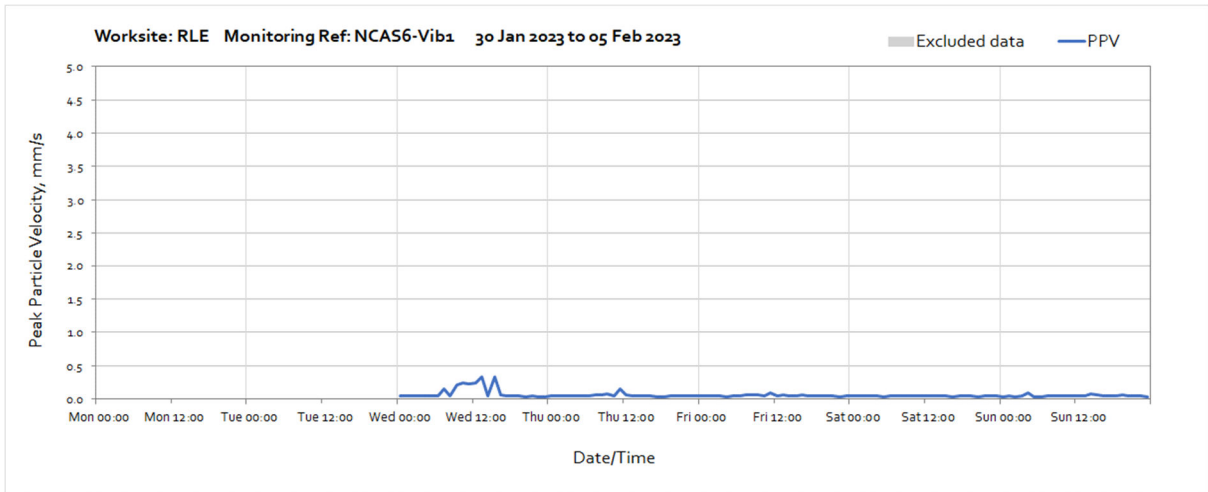
Worksite: RLE – Monitoring Ref: NCAS7-Vib1

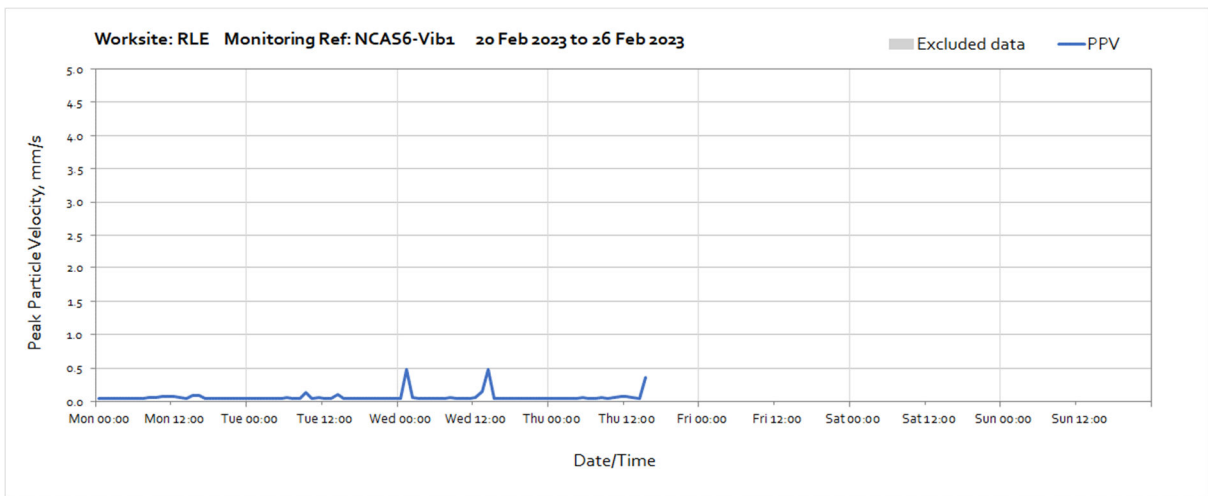
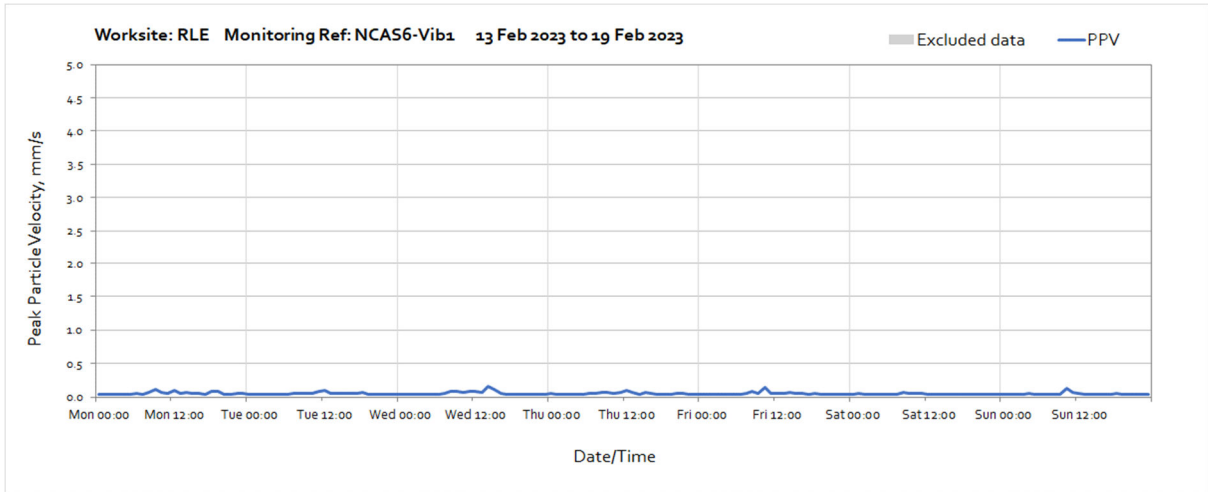




Note: Monitor was retrieved at 17:00 on 23rd February as works have been paused in the site area.

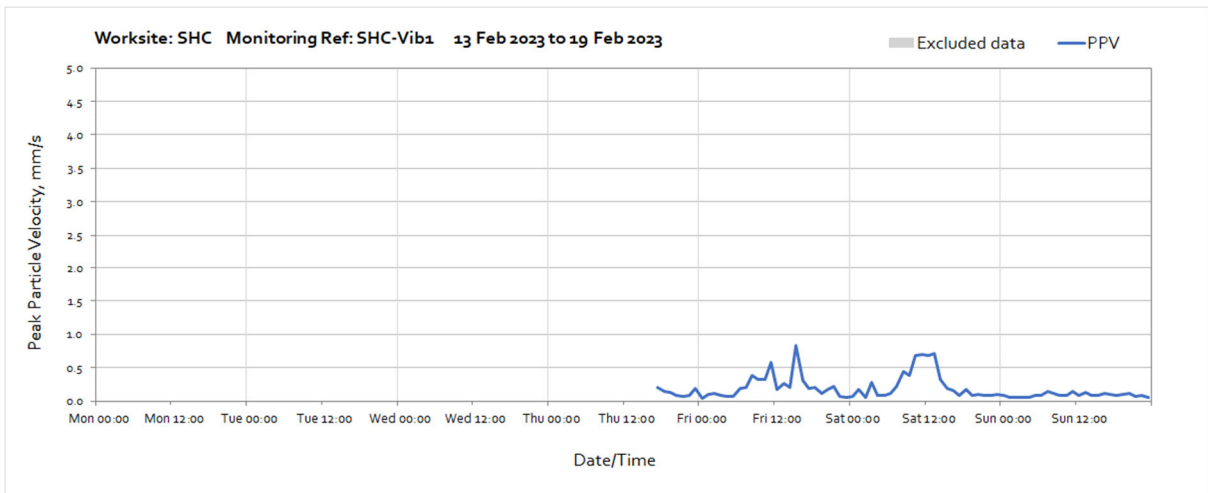
Worksite: RLE - Monitoring Ref: NCAS6-Vib1





Note: Monitor was retrieved at 16:00 on 23rd February as works have been paused in the site area.

Worksite: SHC – Monitoring Ref: SHC-Vib1



Note: Monitor was installed at 17:00 on 16th February.

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