

Construction Noise and Vibration Monthly Report – July 2023

Buckinghamshire

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Non-Technical Summary

This Noise and Vibration Monitoring Report fulfils HS2 Limited's commitment detailed in the Environmental Minimum Requirements (EMRs), Annex 1, Code of Construction Practice, to present the results of noise monitoring carried out within Buckinghamshire (BS) during the month of July 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 material crushing and screening, stockpile haulage, pond construction, diversion works, de-vegetation and topsoil stripping were underway.
- Noise monitoring was undertaken in the vicinity of the School End (ref.: SE) and Hermitage Chetwode (ref.: HC) worksites where compound development, haul road maintenance, bulk excavation, topsoil stripping, fencing, drainage, stockpiling and vehicle movements were underway.
- Noise monitoring was undertaken in the vicinity of the Twyford worksite (ref.: TW) where access and haul road maintenance, vehicle movements, drainage, topsoil stripping and stockpiling were underway.
- Noise monitoring was undertaken in the vicinity of the West Street Overbridge worksite (ref.: WSO), where commissioning, formwork reinforced concrete, embankment earthworks, backfilling and road diversion works were underway.
- Noise monitoring was undertaken in the vicinity of the Addison Road worksite (ref.: AR) where ballast installation, embankment earthworks and parapet installation were underway.
- Noise monitoring was undertaken in the vicinity of the Calvert worksite (ref.: CAL) where operation of concrete batching plant, material movements, earthworks and installation of pre-cast units were underway.
- Noise monitoring was undertaken in the vicinity of the Woodlands worksite (ref.: WDL) where installation of pre-cast beams, concrete stitching shelf construction, waterproofing, backfilling, diversion works, material movements and sheet piling were underway.
- Noise monitoring was undertaken in the vicinity of the Quanton worksite (ref.: QAR) where no works were underway.
- Noise monitoring was undertaken in the vicinity of the Meadoway and Glebe House worksite (ref: MW&GH) where earthworks, utility, overbridge and diversion works were underway.

- Noise monitoring was undertaken in the vicinity of Oat Close worksite (ref: OC) where topsoil stripping, stockpiling, excavation, overbridge, Culvert and underpass and embankment works were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane worksite (ref.: NLL) where road diversion, site access road construction, bridge construction, de-vegetation, material movements, earthworks, construction of piling platform and drainage works were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Green Tunnel worksite (ref.: WGT) where excavation, surface water management, drilling, de-vegetation, construction of working platform, concrete works, topsoil stripping, drainage, installation of sile, guide wall reinforcement, bridge, shutters and gates, and site maintenance were underway.
- Noise monitoring was undertaken in the vicinity of Grove Farm worksite (ref.: GF) where drilling and surface water management works were underway.
- Noise monitoring was undertaken in the vicinity of Small Dean Viaduct Compound worksite (ref.: SDVC) where drainage, grouting, v-ditch maintenance, access road maintenance, pile cap relocation, survey monument installation, deliveries, laydown area rearrangement and drilling works were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref.: RLE) where compound construction, backfilling and stockpile movements were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Dean Viaduct worksite (ref.: WDV) where equipment movement, scaffolding, welding, material movements, sheet pile installation, demobilisation and construction of haul road were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref.: LL) where stockpile movements were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref.: SHCW) where shutter installation was underway.
- Noise monitoring was undertaken in the vicinity of North Portal worksite (ref.: NP) where site access road, plant operations, piling platform, track platform, headwall capping-beam, porous portal structure and drainage works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road worksite (ref.: CHSM), where site operation, concrete and internal structure works were undertaken.
- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site operation, internal structures construction and basement construction works were undertaken.

- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site operation, internal structure construction, tunnel connection, basement construction and concrete works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where site operation, road maintenance, tunnel connection 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, basement construction, road maintenance, tunnel connection and ground level works were underway.
- Noise monitoring was undertaken in the vicinity of the Colne Valley Viaduct worksite, which is partly located in the London Borough of Hillingdon (LBH), (ref.: CVV), where pile trimming, jetty and haul road maintenance and operation, compound operations, auto transformed feeder station works, ground investigation, pier construction, pumping water management, satellite compound welfare, generator farm operation, concrete drilling, gas crossing emergency dismantling works, Grand Union canal operation and maintenance, fencing, environmental maintenance, cofferdam excavation, River Colne crossing, girder, deck and landscaping 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 bulk excavations, vegetation clearance, stockpiling, drainage, pond excavation and maintenance, fencing, drainage and vehicle movements were underway.
- Turweston along the A422 where compound development, temporary bridge and road diversion works were underway.
- East West Rail (EWR) interfaces where concrete deck construction and backfilling were underway.
- Charndon Lodge where technical backfilling and drainage works were underway.
- Infrastructure Maintenance Depot (IMD) where technical backfilling and earthworks were underway.
- Shepherds Furze Culvert where waterproofing was underway.
- MCJ where earthworks including excavation, filling and overbridge bulk excavation were underway.

- Greatmoor Culvert where waterproofing was underway.
- Calvert, along the bat mitigation structure where earthworks including excavation and filling was underway.
- GUN28 overbridge where formwork reinforced concrete and technical backfill were underway.
- Doddershall Culvert where technical backfill was underway.
- Thame Valley Viaduct Causeway where piling, drainage, installation of reinforced cement concrete, pile cropping, formwork installation and lifting beams were underway.
- Along A41 where concrete batching works, earthworks, drainage, kerbing, pavement, vehicle restraint systems operation and signage installation were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Hills Farm Earthworks where stockpiling and maintenance was underway.
- Bowood Lane where backfilling, excavation, installation of portal ring and culvert construction was underway.
- Nash Lee Road Diversion where material movements including earthworks were underway.
- Aylesbury Golf Course where utility diversion works were underway.

There were eight (8) exceedance 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 three (3) exceedances of trigger levels as defined in Section 61 consents during the reporting period.

One (1) complaint was received within the Buckinghamshire area during the monitoring period. A description of the complaints, the results of investigations and any actions taken are detailed in Table 8 of this report.

Abbreviations and Descriptions

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

Table 1: Table of Abbreviations

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

1 Introduction

1.1.1 HS2 is required to undertake noise (and vibration) monitoring as necessary to comply with the requirements of the High Speed Rail (London-West Midlands) Environmental Minimum Requirements, including specifically Annex 1: Code of Construction Practice, in addition to any monitoring requirements arising from conditions imposed through consents under Section 61 of the Control of Pollution Act, 1974 or through Undertakings & Assurances given to third parties. Such monitoring will 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 July 2023.

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

- A422 Turweston North worksite, ref.: A422 TN (see Plan 1 in Appendix A), where works activities included:
 - Material crushing and screening.
 - Stockpile haulage.
 - Construction of ponds.
 - Diversion works.
 - De-vegetation.
 - Topsoil stripping.
- School End worksite, ref.: SE (see Plan 2 in Appendix A) and Hermitage Chetwode Worksite ref.: HC (see plan 2 in Appendix A), where works activities included:
 - Compound development.
 - Haul road maintenance.

- Bulk excavation works.
- Topsoil stripping.
- Removal of badger fencing.
- Drainage, including pond maintenance.
- Fencing.
- Stockpiling.
- Vehicle movements.
- Twyford worksite, ref.: TW (see Plan 2 in Appendix A), where works activities included:
 - Access and haul road maintenance.
 - Vehicle movements.
 - Drainage, including culvert installation.
 - Topsoil stripping.
 - Stockpiling.
- West Street Overbridge worksite, ref.: WSO (see Plan 2 in Appendix A), where works activities included:
 - Commissioning.
 - Formwork reinforced concrete works.
 - Embankment earthworks.
 - Backfilling.
 - Road diversion works.
- Addison Road worksite, ref.: AR (see Plan 3 in Appendix A), where works activities included:
 - Ballast installation.
 - Embankment earthworks.
 - Parapet installation.
- Calvert worksite, ref.: CAL (see Plan 3 in Appendix A) where works activities included:
 - Operation of concrete batching plant.

- Material movements.
- Earthworks, including excavation and filling.
- Installation of pre-cast units.
- Woodlands worksite, ref.: WDL (see Plan 4 in Appendix A) where works activities included:
 - Installation of pre-cast beams.
 - Concrete stitching.
 - Shelf construction.
 - Waterproofing.
 - Backfilling.
 - Diversion works.
 - Material movements.
 - Sheet piling.
- Quanton worksite, ref.: QAR (see Plan 4 in Appendix A) where no works activities were underway.
- Meadoway and Glebe House worksite, ref.: MW&GH (see Plan 5 in Appendix A), where works activities included:
 - Earthworks.
 - Utility works.
 - Overbridge works, including construction of abutments, piers and formwork reinforced concrete works.
 - Diversion works.
- Oat Close worksite, ref.: OC (see Plan 5 in Appendix A), where works activities included:
 - Topsoil stripping.
 - Stockpiling.
 - Excavation.
 - Overbridge works, including construction of abutments, deck and steel superstructures.
 - Culvert and underpass works, including steel fixing and shuttering.

- Embankment works, including topsoil stripping, excavation and stockpiling.
- Nash Lee Lane worksite, ref.: NLL (see Plan 6 in Appendix A), where works activities included:
 - Road diversion works.
 - Site access road construction, including excavation.
 - Bridge construction.
 - De-vegetation.
 - Material movements.
 - Earthworks.
 - Construction of piling platform.
 - Drainage.
- Wendover Green Tunnel worksite, ref.: WGT (see Plan 6 in Appendix A), where works activities included:
 - Excavation.
 - Surface water management, including construction of v-ditch, silt fencing and pipe installation.
 - Drilling.
 - De-vegetation.
 - Construction of working platform.
 - Concrete works, including compaction and crushing.
 - Topsoil stripping.
 - Drainage.
 - Installation of silo.
 - Installation of guide wall reinforcement.
 - Bridge installation.
 - Site maintenance.
 - Shutter installation.
 - Gate installation.

- Grove Farm worksite, ref.: GF (see Plan 7 in Appendix A), where works activities included:
 - Surface water management, including v-ditch, pipe and silt fencing installation.
 - Drilling.
- Small Dean Viaduct Compound worksite, ref.: SDVC (see Plan 7 in Appendix A), where works activities included:
 - Drainage.
 - Grouting.
 - V-ditch maintenance.
 - Access road maintenance.
 - Pile cap relocation.
 - Survey monument installation.
 - Deliveries.
 - Laydown area rearrangement.
 - Drilling.
- Rocky Lane Embankment worksite, ref.: RLE (see Plan 7 in Appendix A), where works activities included:
 - Compound construction.
 - Backfilling.
 - Stockpile movements, including earthworks.
- Wendover Dean Viaduct worksite, ref.: WDV (see Plan 7 in Appendix A), where works activities included:
 - Equipment movement.
 - Scaffolding works, including stripping and welding.
 - Welding of diaphragms.
 - Material movements for platform works.
 - Sheet pile installation.
 - Demobilisation of bentonite plant and satellite compound.
 - Construction of haul road.

- Leather Lane worksite, ref.: LL (see Plan 8 in Appendix A), where works activities included:
 - Stockpile movements, including earthworks.
- South Heath Cutting worksite, ref.: SHCW (see Plan 8 in Appendix A), where works activities included:
 - Shutter installation.
- North Portal worksite, ref.: NP (see Plan 8 in Appendix A), where works activities included:
 - Site access road works including scrape formation, installation of hardstanding and kerbing, drainage and service works, installation of signage and asphaltting.
 - General site operation of plant.
 - Piling platform works including temporary access, traffic management and dismantling works.
 - Track 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.
 - Porous portal structure works including reinforced concrete works and concrete pours.
- Chesham Road worksite, ref.: CHSM (see Plan 8 in Appendix A), where works activities included:
 - General site activities.
 - Internal structure works including reinforced concrete works.
 - Concrete works.
- Little Missenden Vent Shaft worksite ref.: LM (see Plan 9 in Appendix A), where works activities included:
 - General site activities including operation of plant.
 - Internal structures construction works, including installation of wall and slabs.
 - Basement construction including installation of basement internals and demolition works.

- Amersham Vent Shaft worksite, ref.: AM (see Plan 10 in Appendix A), where works activities included:
 - General site activities including operation of plant.
 - Internal structure construction including concrete walls and floors.
 - Tunnel connection works.
 - Basement construction including installation of basement internals and demolition works.
 - Concrete works.
- Chalfont St Giles Vent Shaft worksite, ref.: CSG (see Plan 11 in Appendix A), where works activities included:
 - General site activities including operation of plant.
 - Road maintenance.
 - Tunnel connection works, including pouring of concrete floors.
 - Basement construction including concrete works.
- Chalfont St Peter Vent Shaft worksite, ref.: CSP (see Plan 12 in Appendix A), where works activities included:
 - General site activities including operation of plant.
 - Road maintenance.
 - Tunnel connection works.
 - Basement construction, including excavation to formation of basement internal and headhouse concrete works.
 - Ground level works including headhouse concrete and external works.
- Colne Valley Viaduct - Load Test Pile 1 worksite, which is partly located in the London Borough of Hillingdon (LBH), ref.: CVV (see Plan 13 in Appendix A), where works activities included:
 - Pile trimming.
 - Jetty and haul road operation and maintenance.
 - Compound operations.
 - Auto transformed feeder station works, including site preparation, installation of ducts, earthworks, bulk earthworks filling and drainage works.
 - Ground investigation works.

- Pier construction, including tower crane mobilisation and demobilisation, fibre-reinforced concrete works and post-tensioning.
- Pumping water management.
- Satellite compound welfare and generator farm operation.
- Concrete drilling.
- Gas crossing emergency dismantling works.
- Grand Union canal works, including pontoon operation and maintenance.
- Fencing works.
- Environmental maintenance.
- Cofferdam excavation, including excavation, dewatering and installation of waling beams and concrete plugs.
- River Colne crossing including emergency removal of obstruction to reinforced concrete crossing.
- Girder and deck erection and installation, including span segmental erection, grouting, internal post-tensioning and steel structure erection, and dismantling.
- Deck finishes including preparation and operation of storage yards, installation of below deck access provision, traffic management on deck surface, installation of parapets, noise barriers, troughs, pipes, steel works and other minor materials to the storage yards and deck, installation of access to top of deck, foundation works, support plant operation, construction of robust kerbs, construction of concrete stitch, filling of voids and top openings, waterproofing, diaphragm walls construction, concrete works (within deck), drainage and steel works.
- Landscaping works including removal of cofferdams, earthworks, profiling and cutting, manhole chamber construction and soil placement.

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 bulk excavations, vegetation clearance, stockpiling, drainage, pond excavation and maintenance, fencing, drainage and vehicle movements were underway.

- Turweston along the A422 where compound development, temporary bridge and road diversion works were underway.
- East West Rail (EWR) interfaces where concrete deck construction and backfilling were underway.
- Charndon Lodge where technical backfilling and drainage works were underway.
- Infrastructure Maintenance Depot (IMD) where technical backfilling and earthworks were underway.
- Shepherds Furze Culvert where waterproofing was underway.
- MCJ where earthworks including excavation, filling and overbridge bulk excavation were underway.
- Greatmoor Culvert where waterproofing was underway.
- Calvert, along the bat mitigation structure where earthworks including excavation and filling was underway.
- GUN28 overbridge where formwork reinforced concrete and technical backfill were underway.
- Doddershall Culvert where technical backfill was underway.
- Thame Valley Viaduct Causeway where piling, drainage, installation of reinforced cement concrete, pile cropping, formwork installation and lifting beams were underway.
- Along A41 where concrete batching works, earthworks, drainage, kerbing, pavement, vehicle restraint systems operation and signage installation were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Hills Farm Earthworks where stockpiling and maintenance was underway.
- Bowood Lane where backfilling, excavation, installation of portal ring and culvert construction was underway.
- Nash Lee Road Diversion where material movements including earthworks were underway.
- Aylesbury Golf Course where utility diversion 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-five (45) noise and ten (10) vibration monitoring installations were active in July in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in July 2023.
- 1.2.2 Noise monitors MF-NMP1, within the vicinity of Oat Close worksite, ref.: OC, was re-installed after factory calibration on 6th July.
- 1.2.3 Noise monitor GF-NMP1, within the vicinity of Grove Farm worksite, ref.: GF was re-installed on 7th July.
- 1.2.4 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
HC	HC-NMP1	Hermitage, Chetwode
TW	TW-NMP1	Twyford, Buckinghamshire
WSO	WSO-NMP1	West Street, Twyford
AR	AR-NMP1	Addison Road, Rosehill Farm
CAL	SHC-NMP1	School Hill Compound, Calvert
	SHC-Vib1	School Hill Compound, Calvert
	FCC-NMP1	Calvert South
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton
	WDL-Vib1	Station Road, Quainton
QAR	QAR-NMP2	Station Rd, Quainton
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury
	MW-NMP1	Aylesbury, Buckinghamshire
OC	MF-NMP1	Moat Farm, Marsh Lane
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
WGT	ER-NMP1	Ellesborough Rd, Wendover

Worksite Reference	Measurement Reference	Address
	ER-Vib1	Ellesborough Rd, Wendover
	BL-NMP1	Bacombe Lane, Wendover
	WT-NMP1	A413, Wendover
GF	GF-Vib1	Grove Farm, Wendover
SDVC	SDVC-NMP1	Rocky Lane, Wendover
RLE	NCAS6-NMP1	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
	SHF-Vib1	Strawberry Hill Farmhouse, Wendover Dean
	SH-Vib1	Strawberry Hill Cottage, Wendover Dean
	SC-Vib1	Sainfoin Cottage, Wendover Dean
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
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
CVV*	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	47.6 (50.3)	49.2 (52.0)	46.7 (50.7)	45.9 (49.8)	46.1 (51.9)	45.5 (46.5)	49.2 (51.1)	49.2 (52.4)	48.8 (55.6)	45.6 (49.6)	49.0 (57.3)	46.0 (49.2)
SE	SE-NMP1	School End, Chetwode	Free-field	49.6 (59.5)	59.5 (61.3)	44.9 (49.3)	42.5 (47.2)	40.7 (51.0)	46.7 (58.0)	54.2 (63.9)	52.0 (58.4)	49.7 (57.9)	42.7 (49.9)	48.9 (59.3)	40.8 (46.8)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	51.6 (56.4)	58.9 (62.4)	47.9 (54.2)	45.4 (52.6)	43.7 (53.9)	48.6 (51.5)	55.3 (59.5)	55.2 (61.7)	52.4 (62.0)	46.0 (54.5)	51.4 (60.7)	45.3 (58.2)
TW	TW-NMP1	Twyford	Free-field	45.1 (50.4)	53.5 (61.3)	45.9 (50.2)	44.5 (52.4)	41.5 (49.3)	46.0 (49.3)	50.9 (53.4)	49.5 (53.0)	48.4 (54.0)	41.4 (46.1)	47.6 (55.3)	41.5 (49.6)
WSO	WSO-NMP1	West Street, Twyford	Free-field	49.1 (59.2)	55.0 (63.6)	52.1 (63.2)	47.2 (61.7)	43.7 (60.7)	50.9 (61.4)	57.7 (67.4)	61.6 (73.4)	58.7 (72.0)	48.9 (64.8)	58.7 (67.5)	46.2 (61.2)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	48.8 (58.1)	59.6 (71.0)	47.5 (58.0)	41.9 (48.7)	39.4 (56.4)	46.9 (48.0)	49.6 (53.1)	50.3 (53.4)	47.9 (54.9)	39.4 (47.1)	47.1 (57.3)	37.6 (46.6)

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
CAL	SHC-NMP1	School Hill Compound, Calvert	Free-field	52.0	56.9	50.8	44.6	40.3	46.9	56.1	56.0	52.8	43.7	51.2	42.7
				(59.5)	(64.1)	(57.8)	(57.9)	(55.3)	(51.3)	(58.5)	(64.1)	(64.0)	(57.1)	(62.1)	(56.1)
WDL	FCC-NMP1	Calvert South	Free-field	51.5	53.1	49.0	45.5	42.9	46.7	48.7	49.3	48.5	40.8	47.4	45.0
				(54.7)	(54.9)	(57.2)	(52.0)	(53.8)	(49.5)	(50.5)	(54.1)	(56.9)	(49.5)	(52.5)	(54.9)
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Free-field	66.8	69.8	57.0	44.1	42.7	47.7	53.9	55.5	48.4	44.1	49.4	43.6
				(70.4)	(70.5)	(69.0)	(52.3)	(53.0)	(51.8)	(58.8)	(67.3)	(60.4)	(62.2)	(76.9)	(51.2)
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	49.7	56.2	52.7	48.9	44.3	50.5	58.5	60.1	61.1	51.1	62.6	46.2
				(62.0)	(67.6)	(63.2)	(63.1)	(62.0)	(60.2)	(66.4)	(70.9)	(74.6)	(66.1)	(71.2)	(65.2)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	53.5	54.4	54.0	52.1	48.8	51.0	53.9	54.6	54.0	48.6	52.9	49.2
				(55.2)	(60.7)	(55.2)	(55.9)	(59.1)	(52.3)	(54.6)	(56.8)	(60.2)	(54.4)	(55.8)	(58.7)
OC	MW-NMP1	Aylesbury, Buckinghamshire	Free-field	60.4	61.9	62.0	60.0	54.0	59.6	61.5	61.7	60.6	54.5	60.3	54.8
				(60.4)	(61.9)	(62.0)	(60.9)	(58.3)	(59.6)	(61.5)	(61.7)	(61.3)	(57.5)	(61.5)	(59.9)
OC	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	47.3	51.7	48.2	41.0	38.9	45.9	50.9	52.2	48.6	39.8	45.7	37.7
				(52.3)	(59.1)	(53.6)	(50.4)	(49.6)	(52.9)	(53.2)	(61.0)	(57.0)	(47.1)	(53.2)	(44.3)
NLL	MF-NMP1	Moat Farm, Marsh Kane	Free-field	46.7	52.2	47.1	41.0	37.6	45.7	50.2	51.6	50.9	43.9	46.4	39.6
				(53.6)	(59.1)	(52.6)	(48.9)	(47.9)	(46.6)	(51.0)	(52.9)	(56.8)	(51.2)	(51.7)	(49.5)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	54.8	60.0	56.5	50.9	49.2	51.2	53.2	54.2	53.3	49.7	52.5	49.1
				(67.3)	(68.5)	(65.7)	(54.9)	(55.5)	(53.6)	(55.7)	(56.3)	(57.7)	(52.8)	(56.6)	(53.9)

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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
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	52.0 (60.2)	56.9 (59.8)	53.3 (58.5)	49.1 (55.8)	46.1 (52.7)	48.9 (52.2)	52.3 (55.8)	52.6 (55.5)	51.7 (58.3)	47.6 (53.2)	50.2 (54.9)	46.3 (51.4)
WGT	ER-NMP1	Ellesborough Rd, Wendover	Free-field	49.7 (53.6)	53.6 (59.7)	50.2 (53.1)	47.6 (53.6)	43.4 (53.0)	45.6 (48.5)	51.0 (52.8)	49.3 (51.3)	48.4 (52.3)	41.9 (47.7)	47.5 (54.4)	42.9 (52.8)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	48.2 (59.9)	50.1 (72.1)	47.2 (53.9)	46.1 (54.5)	44.1 (49.3)	45.4 (46.5)	49.0 (54.9)	47.6 (49.5)	47.5 (51.3)	44.2 (47.0)	47.4 (54.7)	44.6 (50.3)
	WT-NMP1	A413, Wendover	Free-field	65.8 (66.9)	65.8 (68.1)	65.9 (67.8)	63.2 (68.9)	59.0 (68.0)	61.8 (62.4)	63.6 (64.3)	64.3 (66.0)	63.7 (66.6)	56.2 (61.4)	62.8 (67.6)	58.9 (66.5)
GF	GF-NMP1	Grove Farm, Wendover	Free-field	51.4 (57.9)	55.3 (66.0)	51.1 (64.8)	48.7 (57.0)	45.0 (66.9)	48.9 (55.5)	51.0 (52.1)	53.2 (57.4)	51.8 (62.1)	43.0 (48.4)	49.3 (56.2)	42.6 (48.3)
SDVC	SDVC-NMP1	Rocky Lane, Wendover	Free-field	62.9 (64.1)	64.2 (68.2)	62.1 (64.6)	60.0 (63.8)	55.4 (64.2)	55.7 (60.9)	58.1 (62.9)	56.5 (63.7)	55.6 (62.7)	51.5 (58.1)	55.8 (62.2)	56.4 (62.4)
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	48.0 (51.6)	50.7 (54.5)	48.9 (53.8)	46.5 (57.8)	43.9 (50.8)	46.1 (51.0)	50.7 (53.9)	50.3 (53.6)	51.1 (62.5)	46.2 (53.0)	49.8 (58.5)	44.1 (51.0)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	55.3 (57.1)	56.4 (72.3)	55.6 (58.1)	52.9 (57.4)	48.7 (56.7)	52.3 (55.5)	55.0 (57.6)	55.4 (58.3)	54.4 (60.2)	48.1 (54.2)	54.2 (57.9)	48.7 (55.8)
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover	Free-field	-* -*	-* -*	49.8 (49.8)	46.3 (47.7)	42.6 (43.3)	-* -*	-* -*	-* -*	-* -*	-* -*	-* -*	-* -*

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	47.6 (53.2)	51.3 (55.6)	48.5 (54.1)	44.8 (57.3)	42.8 (54.8)	46.9 (50.8)	50.1 (51.3)	49.9 (51.8)	49.1 (54.9)	44.1 (49.5)	49.2 (54.8)	43.3 (56.4)
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	47.0 (54.2)	54.0 (70.9)	52.0 (71.2)	49.5 (68.7)	45.8 (67.8)	49.8 (65.9)	55.3 (65.4)	55.2 (65.2)	54.8 (67.7)	46.6 (63.0)	51.7 (62.4)	44.2 (55.4)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	48.1 (52.4)	52.9 (57.7)	50.5 (55.6)	47.0 (53.6)	43.5 (53.2)	47.3 (53.1)	51.0 (57.8)	52.5 (56.6)	52.7 (64.2)	46.6 (54.2)	50.9 (57.1)	43.9 (50.4)
				44.9 (47.9)	50.1 (52.6)	46.6 (49.0)	44.0 (58.8)	39.4 (47.8)	45.5 (47.7)	49.4 (52.7)	48.5 (49.7)	48.2 (53.4)	41.4 (50.8)	47.7 (54.2)	39.5 (45.9)
NP	BFH-NMP1	Bury Farm, Great Missenden	Free-field	51.7 (58.9)	53.7 (59.8)	51.0 (55.4)	48.4 (53.9)	46.6 (58.7)	51.3 (59.9)	56.4 (59.0)	50.6 (51.1)	52.3 (58.1)	48.1 (56.2)	51.9 (59.5)	46.7 (58.7)
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	45.9 (49.4)	49.7 (52.7)	50.5 (61.0)	47.3 (55.7)	40.4 (49.8)	45.4 (46.7)	50.1 (51.0)	48.4 (49.5)	48.6 (53.8)	41.0 (47.7)	49.0 (58.7)	39.9 (48.0)
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Free-field	56.4 (59.1)	56.2 (60.4)	55.0 (57.4)	52.4 (57.4)	48.9 (59.2)	53.9 (56.5)	55.1 (57.9)	54.9 (57.8)	55.5 (60.0)	48.3 (57.8)	57.0 (68.7)	48.9 (58.7)
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	60.8 (62.0)	60.5 (61.9)	59.5 (61.2)	57.1 (60.8)	52.6 (59.4)	56.7 (57.4)	59.1 (59.7)	58.9 (59.3)	58.1 (60.8)	52.1 (56.4)	58.2 (61.5)	52.5 (59.5)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	59.3 (60.6)	60.3 (67.4)	59.3 (61.6)	56.1 (60.1)	51.7 (59.6)	55.4 (56.6)	57.9 (58.3)	58.3 (58.5)	57.4 (59.9)	50.7 (55.2)	57.3 (60.2)	51.8 (59.8)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field												

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
	PWC-NMP1	Patricia Holmes, LM Worksite, Amersham	Free-field	59.1 (60.3)	58.9 (60.1)	59.3 (61.1)	55.9 (59.7)	51.9 (59.4)	54.9 (56.3)	57.6 (58.2)	60.6 (65.9)	57.5 (62.7)	51.3 (56.3)	58.0 (65.3)	51.9 (58.8)
CSG	CSG-NMP1	CSG Worksite, Bottom House Farm Lane	Free-field	45.6 (55.8)	52.2 (78.7)	45.3 (48.9)	43.1 (49.8)	45.2 (74.3)	48.4 (59.2)	49.6 (54.7)	47.1 (48.7)	45.3 (52.1)	43.3 (60.2)	48.0 (56.7)	47.8 (81.0)
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter	Free-field	58.3 (59.6)	57.8 (60.0)	56.4 (59.3)	53.2 (58.2)	48.9 (58.3)	55.0 (56.0)	57.3 (59.1)	56.5 (58.5)	54.4 (58.3)	48.4 (53.1)	55.1 (62.8)	48.5 (55.9)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	47.5 (52.6)	52.4 (68.7)	48.2 (51.7)	45.8 (49.1)	41.5 (47.8)	47.4 (51.5)	51.9 (53.0)	51.6 (52.8)	48.7 (54.4)	41.6 (48.7)	50.3 (56.0)	40.7 (47.9)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	56.9 (58.6)	56.7 (57.5)	56.5 (57.6)	53.9 (57.1)	49.8 (57.0)	53.8 (54.8)	56.9 (57.6)	56.6 (57.7)	54.8 (57.8)	48.3 (53.6)	55.6 (58.1)	49.1 (55.0)
CVV	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	62.2 (64.2)	61.3 (63.9)	60.8 (63.8)	57.5 (62.0)	55.9 (62.7)	58.7 (59.7)	60.9 (61.5)	62.3 (64.5)	60.1 (63.7)	53.7 (58.5)	59.5 (64.1)	55.6 (63.8)
	WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham	Free-field	57.3 (59.2)	57.9 (60.6)	56.8 (60.4)	53.4 (59.8)	51.0 (57.4)	53.4 (54.7)	57.7 (59.9)	59.8 (65.1)	56.5 (62.7)	48.9 (54.3)	56.6 (60.4)	50.4 (57.3)
	DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	45.1 (49.1)	48.6 (54.9)	49.9 (55.8)	46.2 (59.1)	42.4 (54.3)	45.5 (48.0)	50.1 (52.8)	52.2 (57.3)	50.9 (57.0)	43.6 (53.3)	48.7 (54.3)	42.6 (54.0)
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	46.4 (70.2)	46.7 (52.2)	45.8 (49.6)	44.4 (53.0)	41.9 (50.3)	45.1 (47.2)	47.0 (51.6)	48.8 (56.3)	46.3 (55.4)	42.1 (49.1)	45.6 (50.3)	42.2 (49.1)

* Missing data at monitor WDV-NMP1 was due to a damaged power cable which has now been replaced.

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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	2.34 (Y-axis)
WGT	ER-Vib 1	46, Ellesborough Rd, Wendover	2.63 (X-axis)
WDV	WDV-Vib1	Upper Wendover Dean Farm, A413, Wendover	1.37 (X-axis)
	WDV-Vib2	Upper Wendover Dean Farm, A413, Wendover	0.60 (Z-axis)
	SHF-Vib1	Strawberry Hill Farmhouse, Wendover Dean	2.27 (X-axis)
	SH-Vib1	Strawberry Hill Cottage, Wendover Dean	2.17 (X-axis)
	SC-Vib1	Sainfoin Cottage, Wendover Dean	0.73 (X-axis)
GF	GF-Vib1	Grove Farm, Wendover	1.09 (Z-axis)
WDL	WDL-Vib1	Station Road, Quainton	2.24 (X-axis)
SHC	SHC-Vib1	School Hill Compound, Calvert	1.25 (X-axis)

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	All days	All periods	No exceedance	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	All days	All periods	No exceedance	No exceedance
TW	TW-NMP1	Twyford	All days	All periods	No exceedance	No exceedance
WSO	WSO-NMP1	West Street, Twyford	Weekdays	0800-1800	1	No exceedance
			Saturdays	0800-1300	1	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	Weekdays	0700-0800	1	No exceedance
				0800-1800	7	No exceedance
				1800-1900	1	No exceedance
			Saturdays	1400-2200	3	No exceedance
CAL	SHC-NMP1	School Hill Compound, Calvert	Weekdays	0700-0800	2	No exceedance
				0800-1800	1	No exceedance
			Saturdays	1300-1400	2	No exceedance
	1400-2200	8		No exceedance		
	FCC-NMP1	Calvert South	Saturdays	1400-2200	3	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Weekdays	0700-0800	20	7
			Saturdays	0800-1800 1800-1900 1300-1400 1400-2200	21 11 2 3	No exceedance No exceedance 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	All days	All periods	No exceedance	No exceedance
OC	MF-NMP1	Moat Farm, Marsh Lane	All days	All periods	No exceedance	No exceedance
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	All days	All periods	No exceedance	No exceedance
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Weekdays	0800-1800	6	No exceedance
	NLL-NMP2	Nash Lee Lane, Nash Lee	All days	All periods	No exceedance	No exceedance
WGT	ER-NMP1	Ellesborough Rd, Wendover	All days	All periods	No exceedance	No exceedance
	BL-NMP1	Bacombe Lane, Wendover	Weekdays	0800-1800	1	1
	WT-NMP1	A413, Wendover	Weekdays	0800-1800	20	No exceedance
GF	GF-NMP1	Grove Farm, Wendover	Weekdays	0800-1800	2	No exceedance
SDVC	SDVC-NMP1	Rocky Lane, Wendover	All days	All periods	No exceedance	No exceedance
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Saturdays	1400-2200	4	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Weekdays Saturdays	0800-1800 1400-2200	1 8	No exceedance No exceedance
WDV	WDV-NMP1	A413, 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
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	All days	All periods	No exceedance	No exceedance
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Weekdays Saturdays	0800-1800 0800-1300	3 1	No exceedance No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	All days	All periods	No exceedance	No exceedance
NP	BFH-NMP1	Bury Farm, Great Missenden	Weekdays Saturdays	1900-2200 1400-2200	1 1	No exceedance No exceedance
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Weekdays Saturdays	0700-0800 0700-0800 1400-2200	1 1 4	No exceedance No exceedance No exceedance
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Weekdays	1800-1900 1900-2200	1 4	No exceedance No exceedance
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekdays Saturdays	1900-2200 1400-2200	1 10	No exceedance No exceedance
AM	AM-NMP1*	Whielden Lane, Amersham	All days	All periods	No exceedance	No exceedance
LM	LM-NMP1*	Little Missenden Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Not Applicable	Not Applicable	Not Applicable	Not Applicable
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane	All days	All periods	No exceedance	No exceedance
	CSP-NMP2*	Chalfont St Peter Vent Shaft Worksite	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
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
CVW	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	All days	All periods	No exceedance	No exceedance
	DFS-NMP1*	Denham Film Studio, Uxbridge	All days	All periods	No exceedance	No exceedance
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	All days	All periods	No exceedance	No exceedance

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

2.2.6 Exceedances of the LOAEL were recorded at fourteen (14) monitoring locations during the month of July 2023. LOAEL exceedances were recorded during weekdays, evenings and Saturday time periods.

2.2.7 For the purpose of reporting the number of days where the SOAEL is exceeded, multiple exceedances of the SOAEL in a 24-hour period would be counted as a single exceedance during that day. Over the reporting period, the overall number of SOAEL exceedances at each measurement location is shown in Table 6 and July be lower than the total sum of individual exceedances reported in Table 5 for each location.

Table 6: Summary of Total Exceedances of SOAEL

Worksite Reference	Measurement Reference	Monitor Address	Total of SOAEL exceedances in the month
WDL	WDL-NMP1	Station Road, Quainton	7
WGT	BL-NMP1	Bacombe Lane, Wendover	1

2.2.8 Eight (8) SOAEL exceedance were recorded due to HS2 construction works during July 2023. The exceedances occurred at WDL-NMP1 and BL-NMP1 during weekday working hours.

2.3 Exceedances of Trigger Level

2.3.1 Table 7 provides a summary of exceedances of the S61 trigger noise levels determined to be due to HS2 related construction noise measured during the reporting period, along with the findings of any investigation.

Table 7: Summary of Exceedances of Trigger Levels

Complaint Reference Number (if applicable)	Worksite Reference	Date and Time Period	Identified Source	Results of Investigation (including noise monitoring results)	Actions Taken
-	WGT	26/07/2023 0800-1800	Pipe crossing work with machinery.	Highest average noise level recorded was 81.8 dB.	Work was advised to cease immediately.
-	WGT	03/07/2023 0800-1800	Vegetation clearance use grass strimmer in area close to monitor.	Highest average noise level recorded was 74.7 dB.	Work was advised to cease immediately.
-	RLE	05/07/2023 0800-1800	Road sweeping was undertaken in area close to monitor.	Highest average noise level recorded was 80.5 dB.	Work was advised to cease immediately.

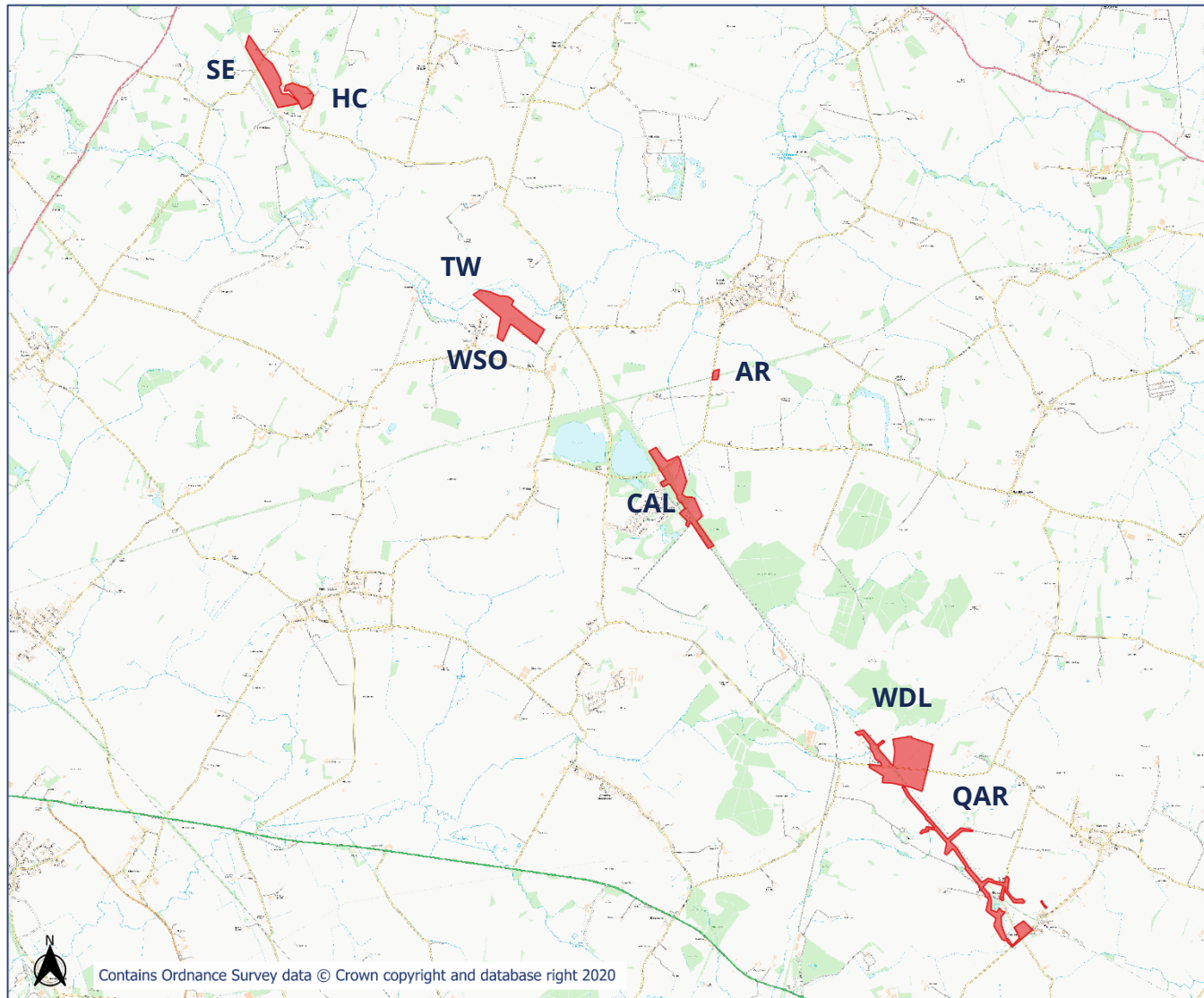
2.4 Complaints

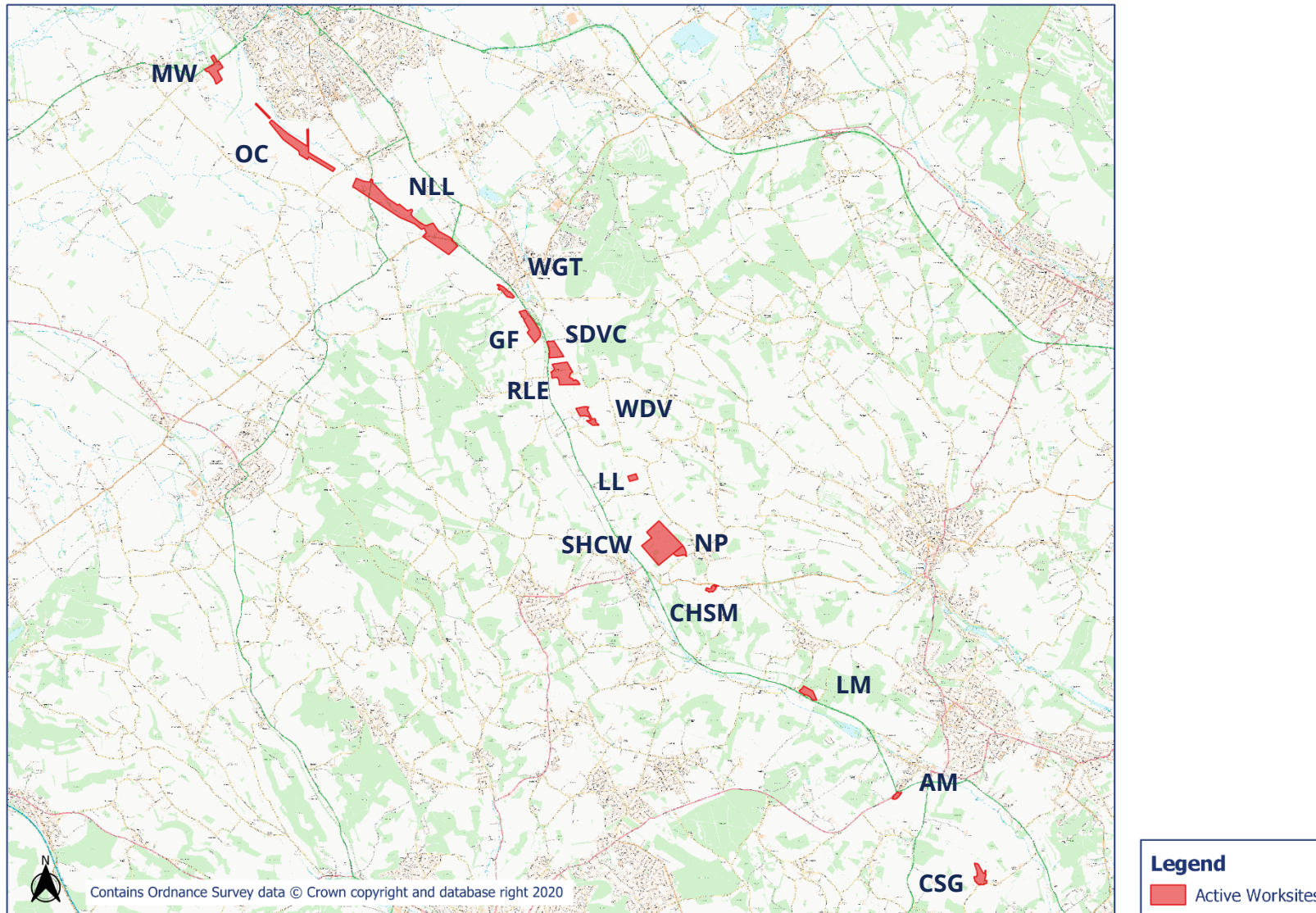
2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

Table 8: Summary of Complaints

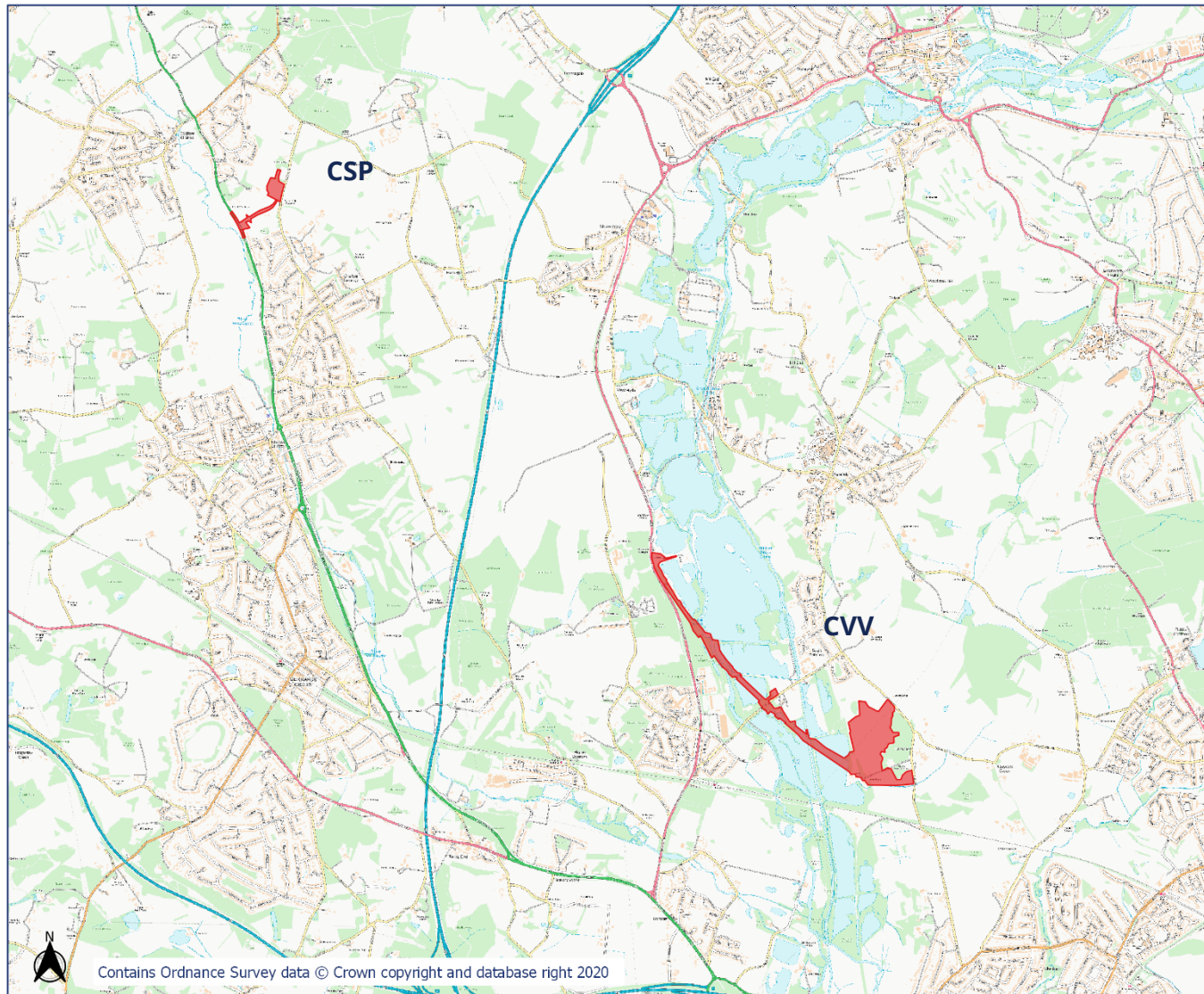
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-23-44820-C	CVV	Complaint due to tonal alarm coming from site area.	On-going.	On-going.

Appendix A Site Locations

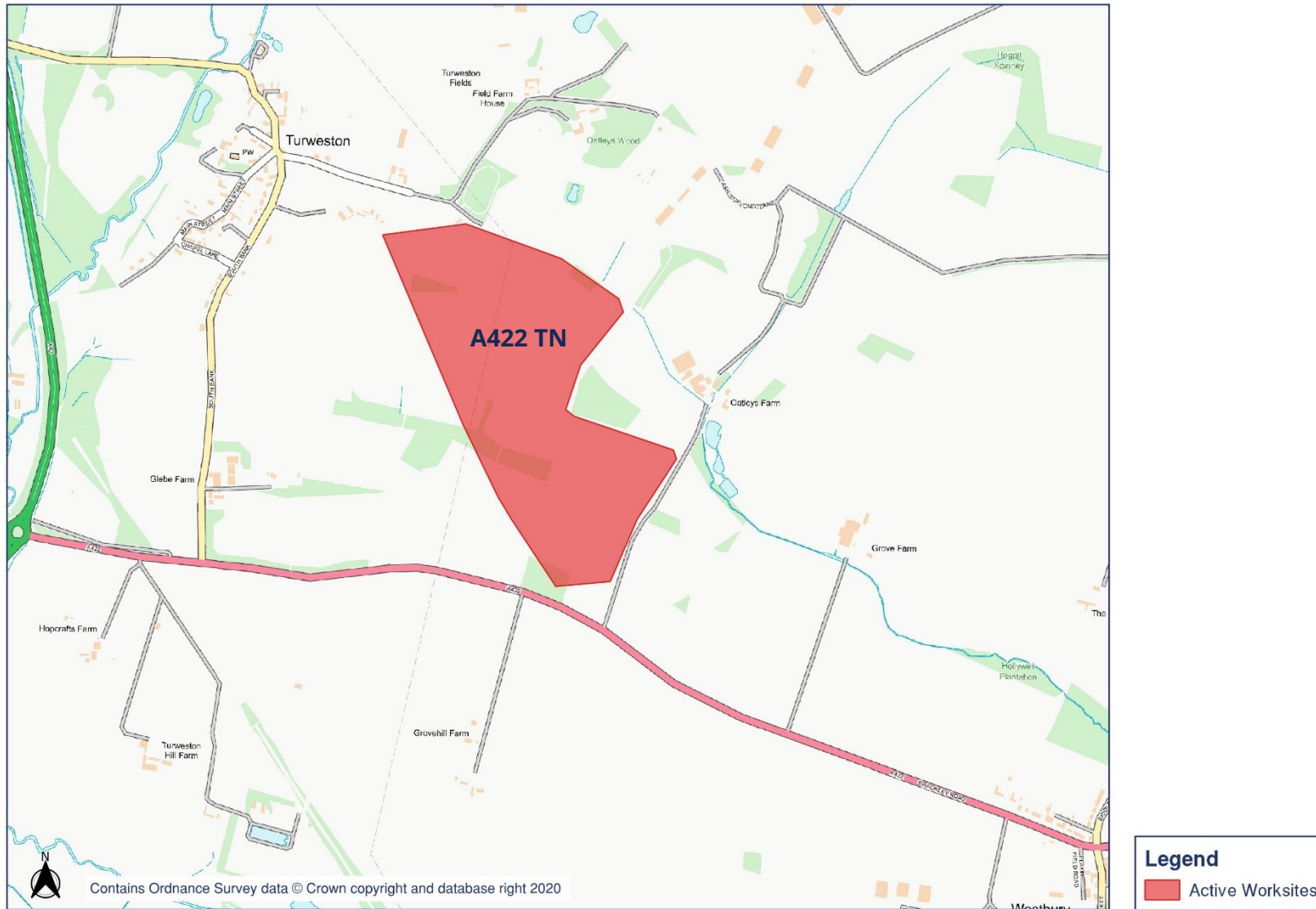


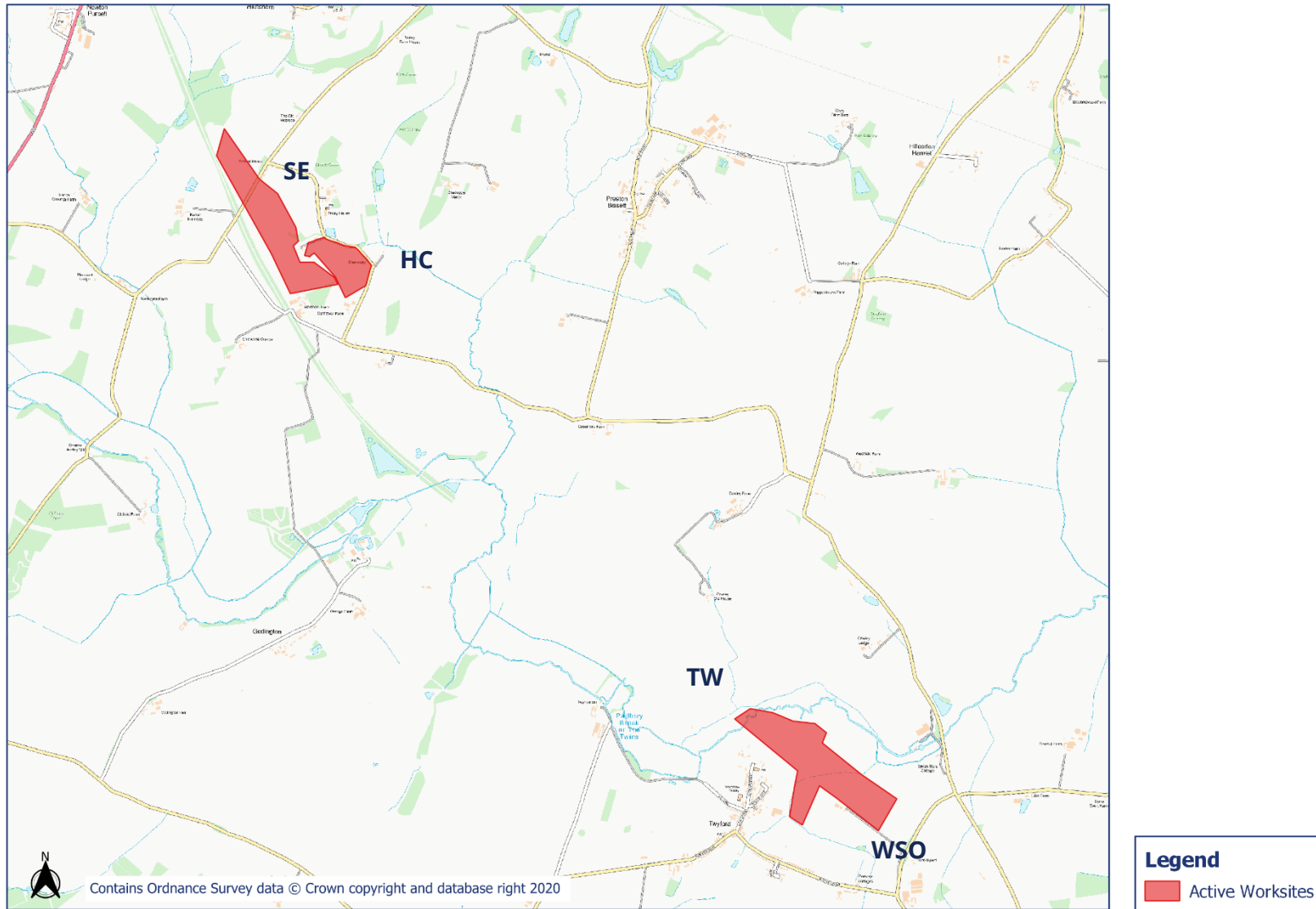


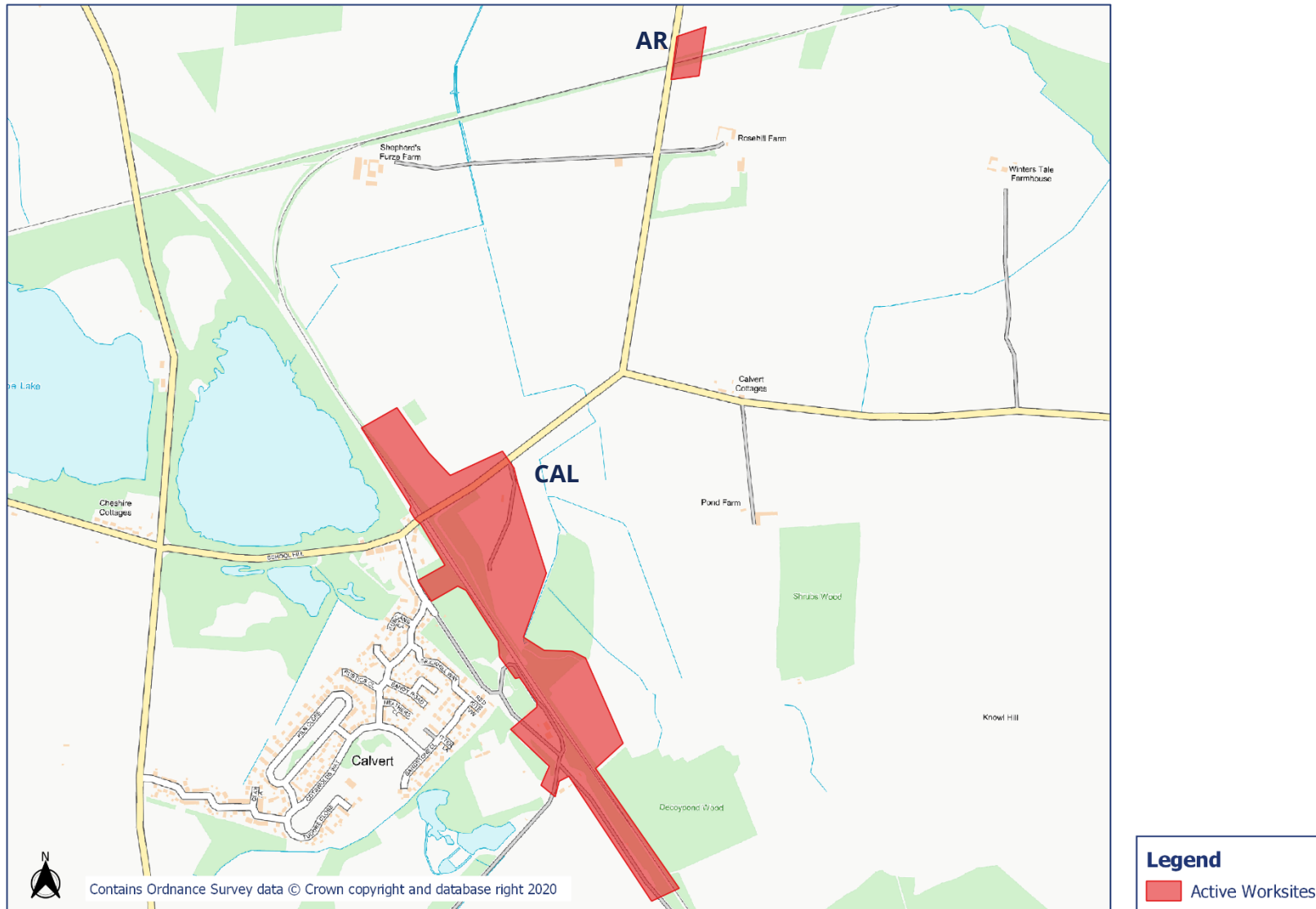
HS2 Worksite Identification Plan - Overview 3

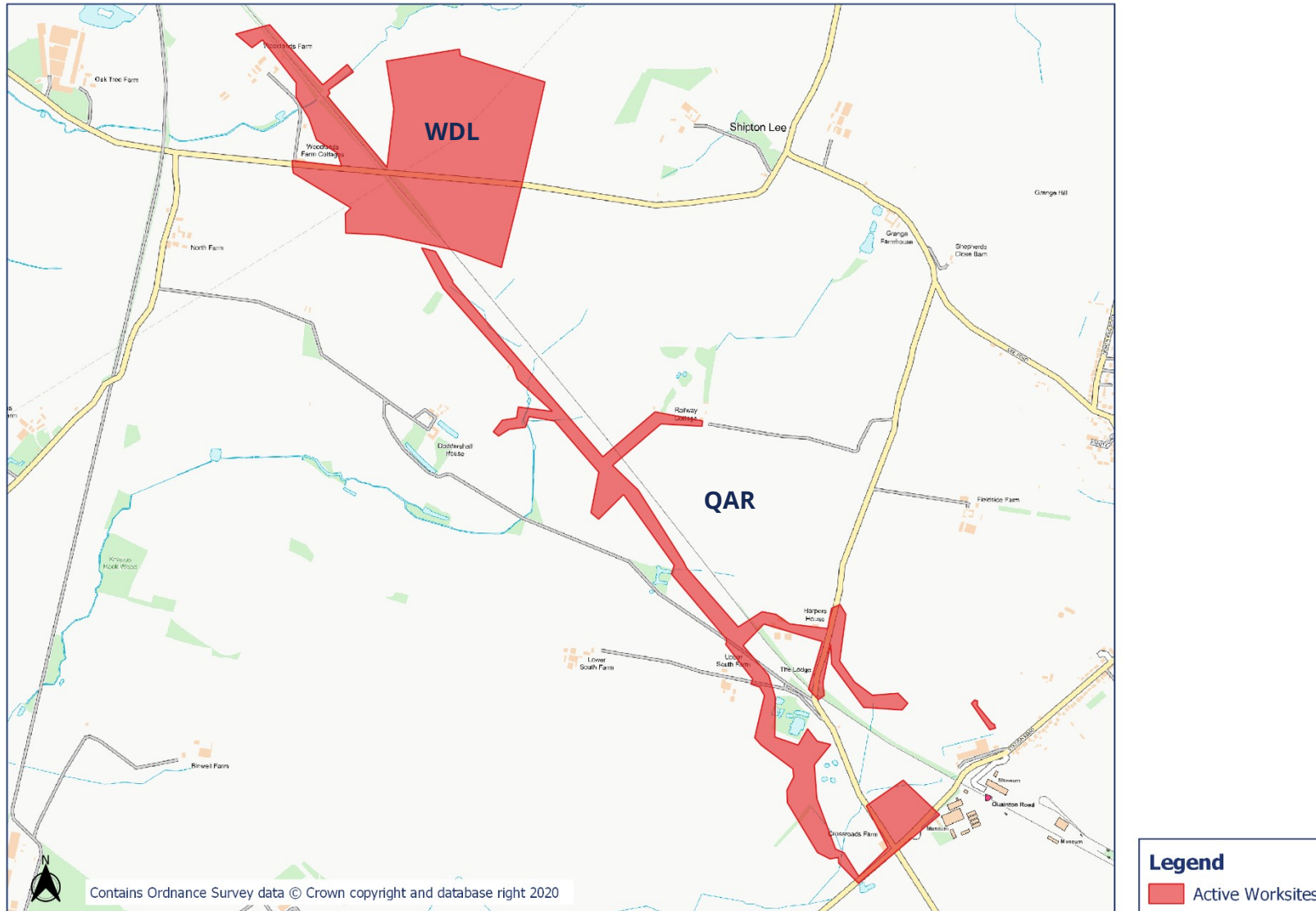


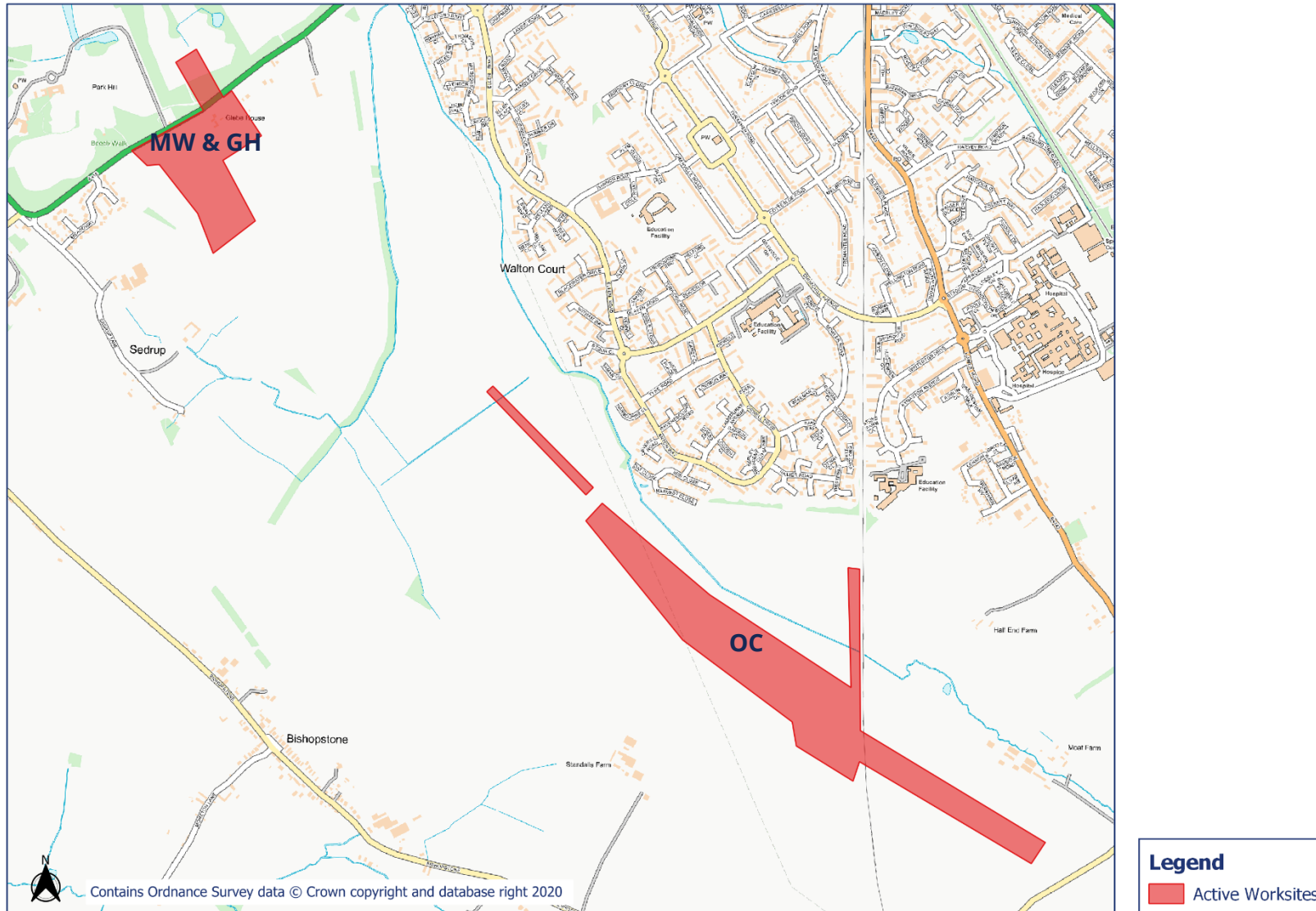
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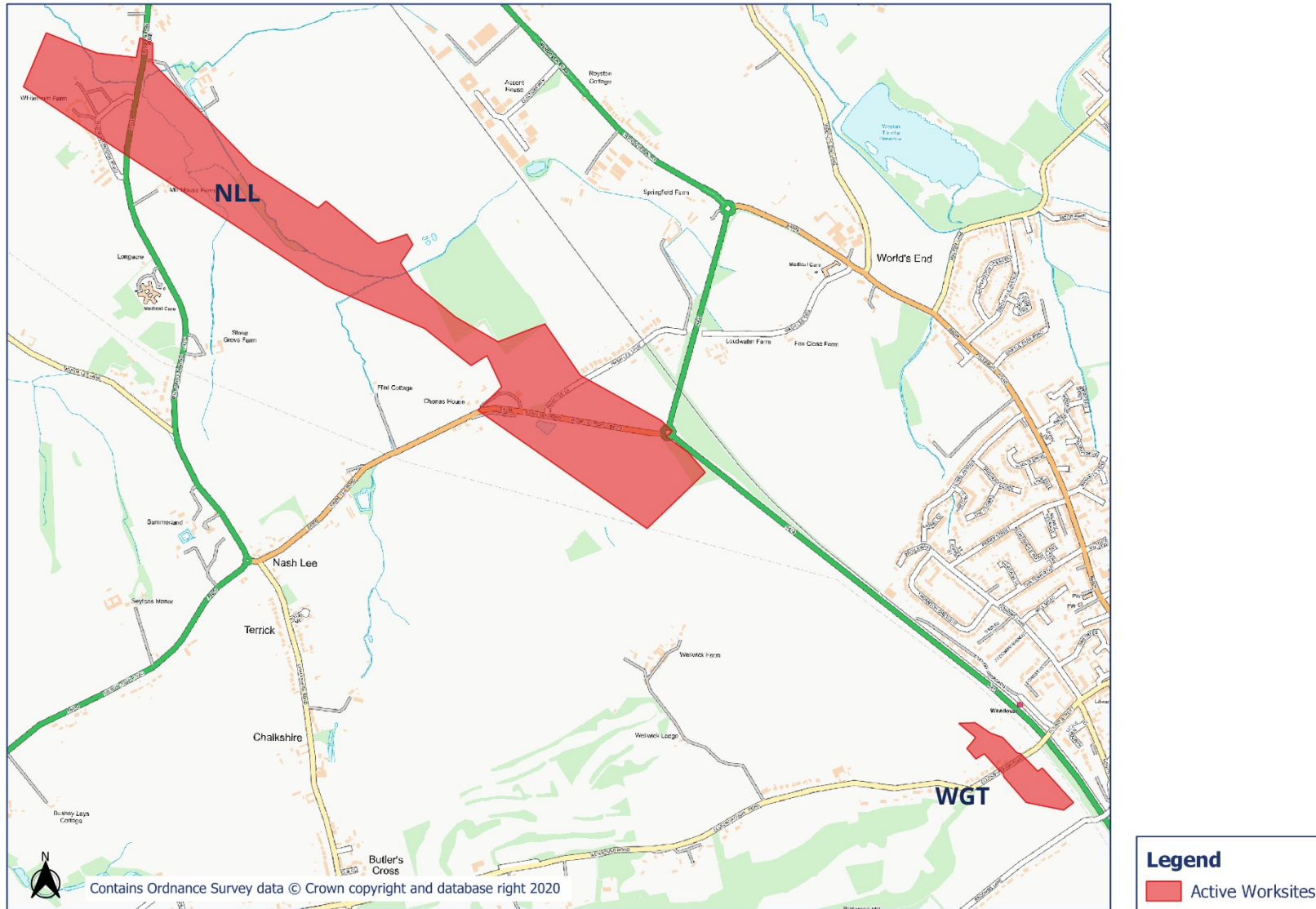


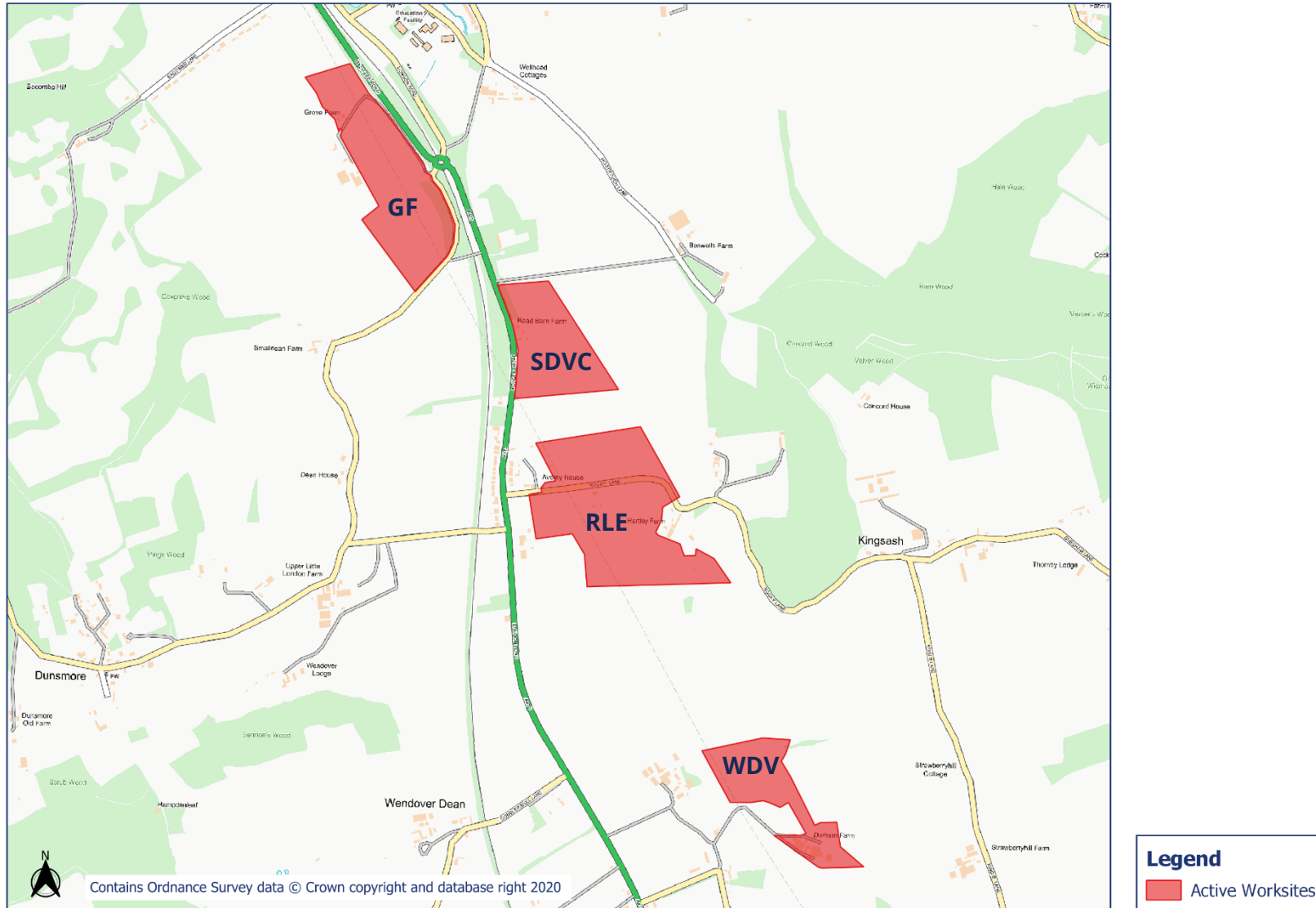


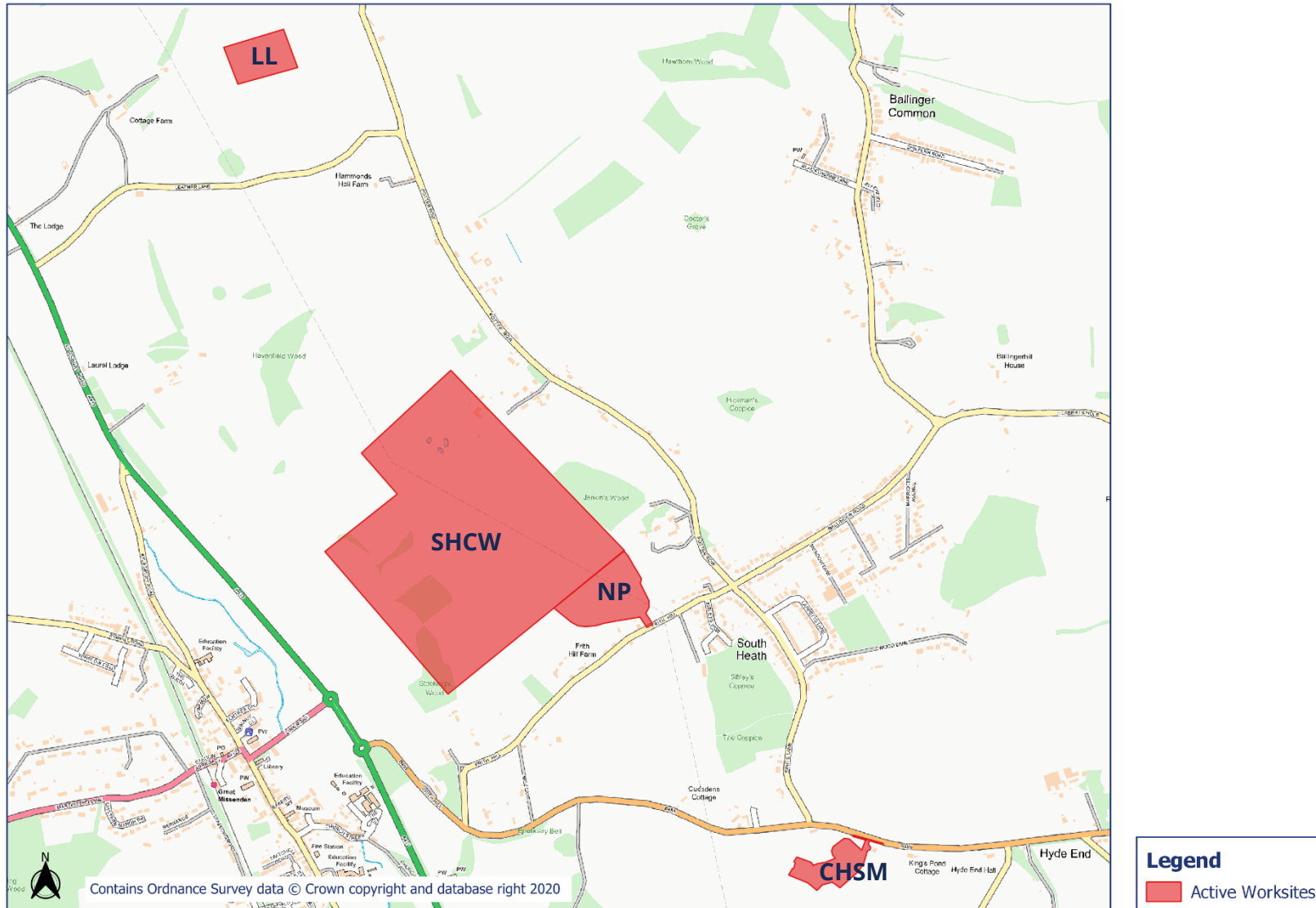




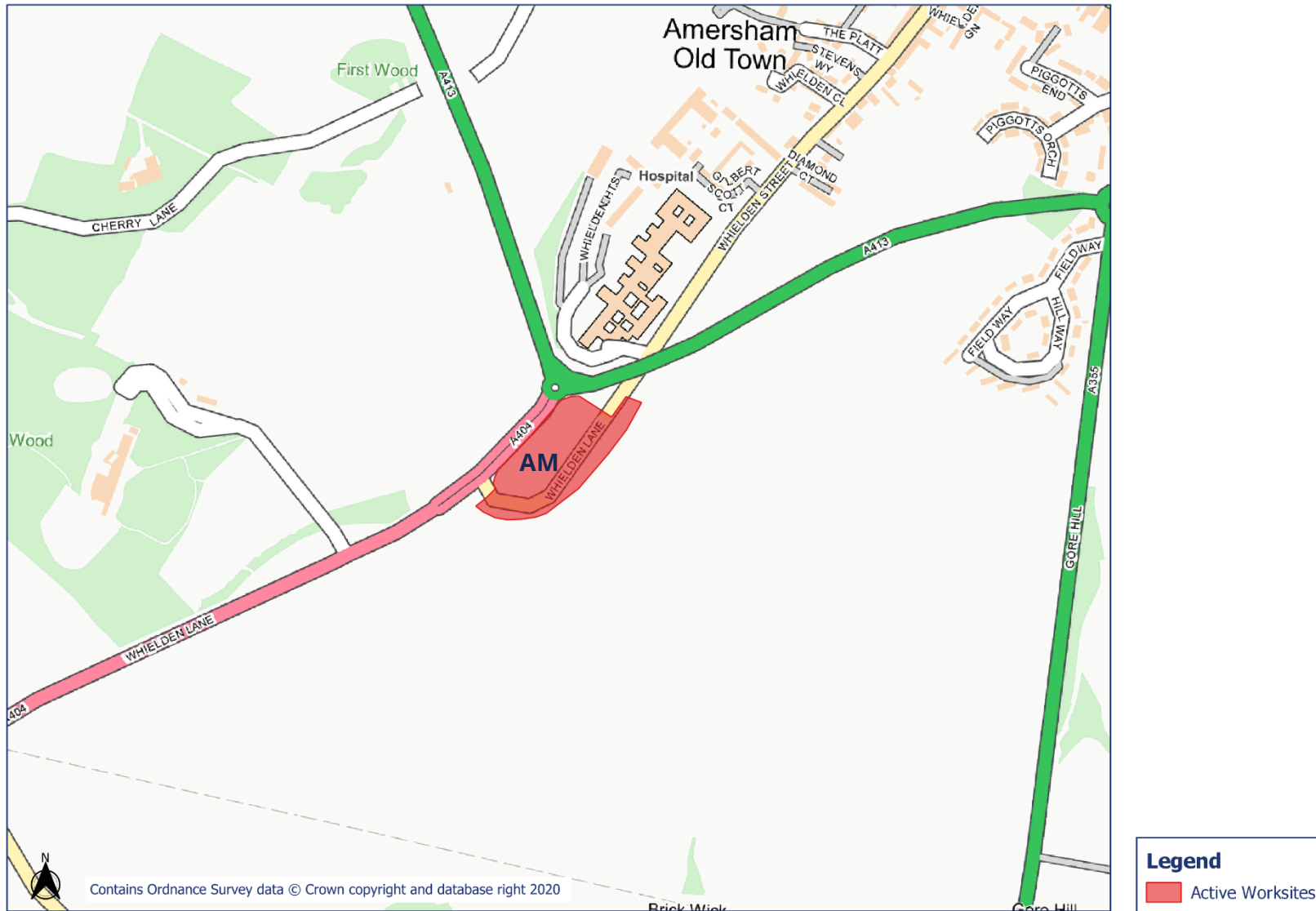


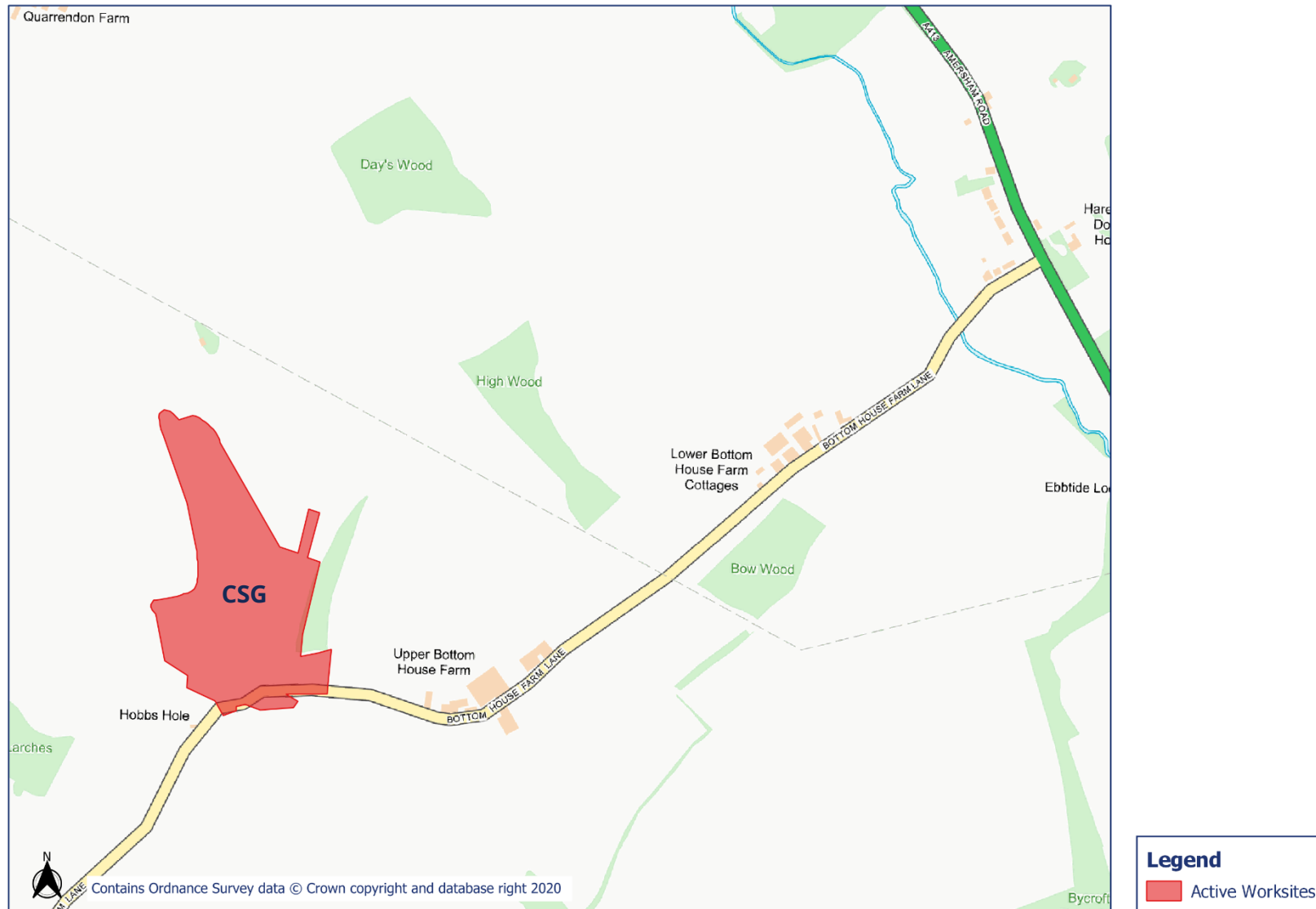




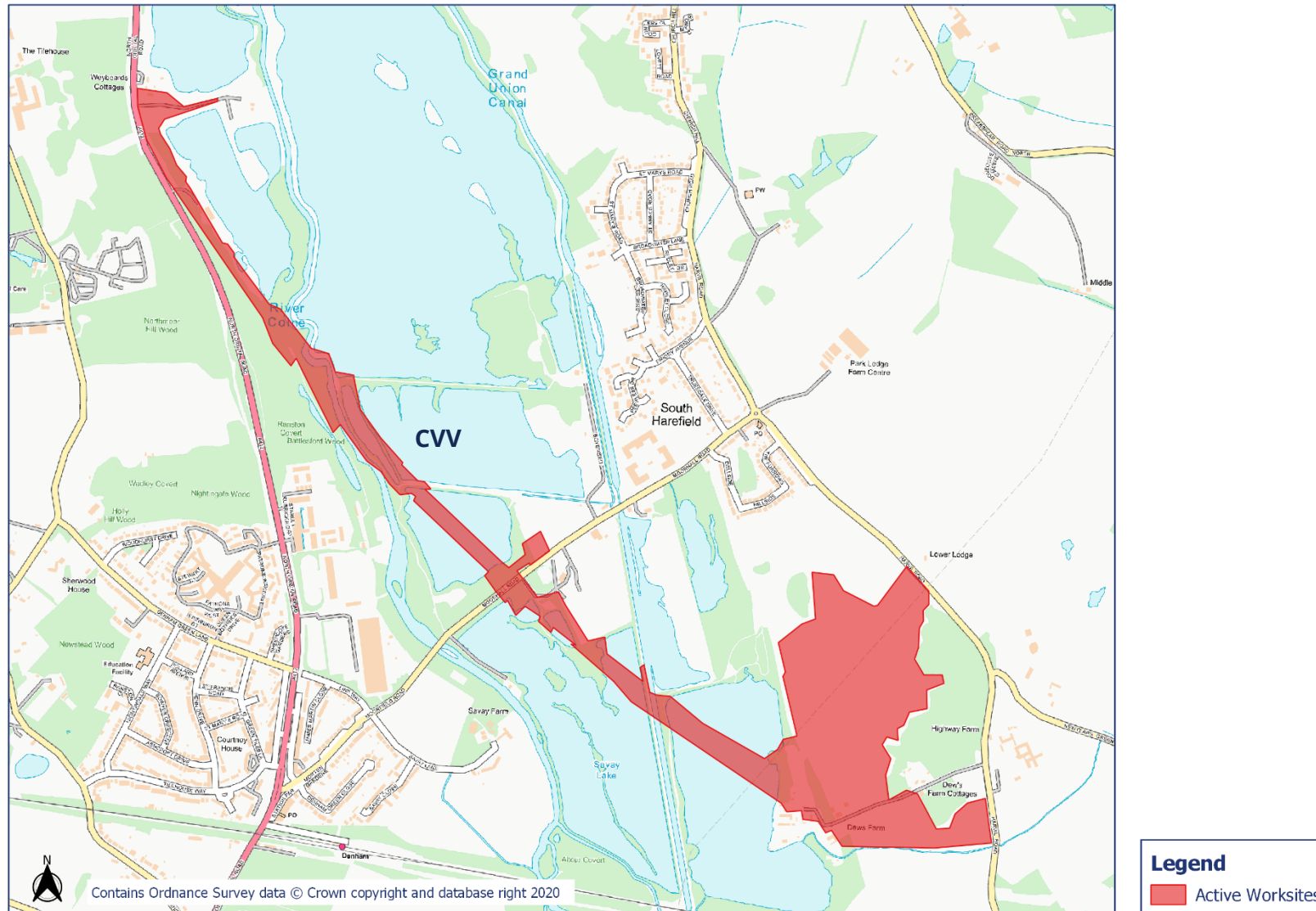




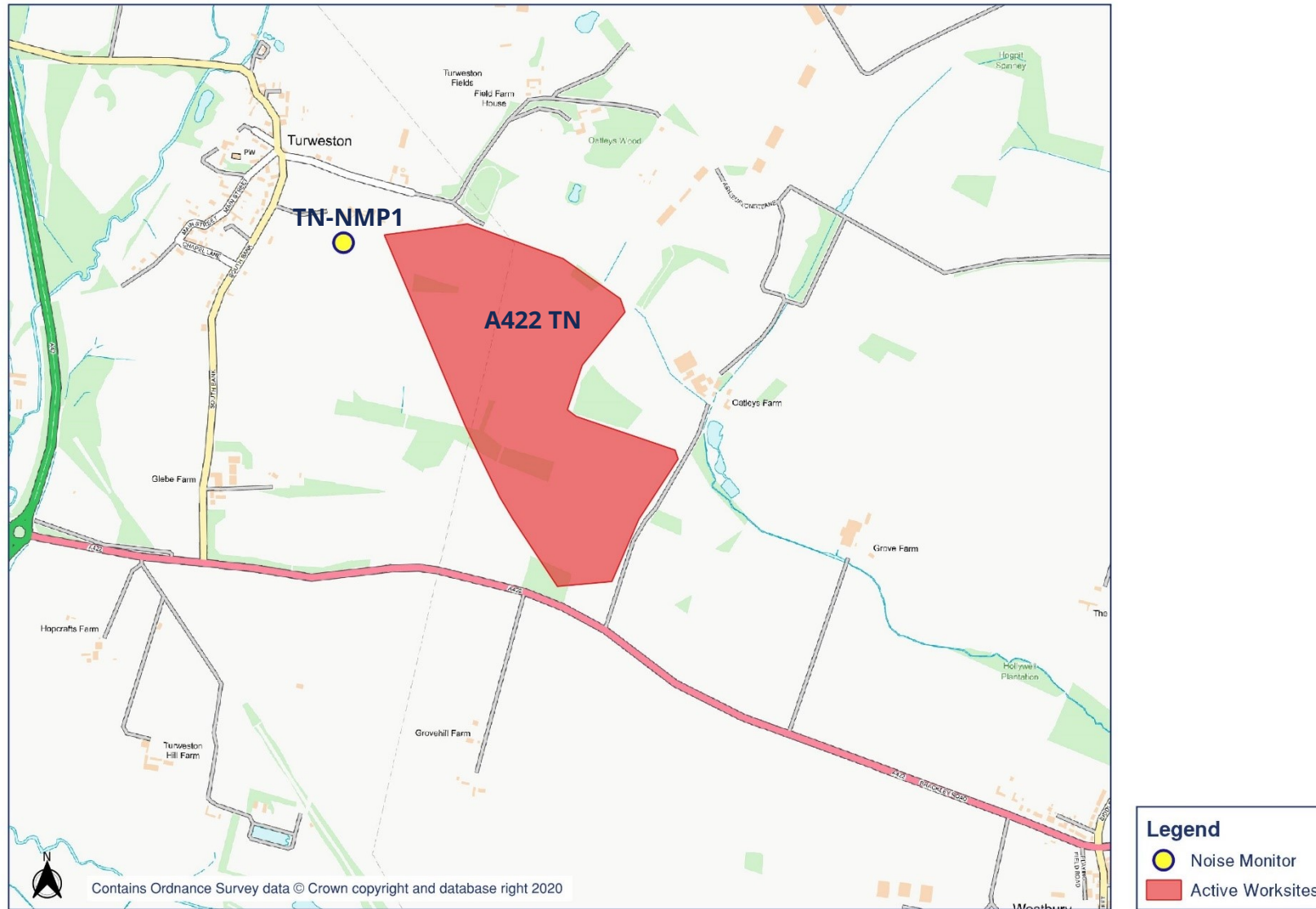


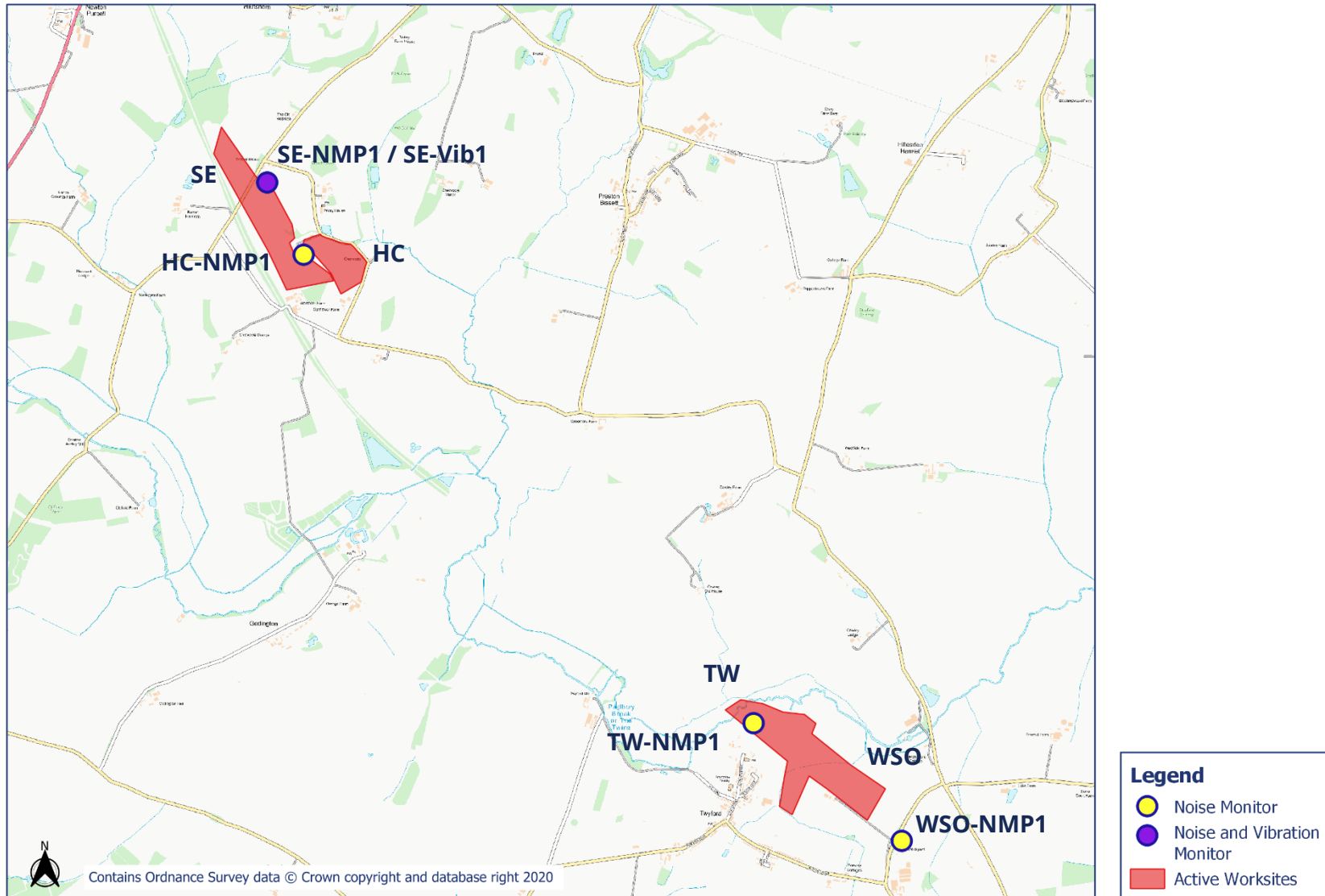




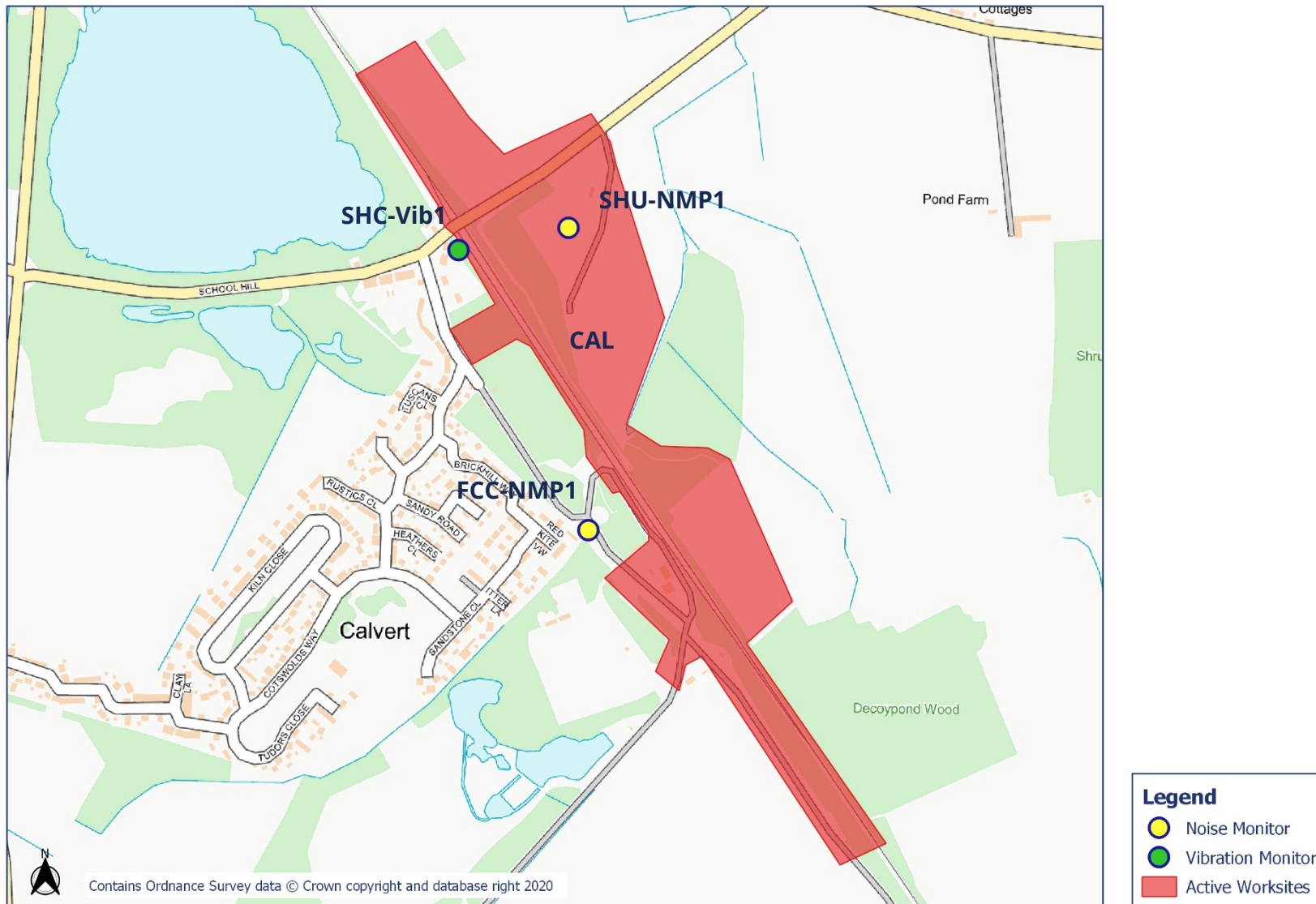


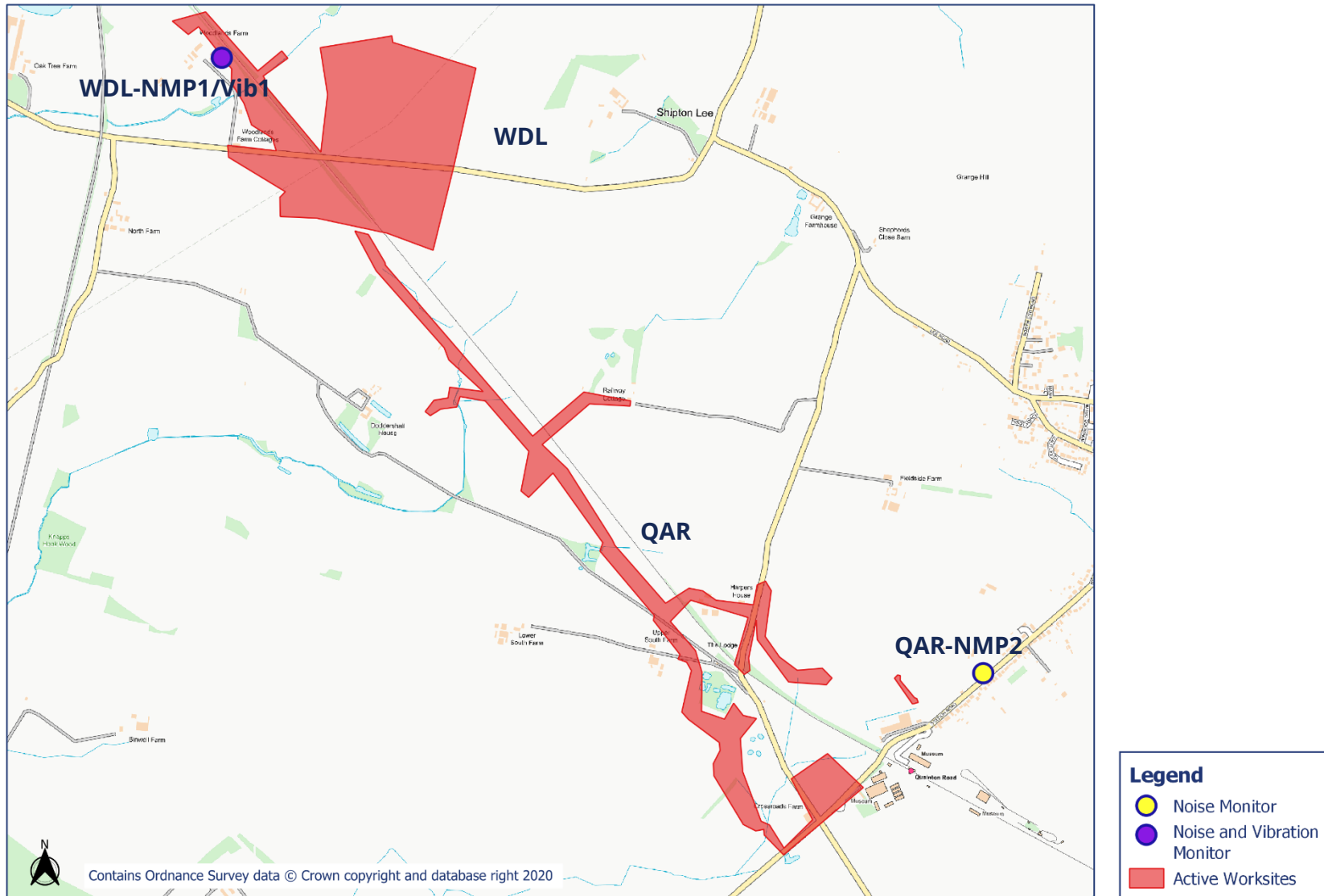
Appendix B Monitoring Locations

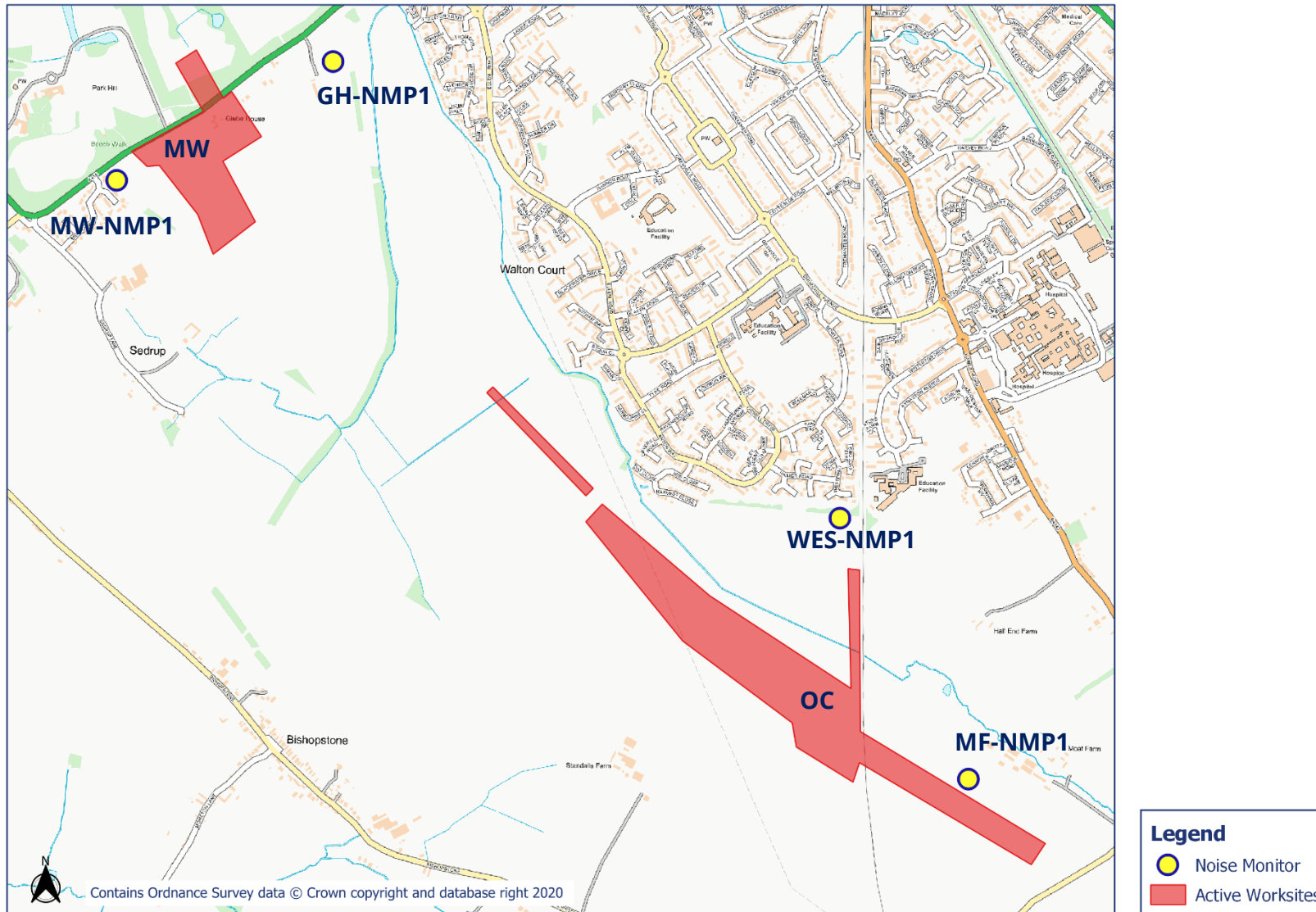


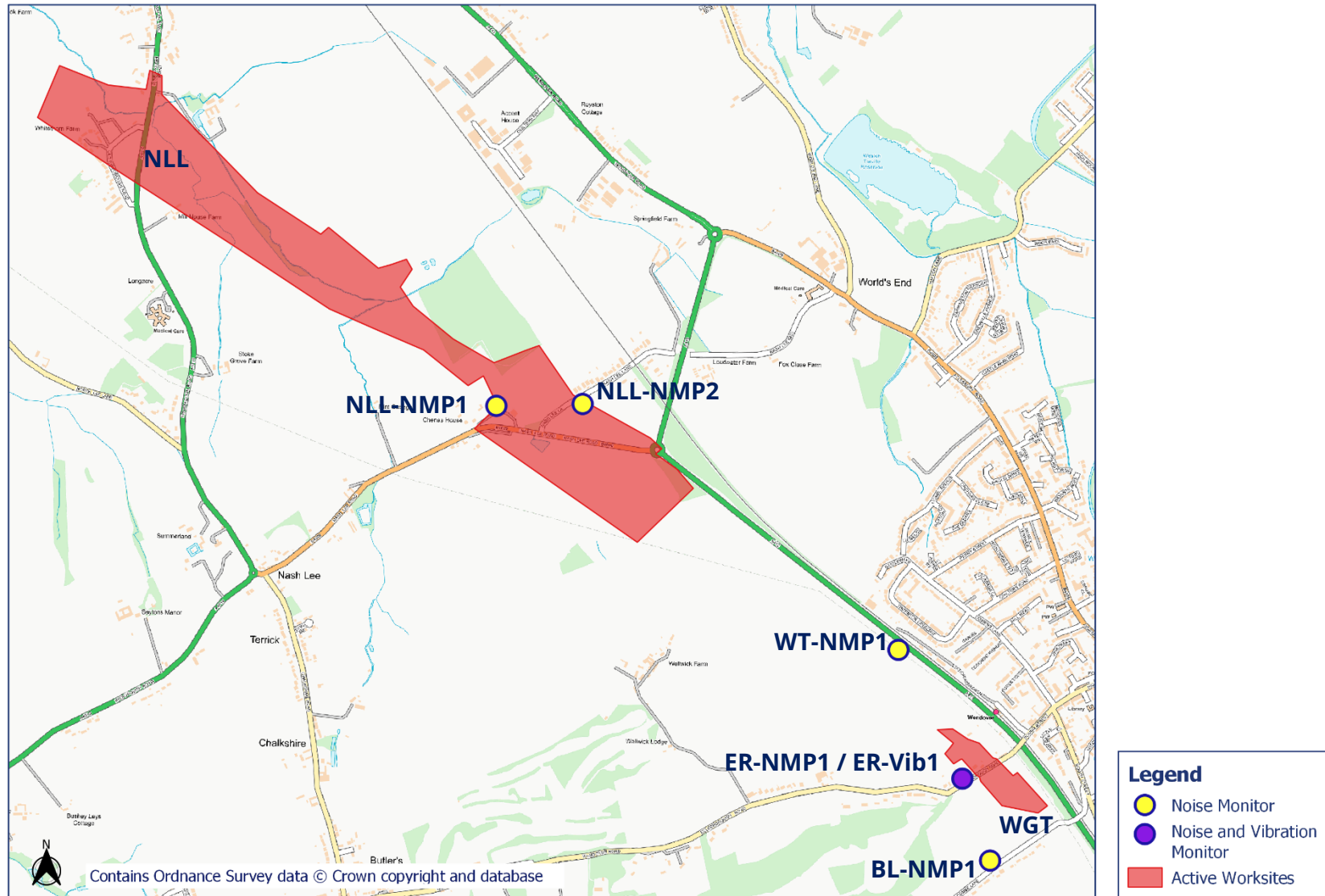


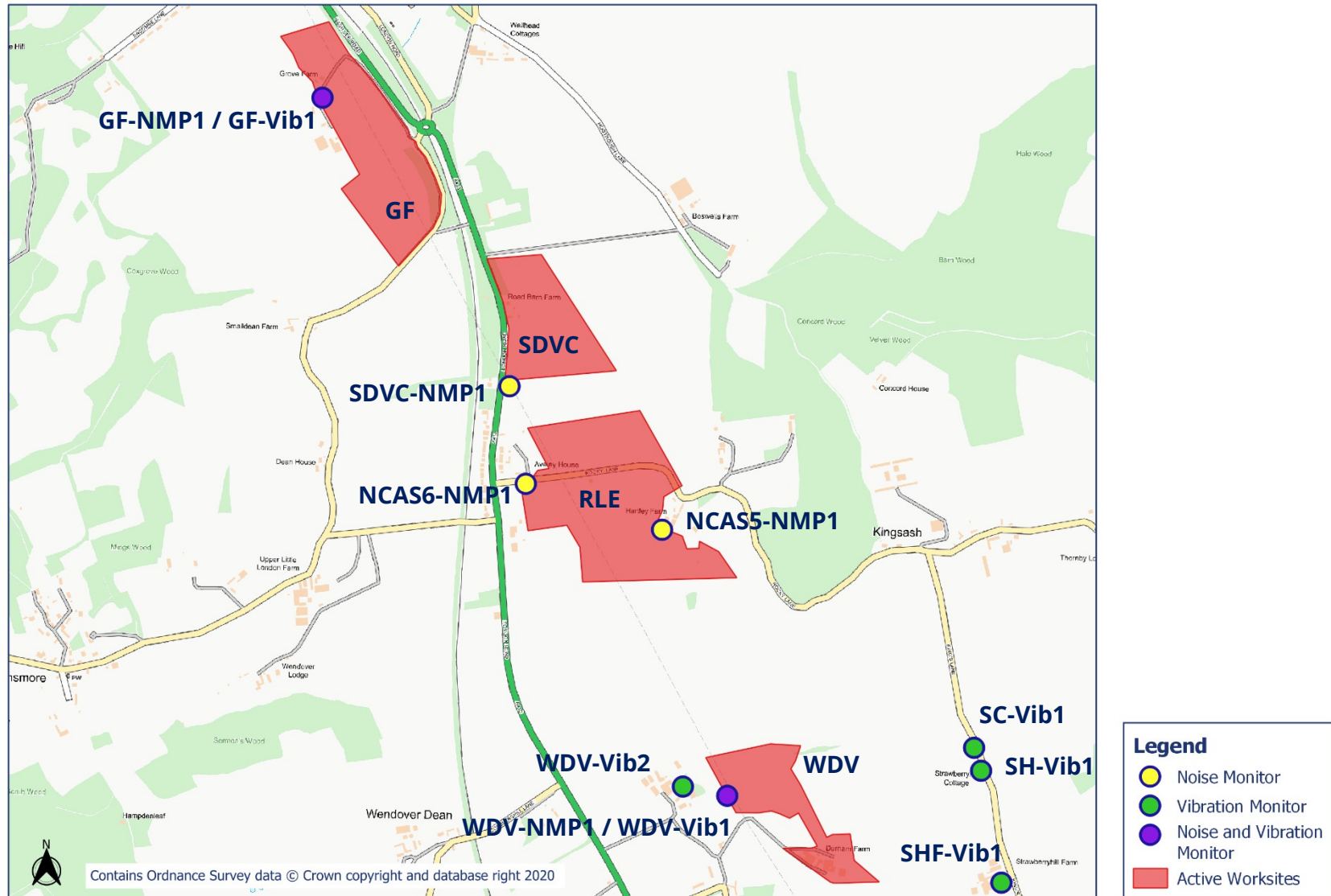


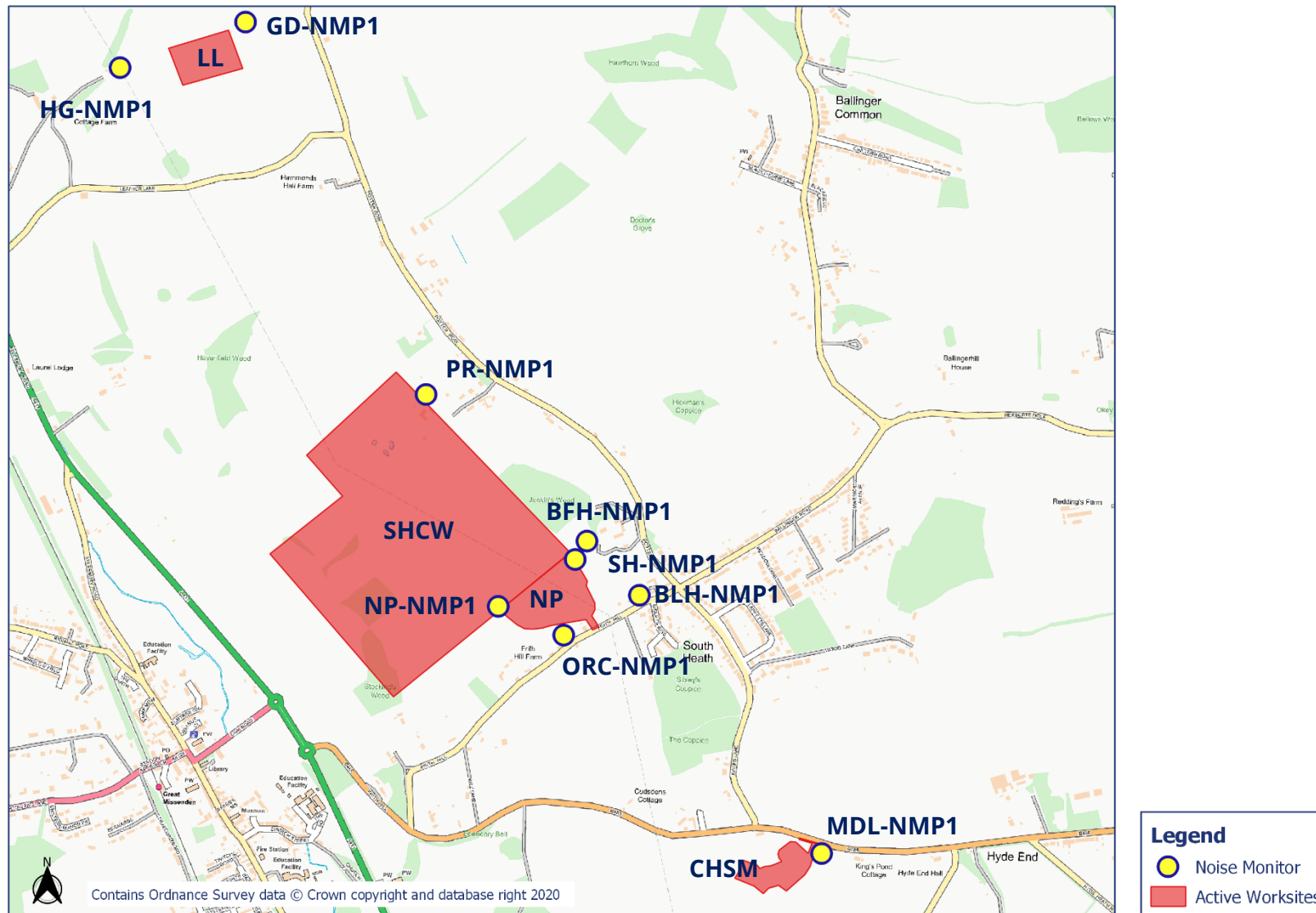




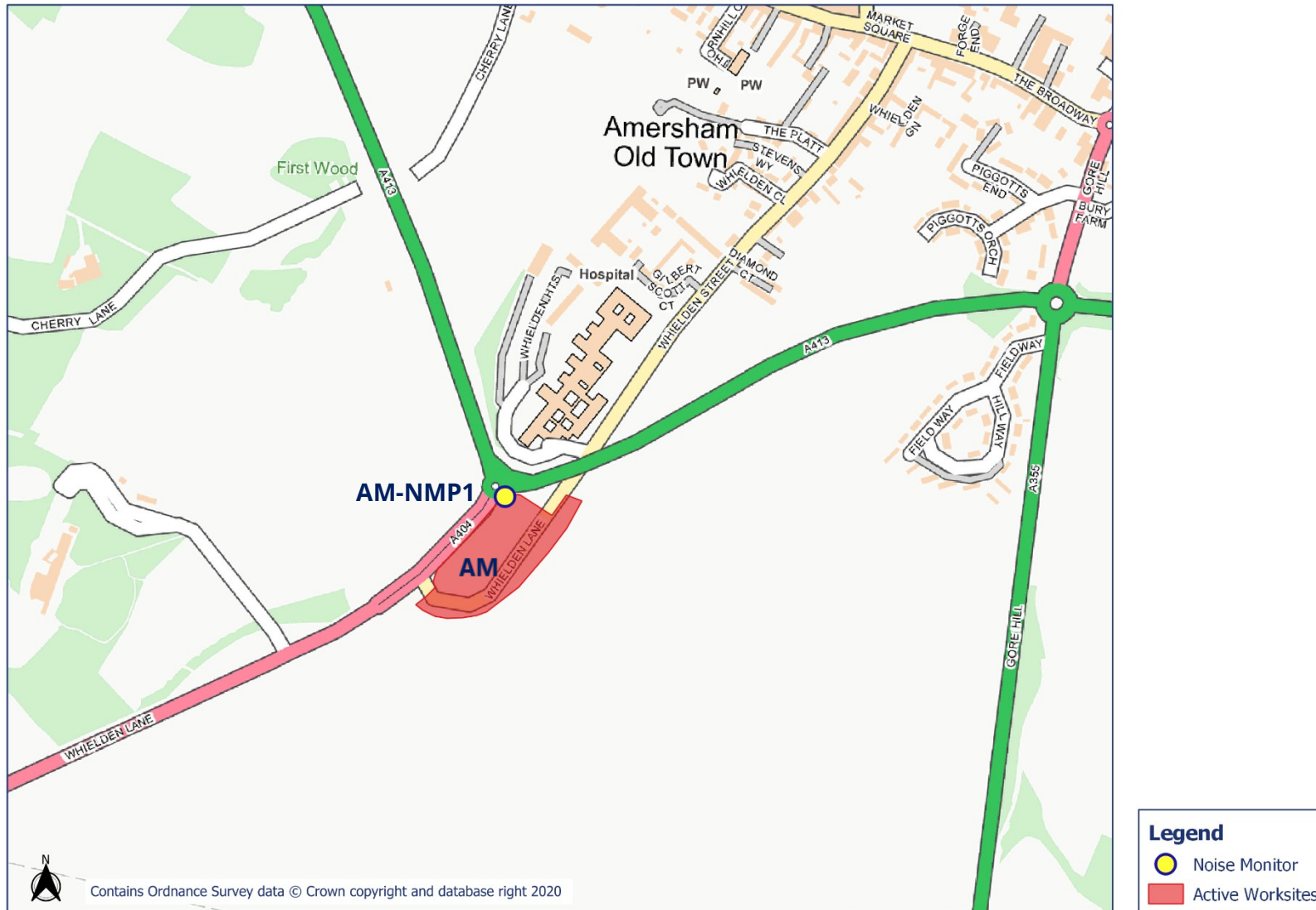




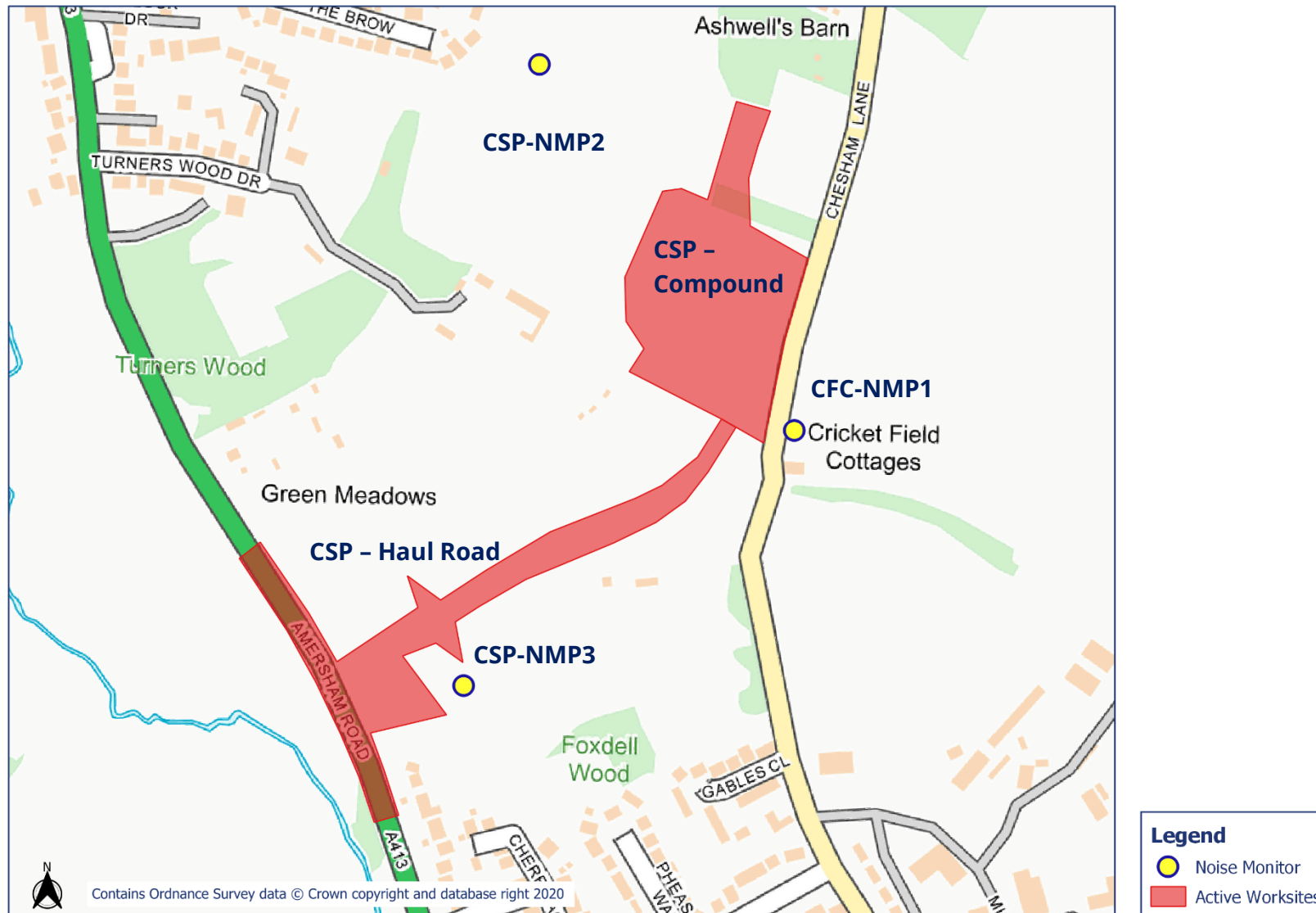


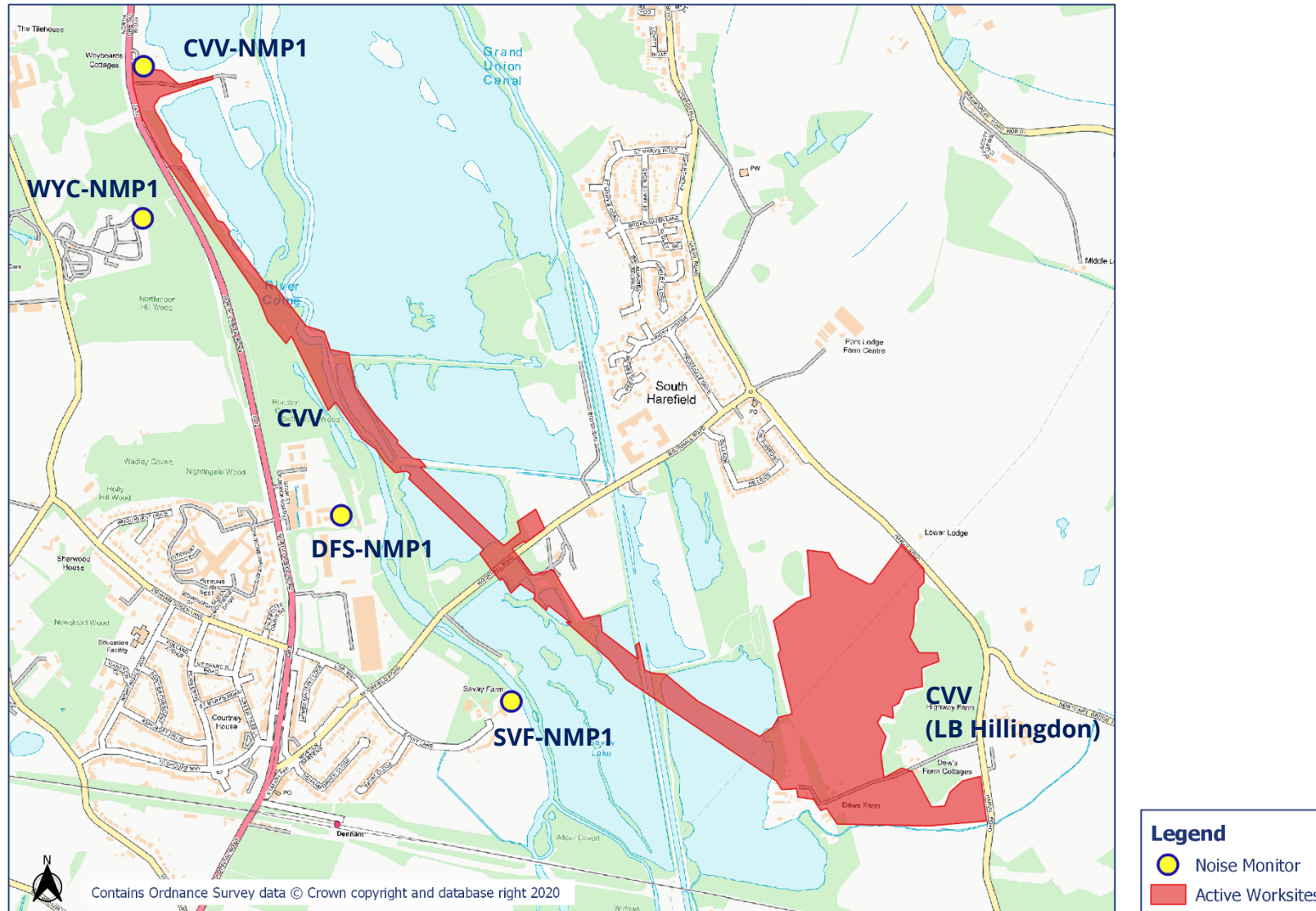










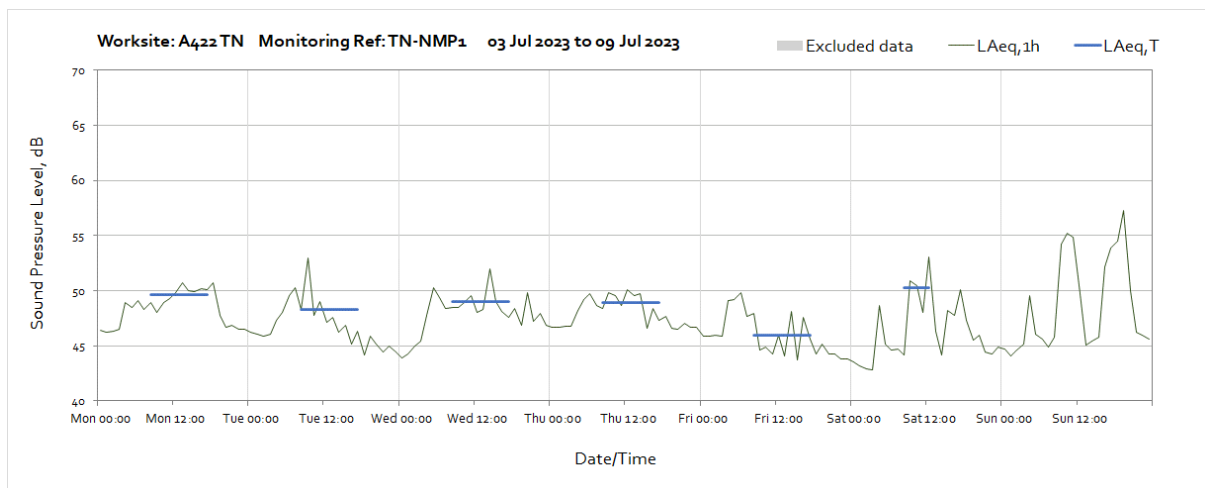
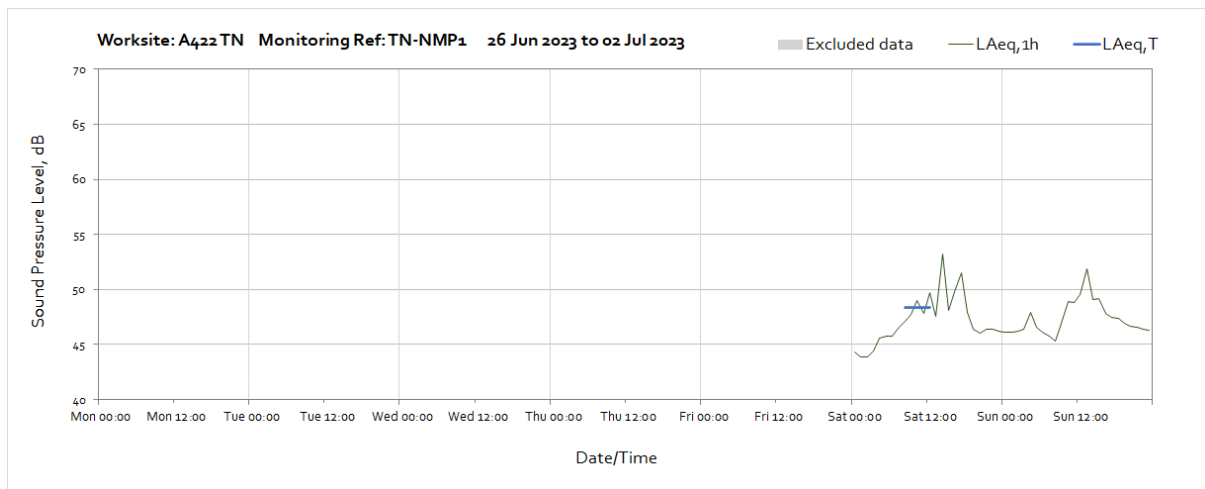


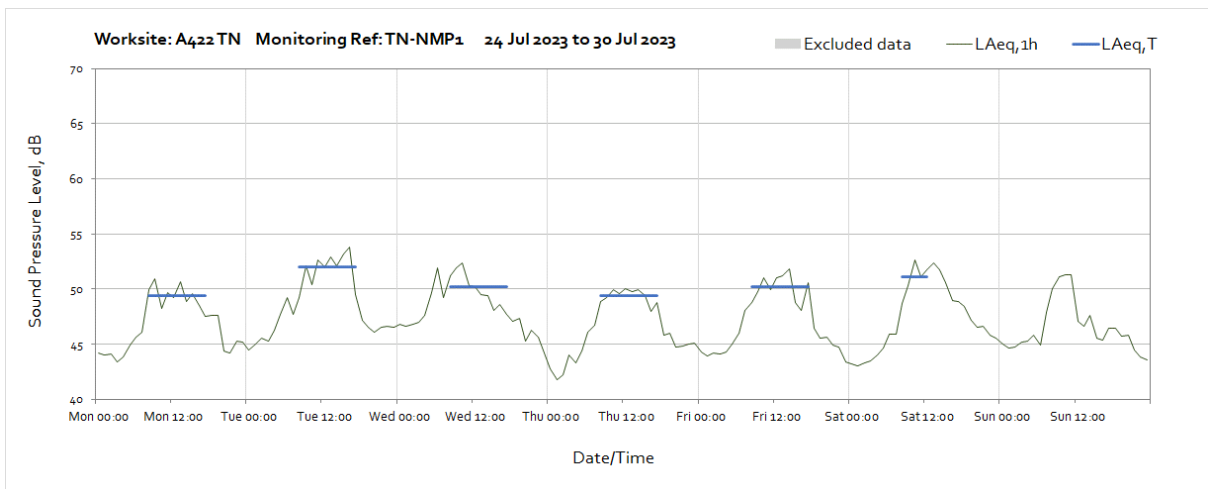
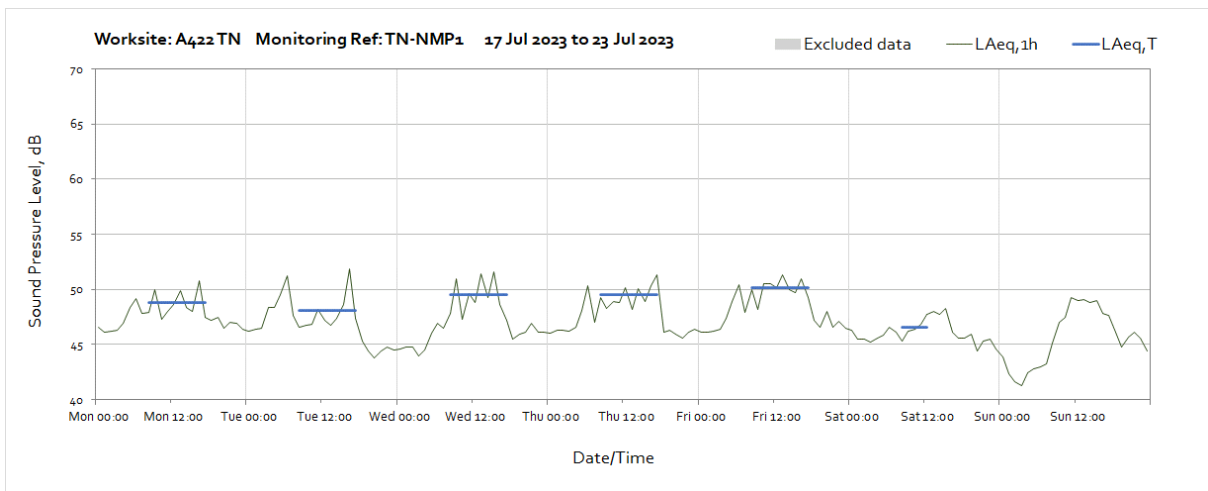
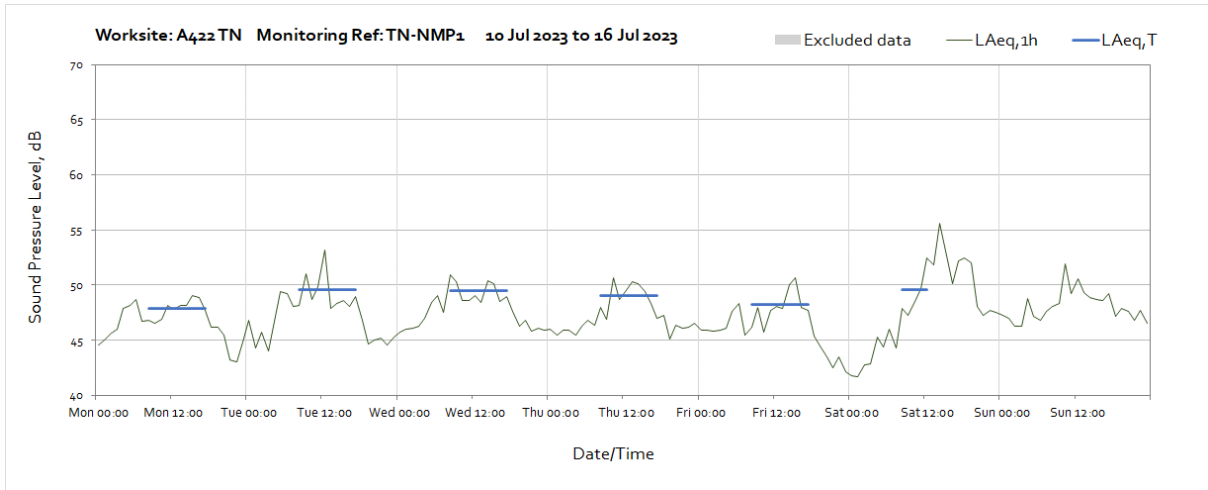
Appendix C Data

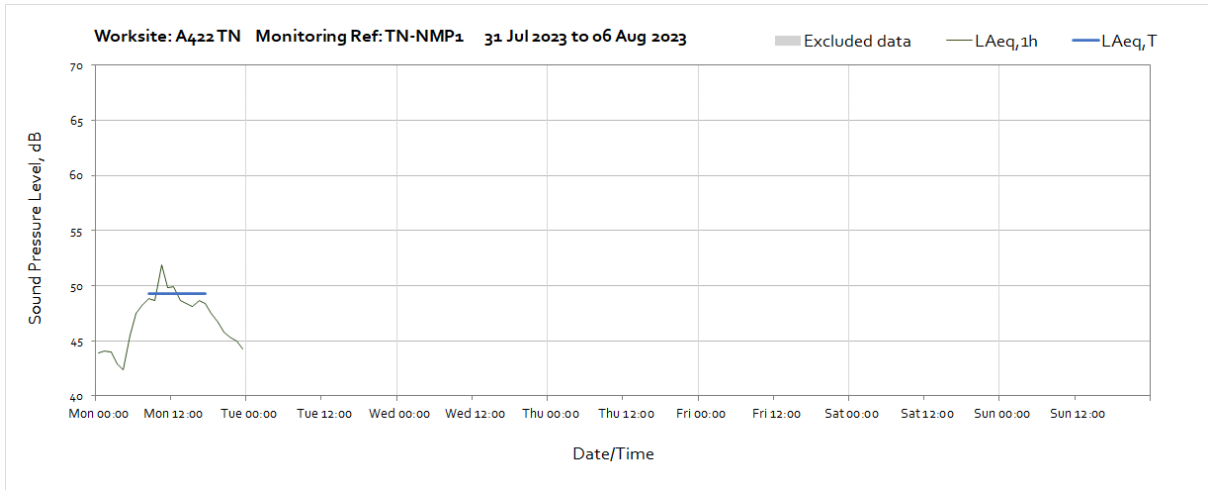
Noise

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.

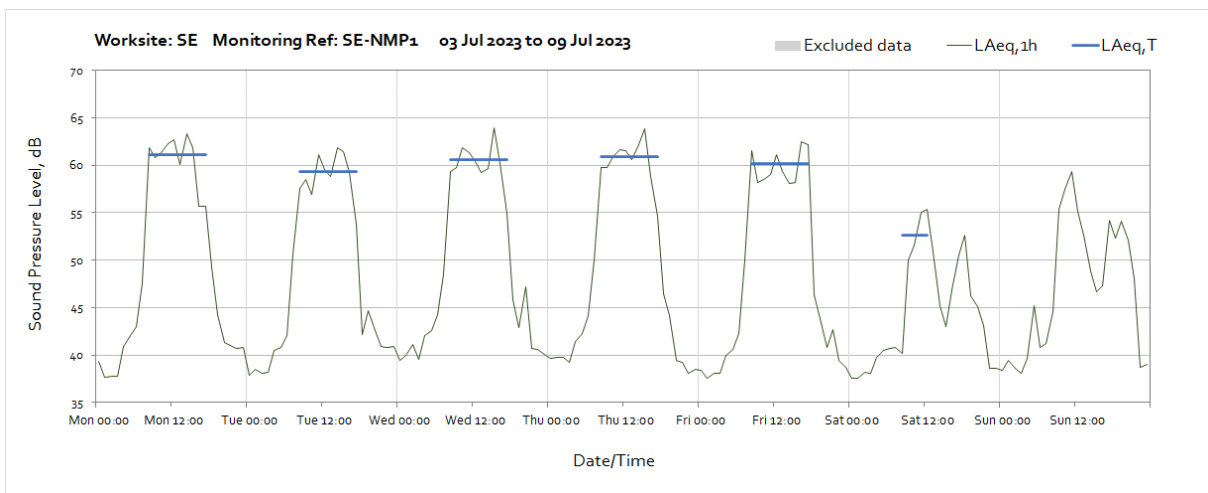
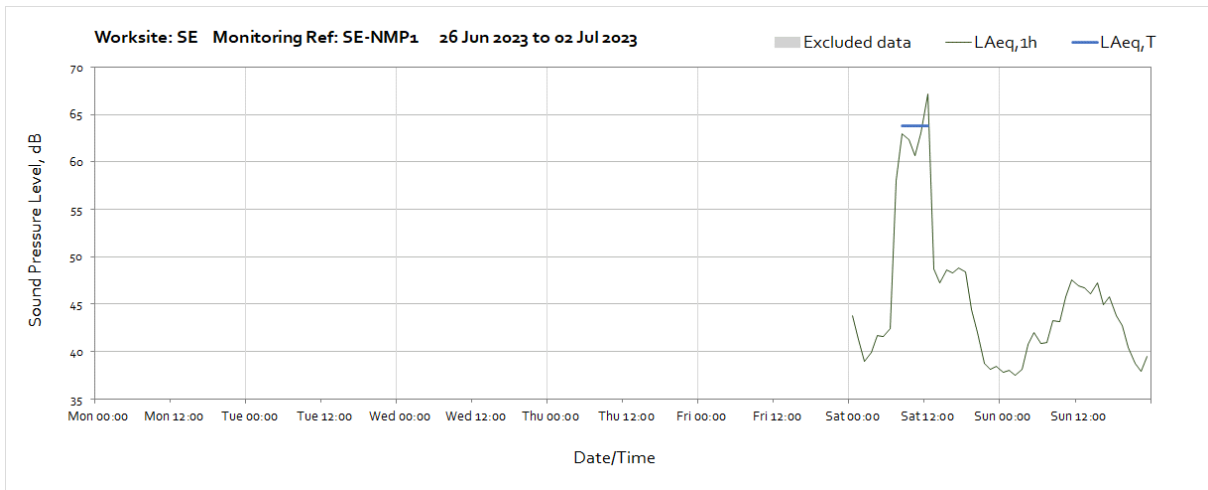
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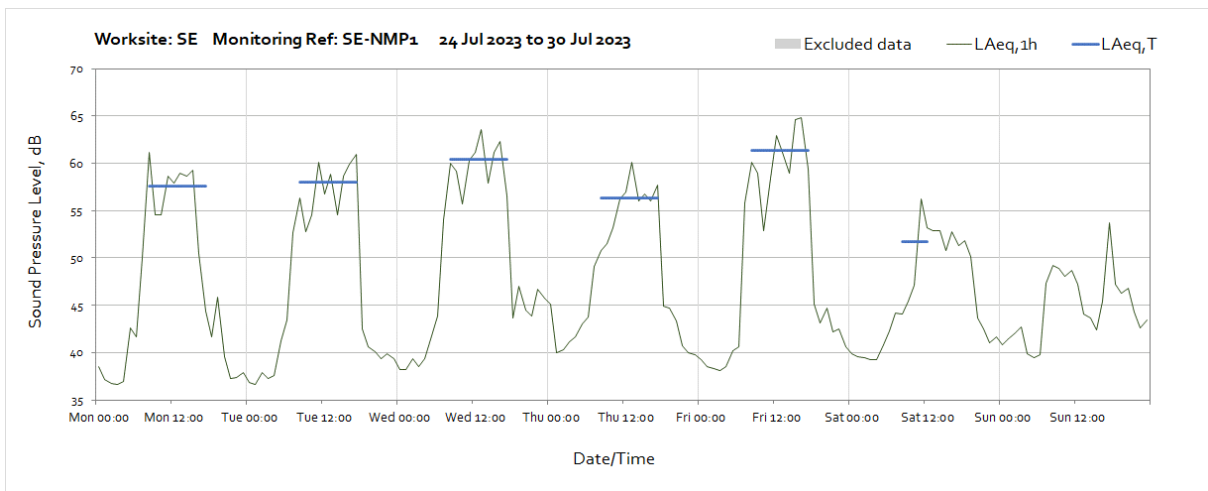
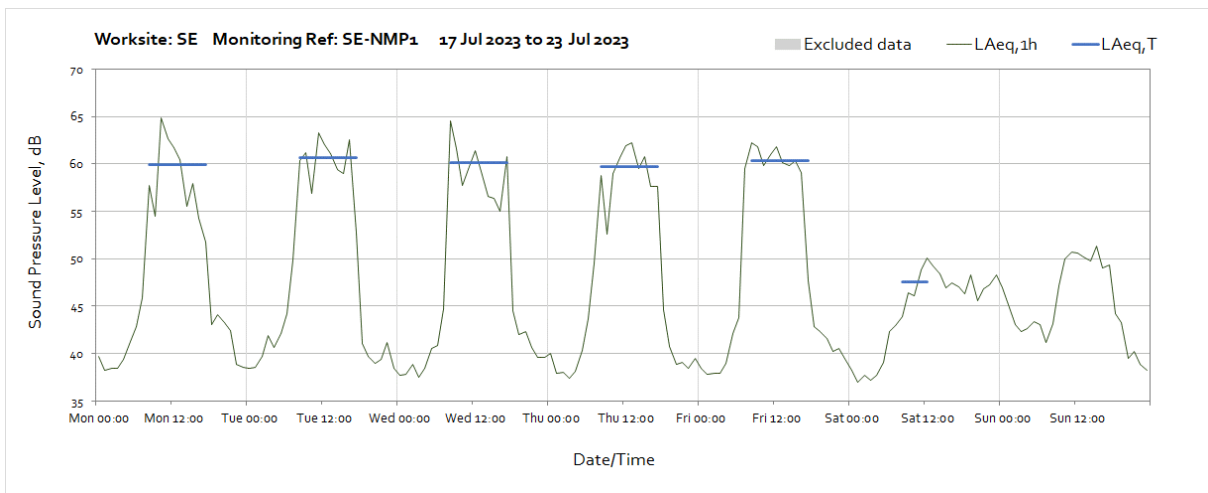
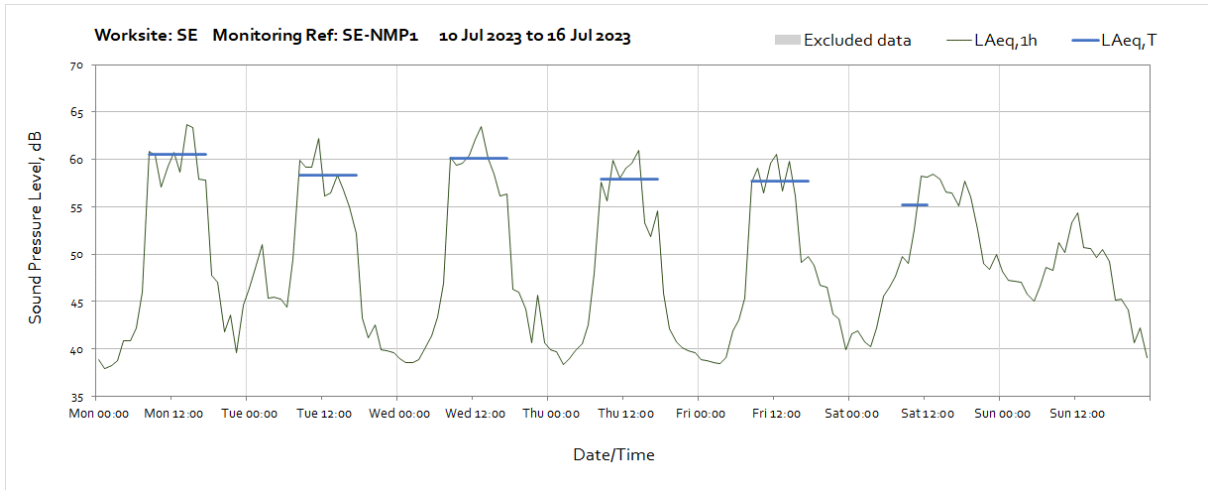


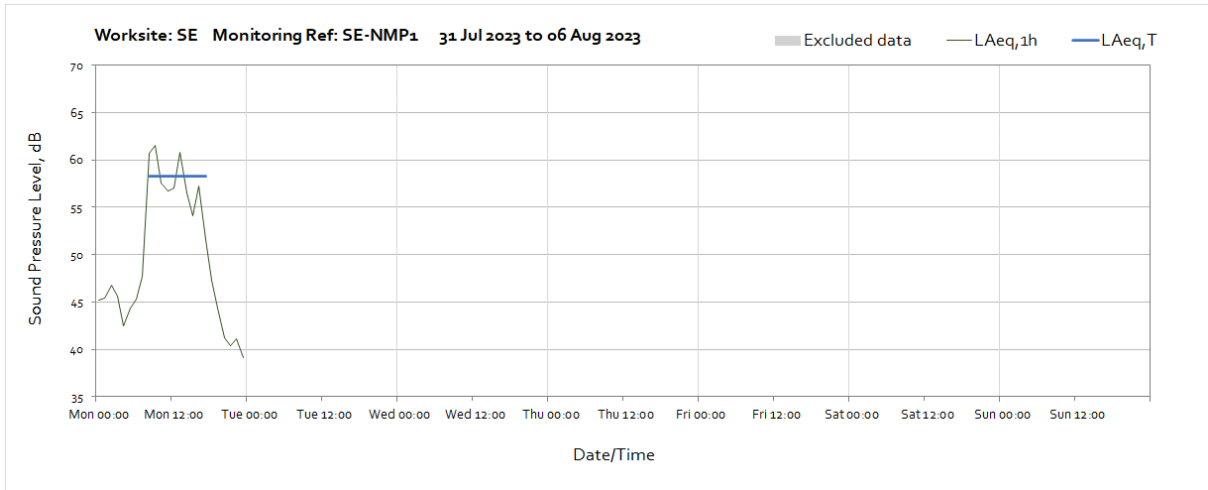




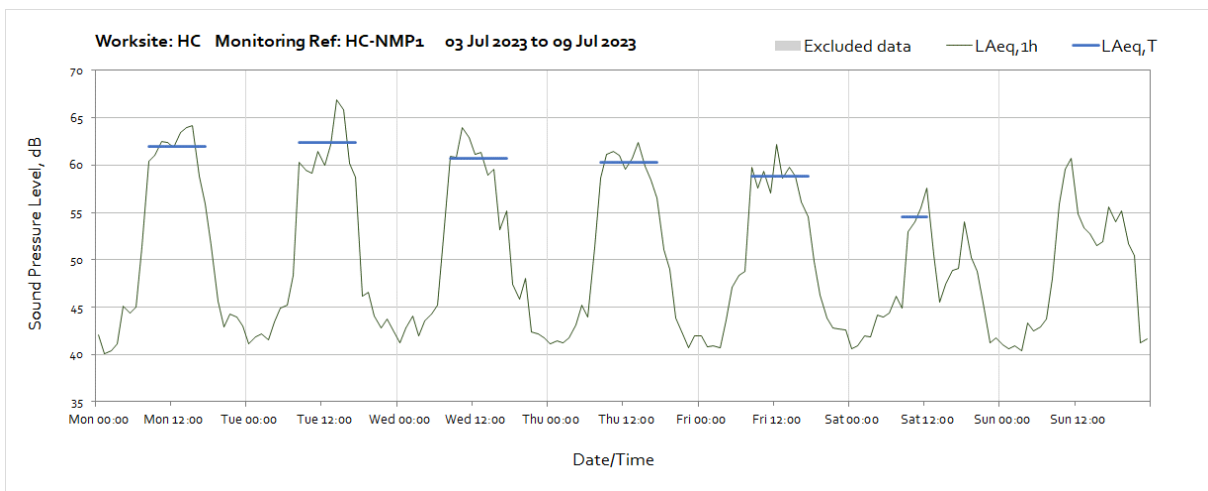
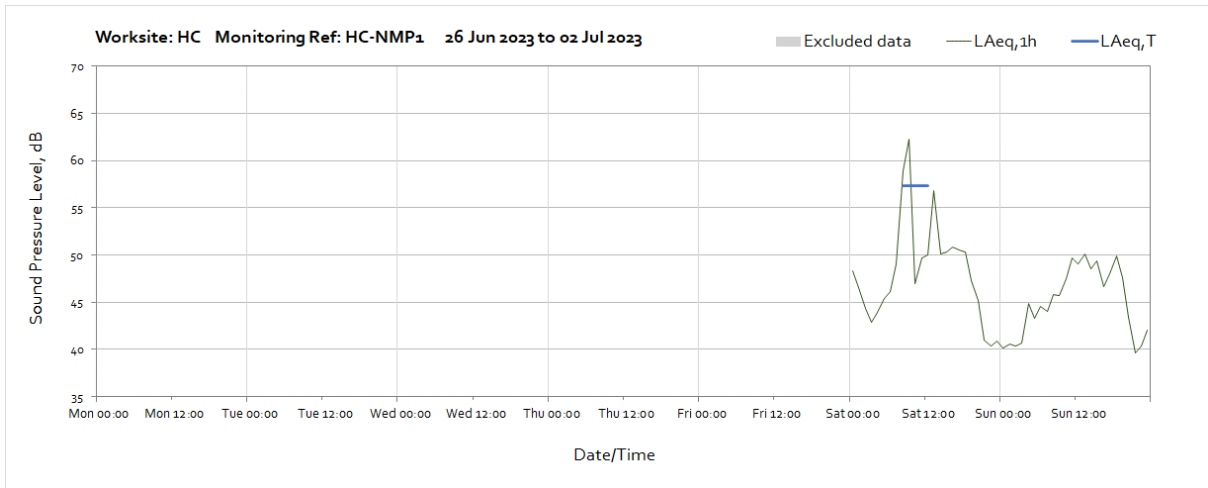
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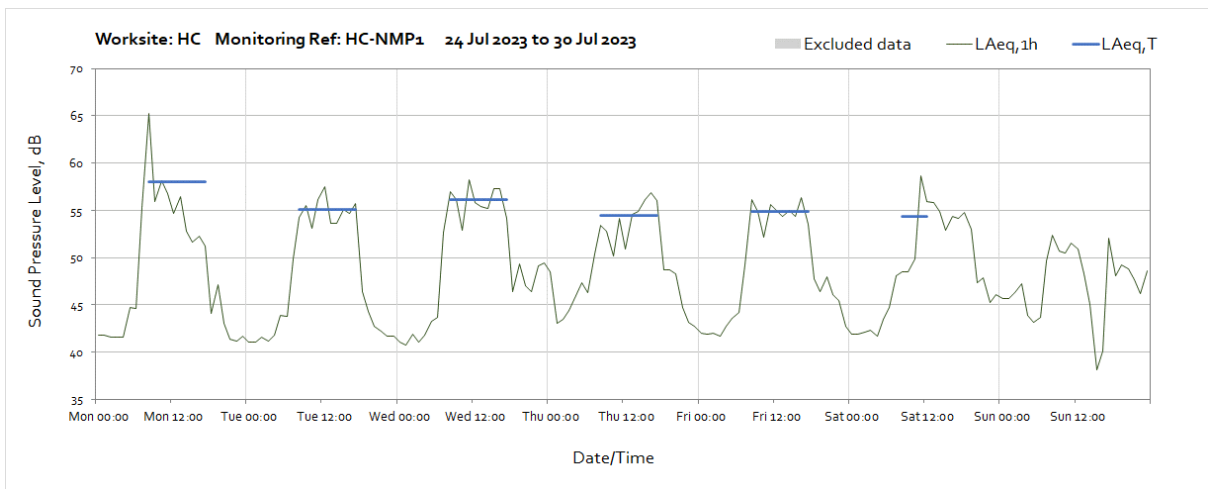
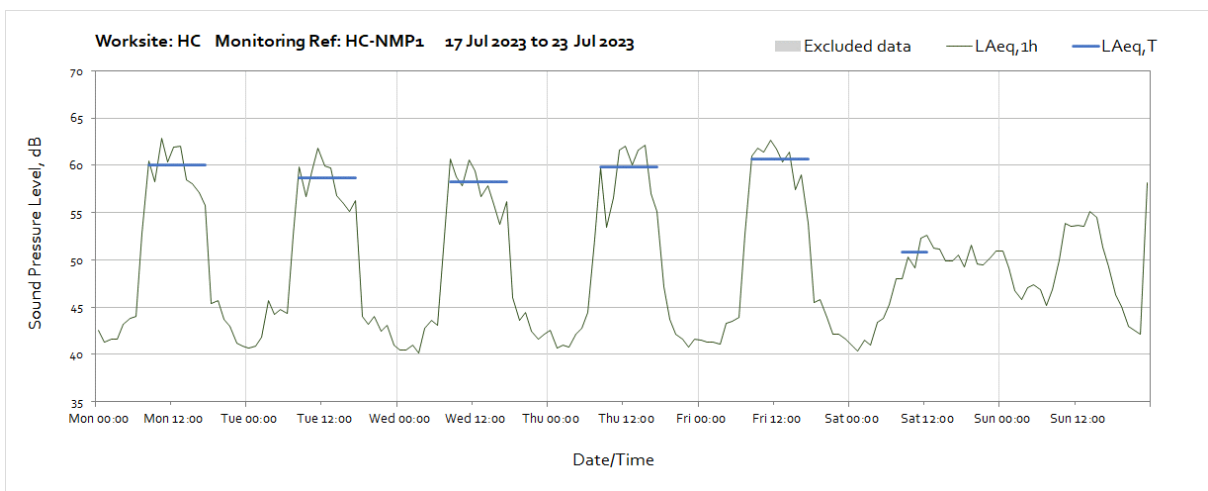
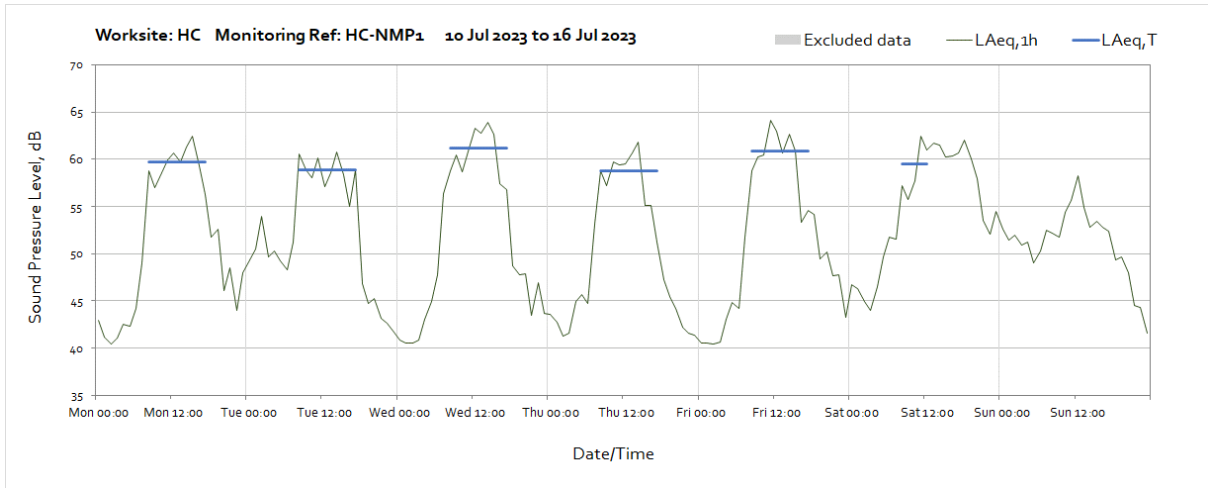


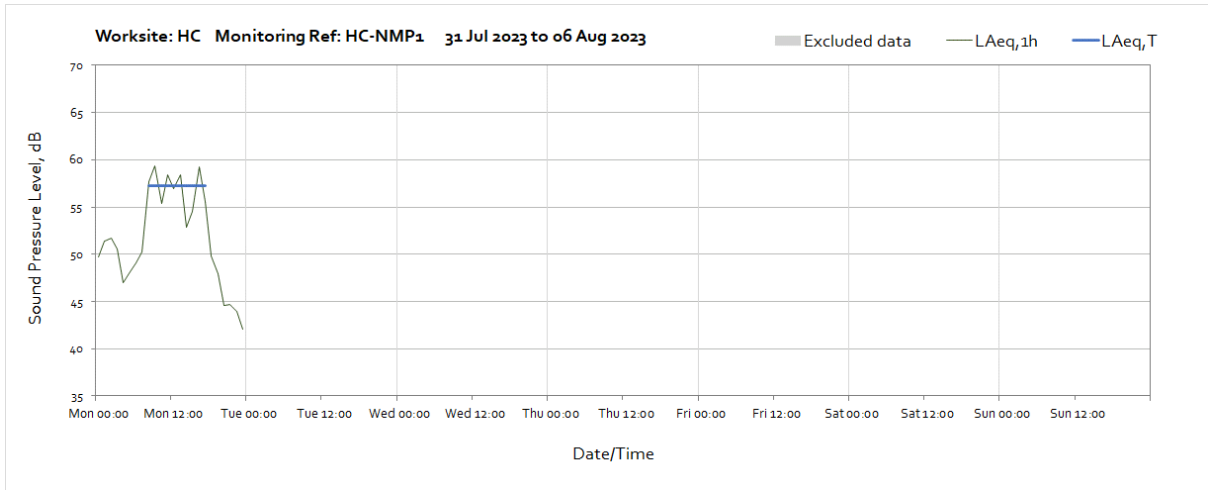




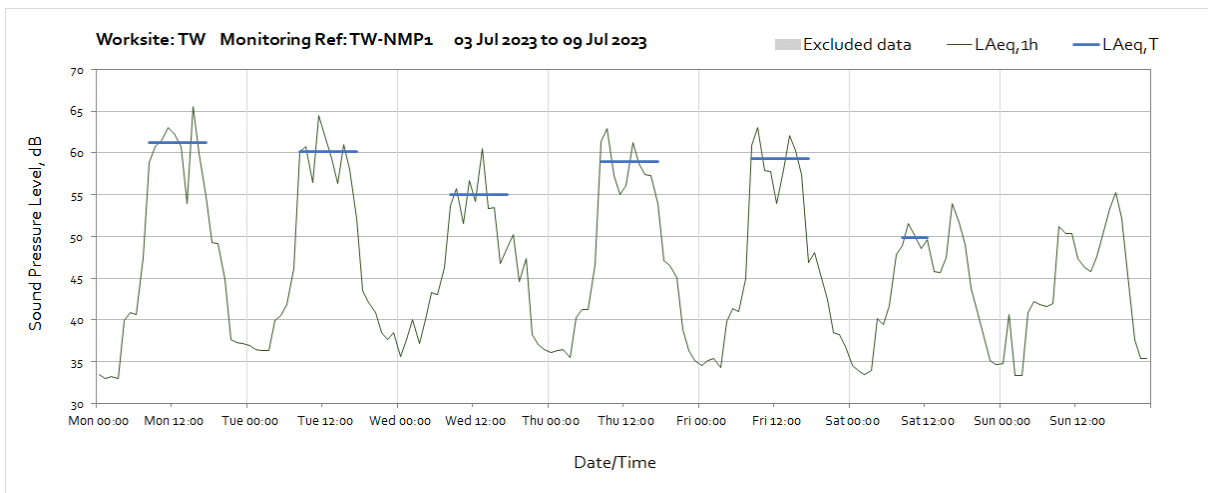
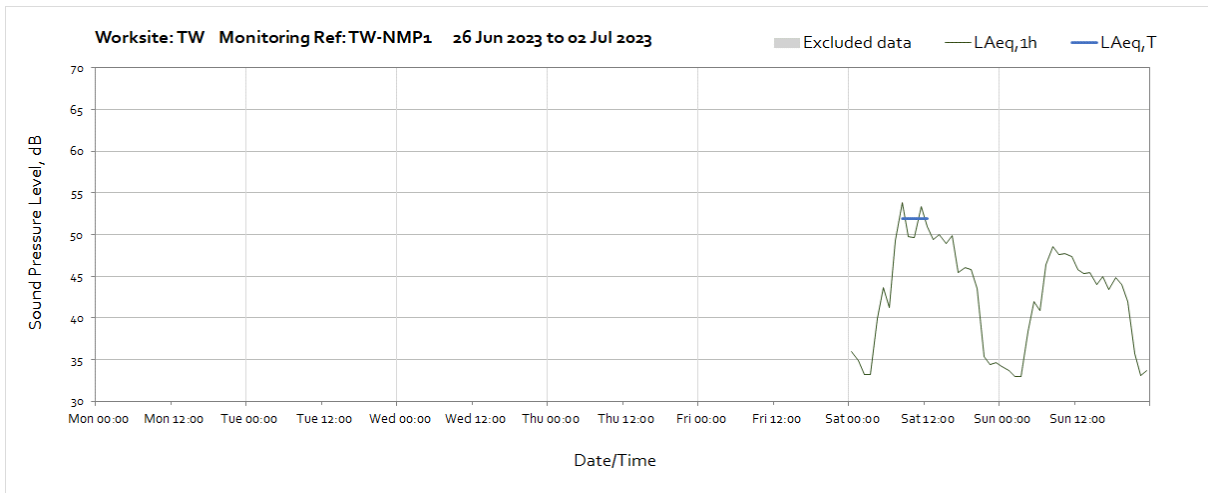
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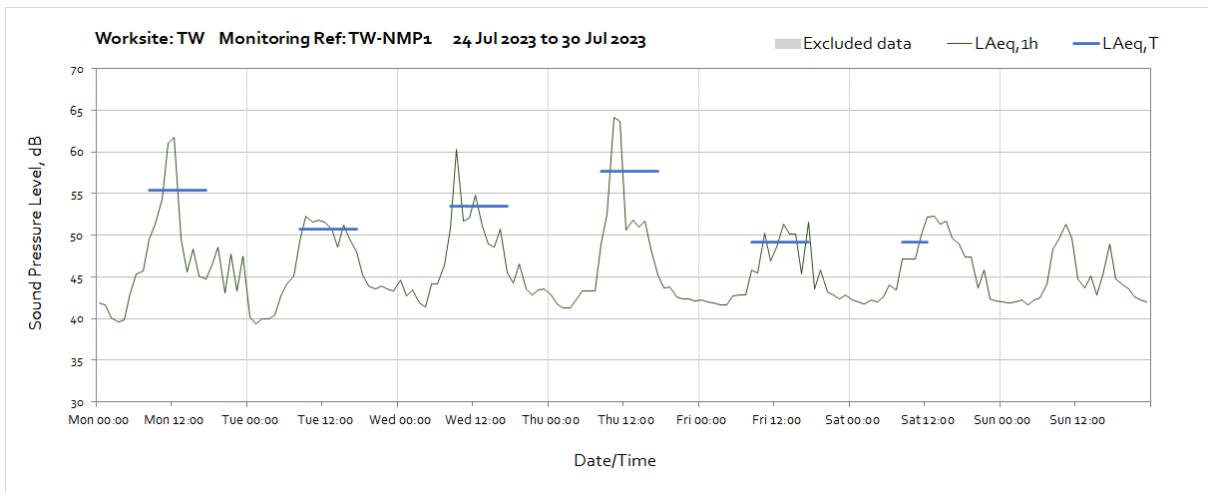
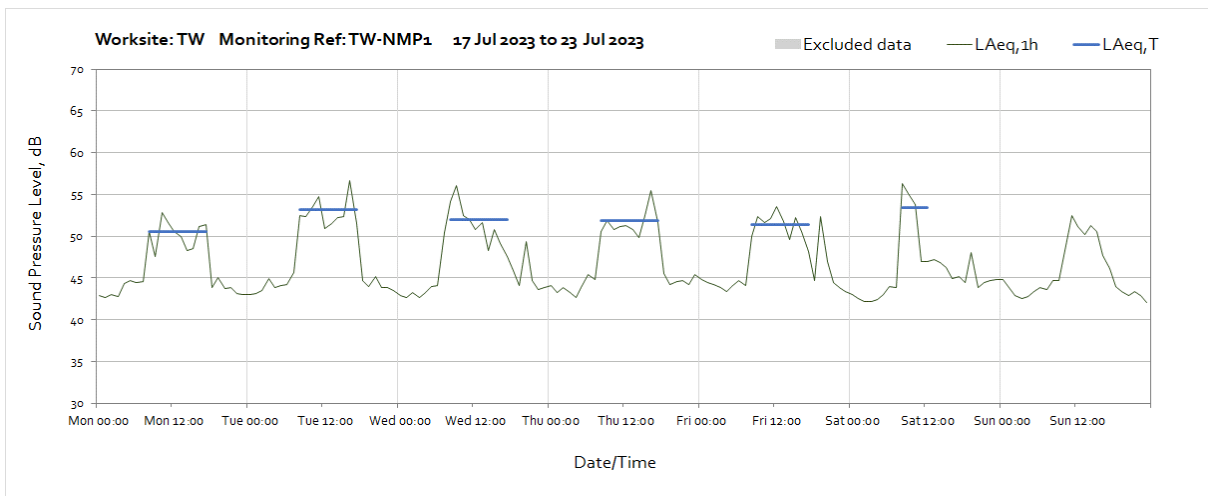
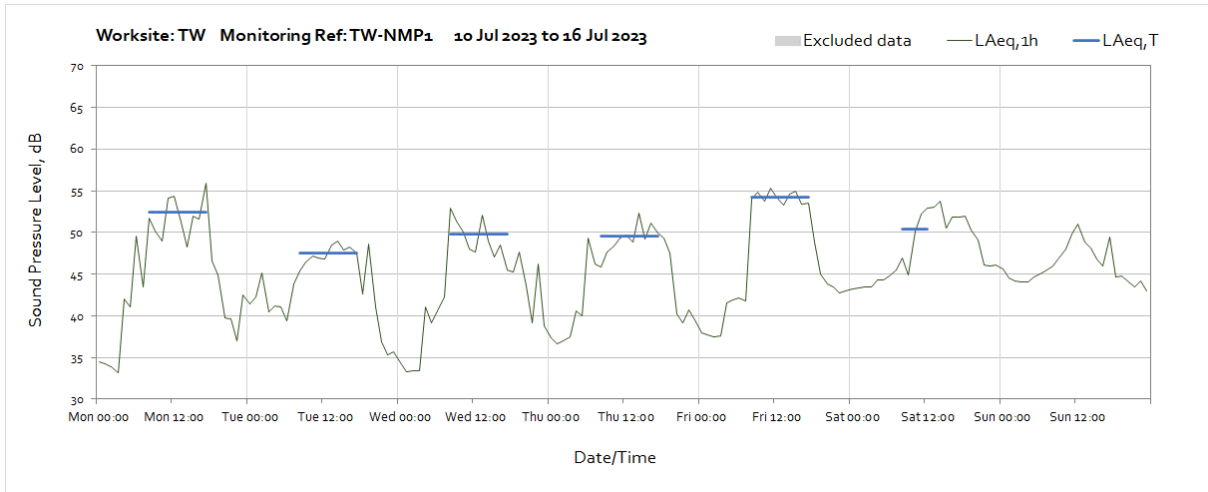


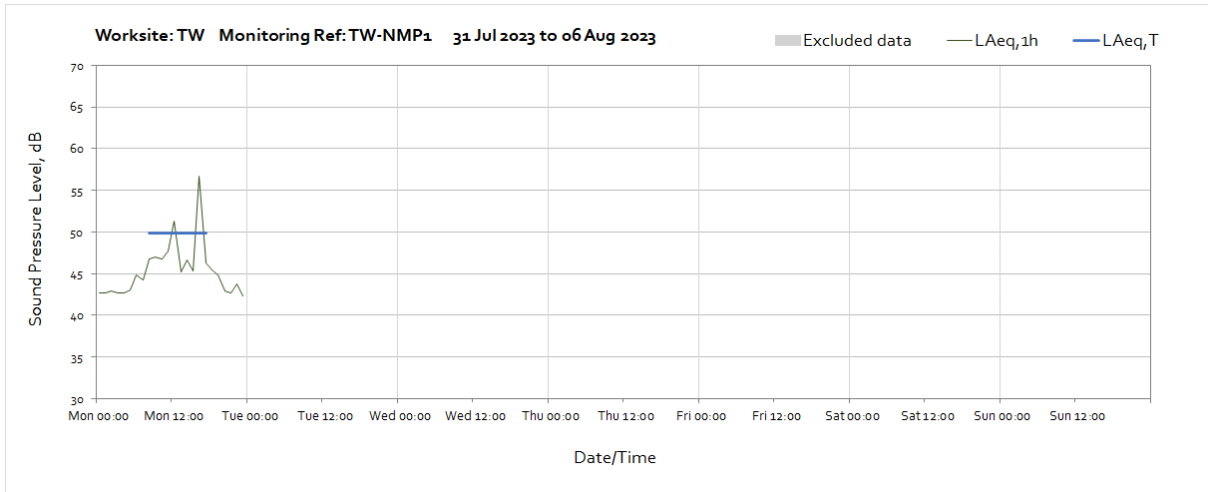




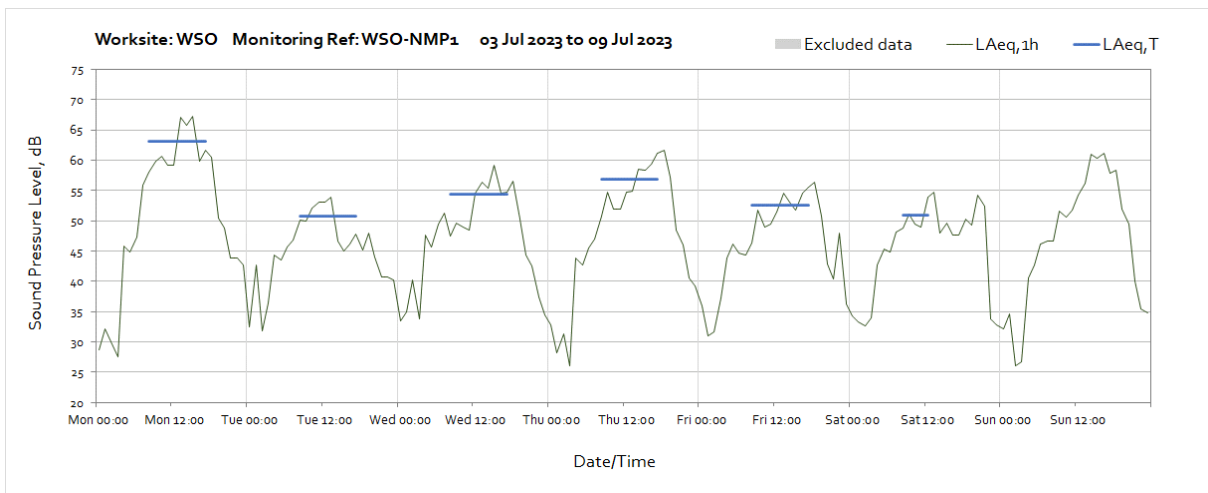
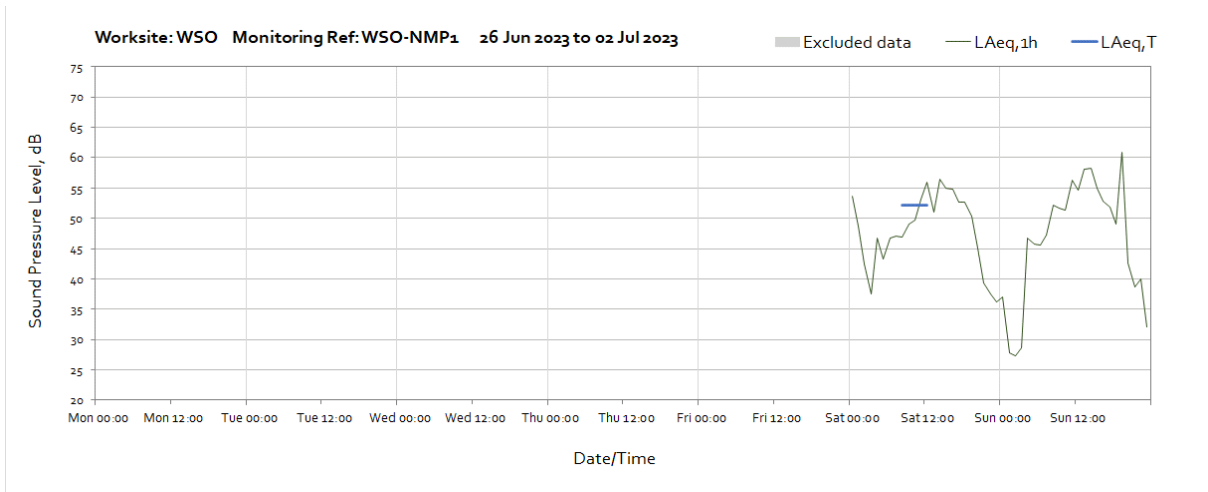
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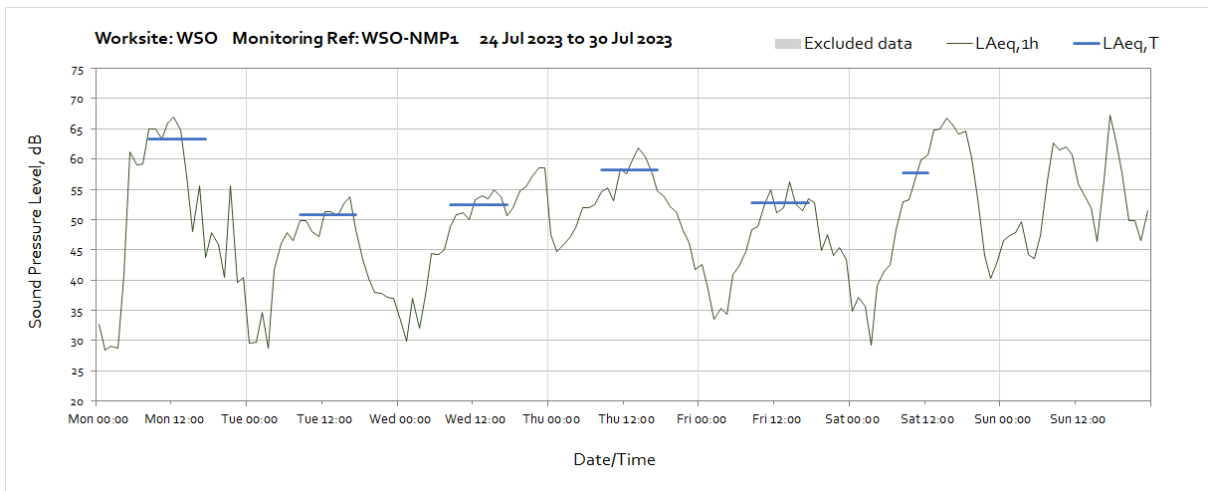
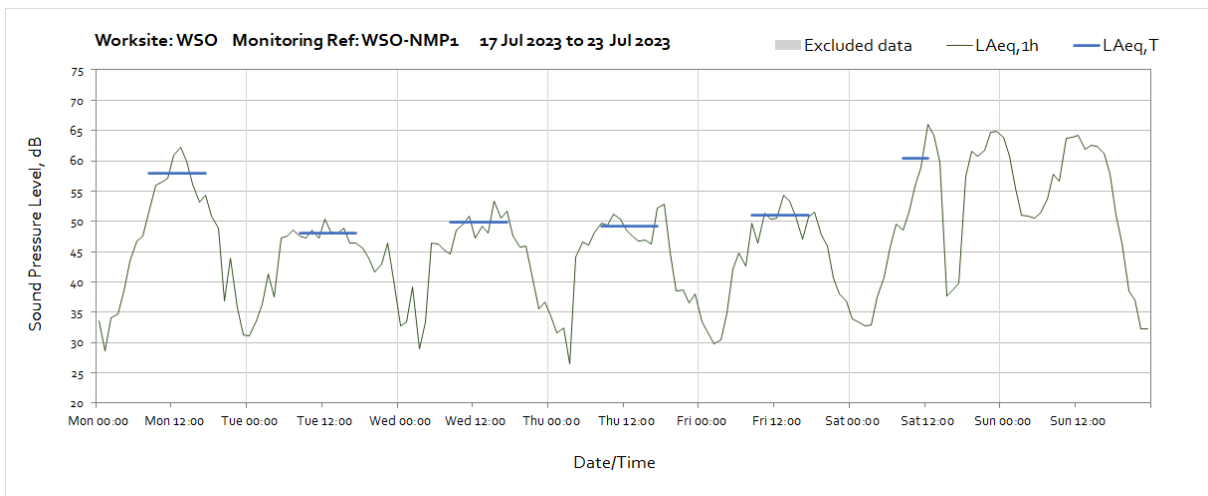
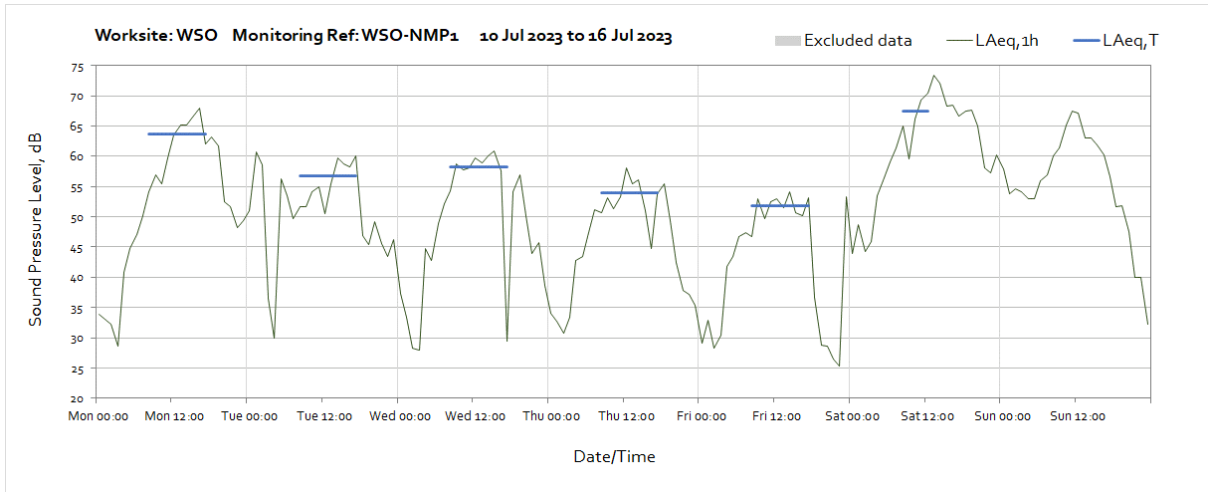


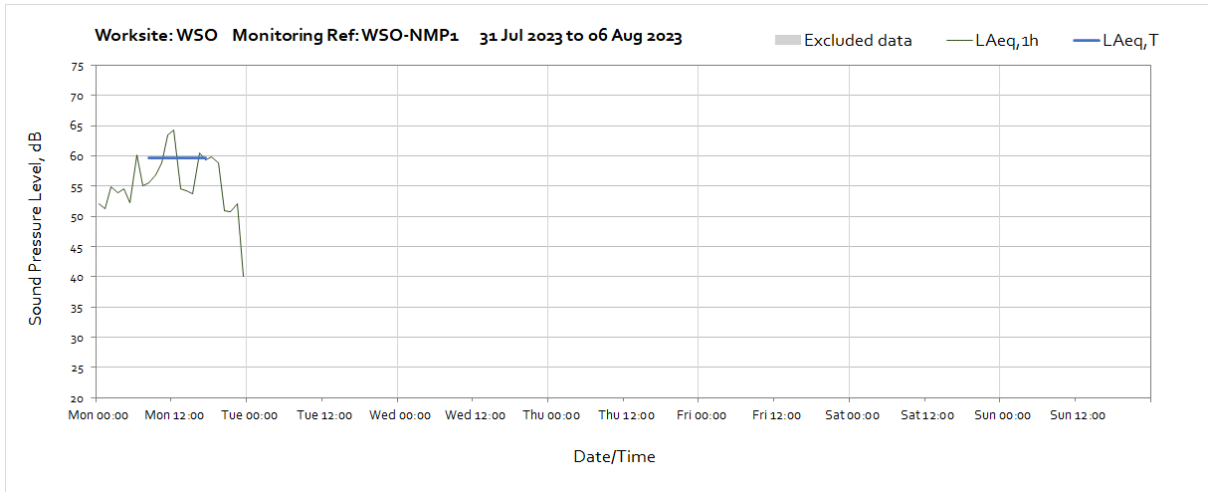




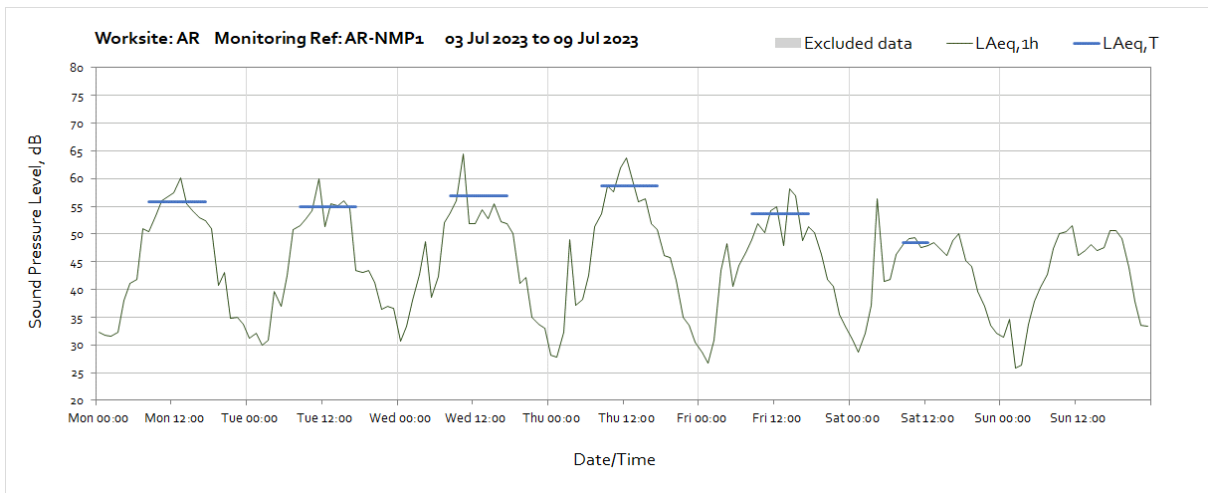
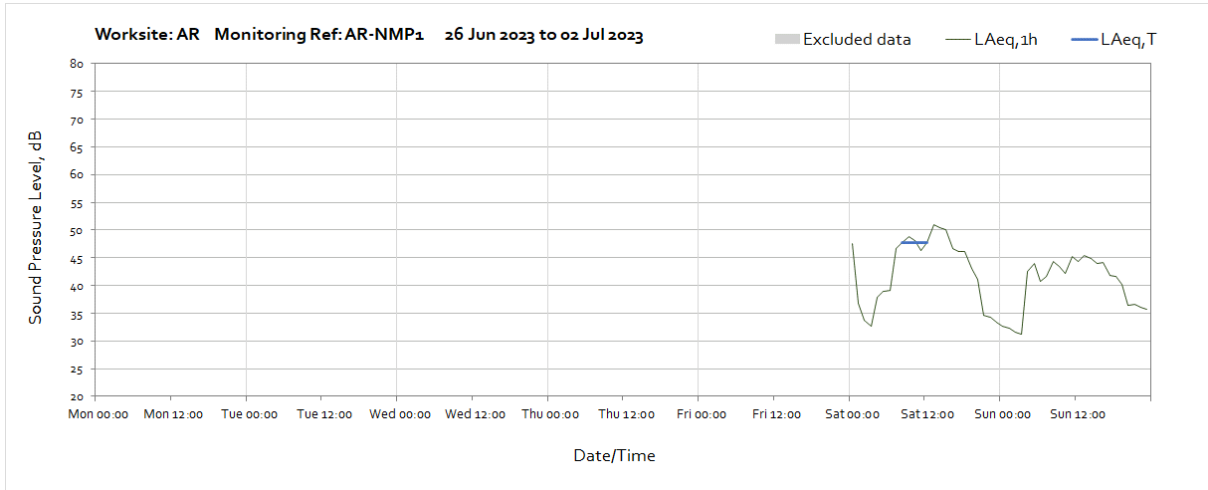
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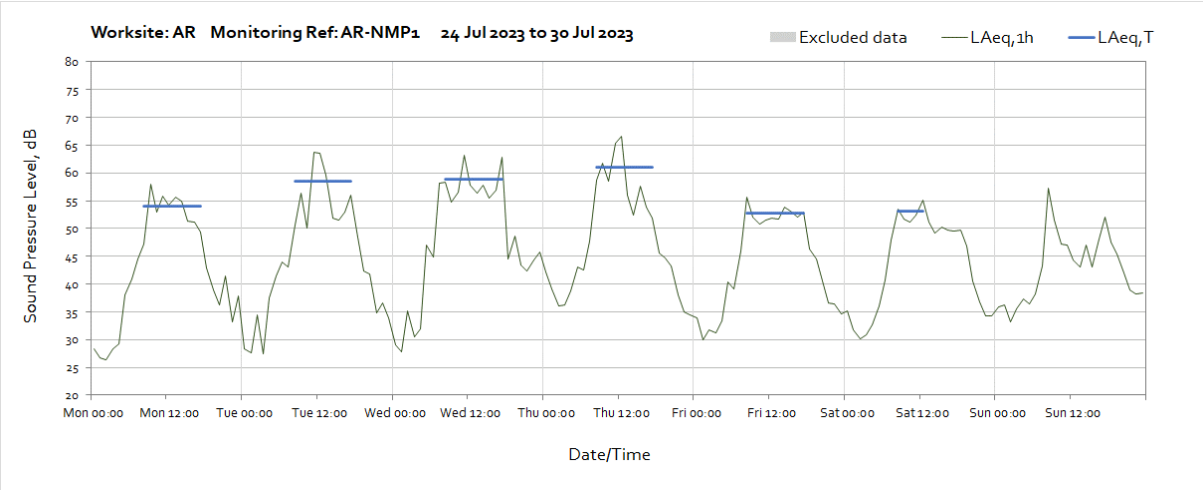
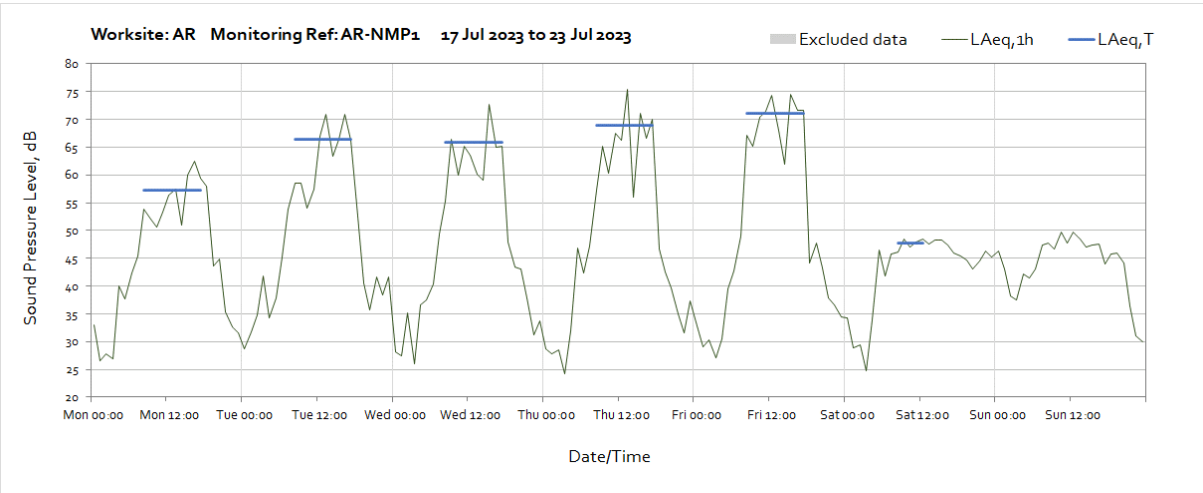
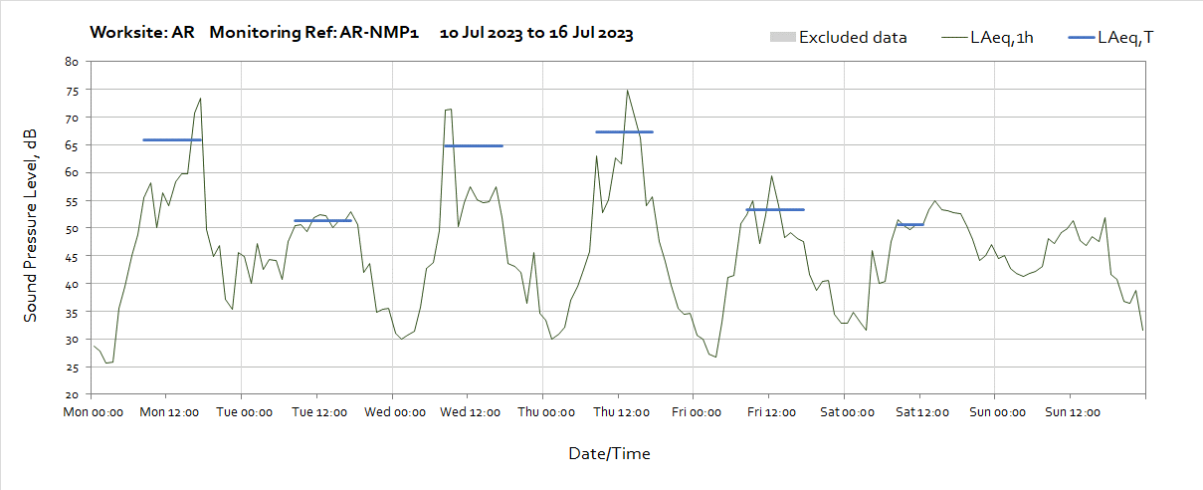


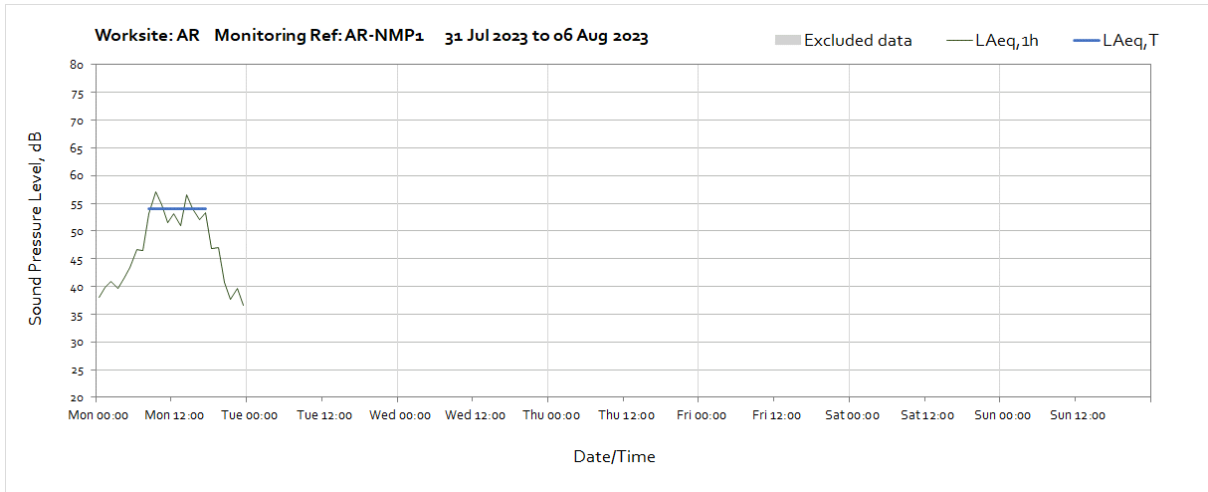




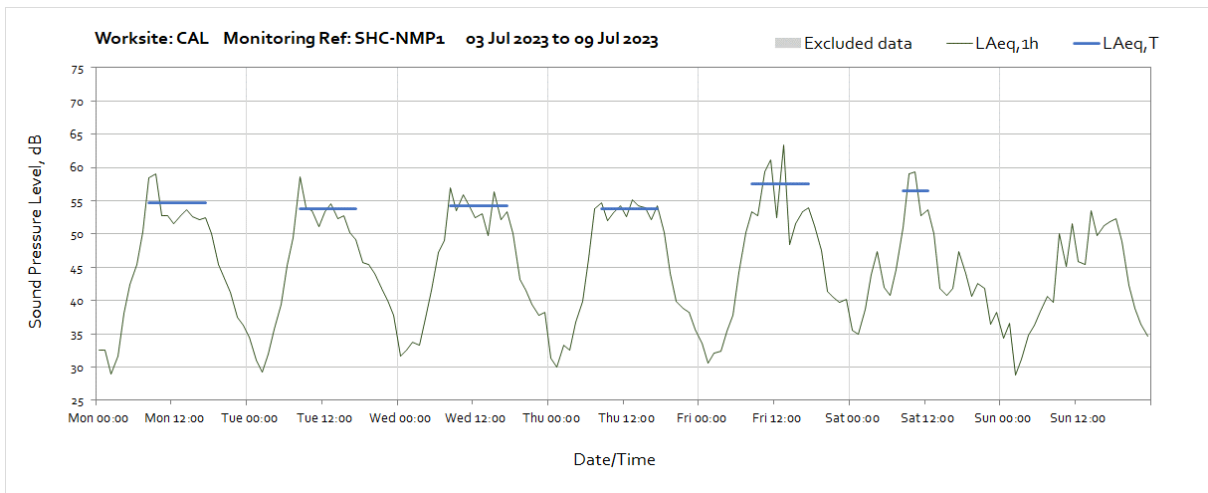
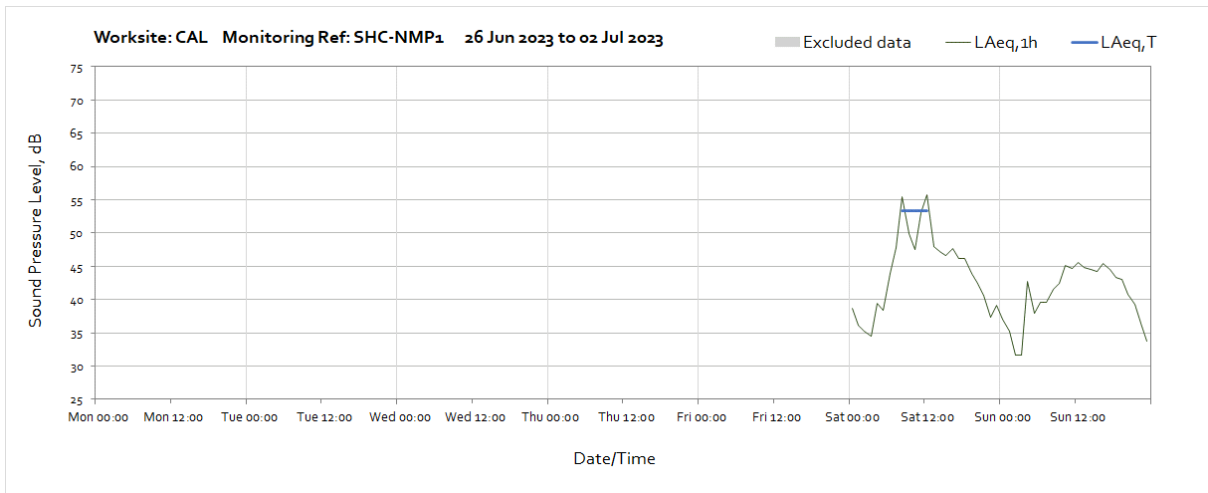
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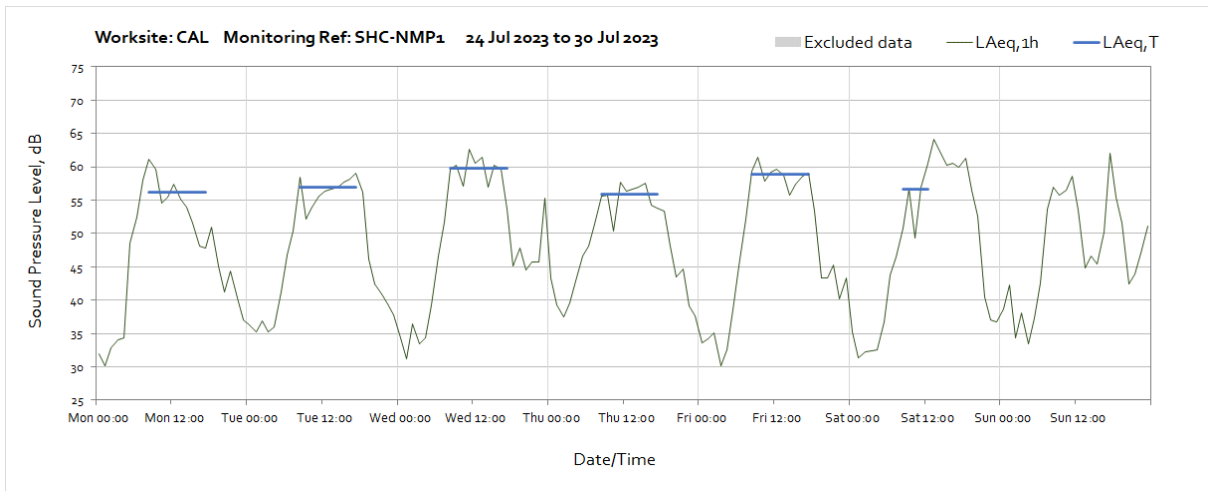
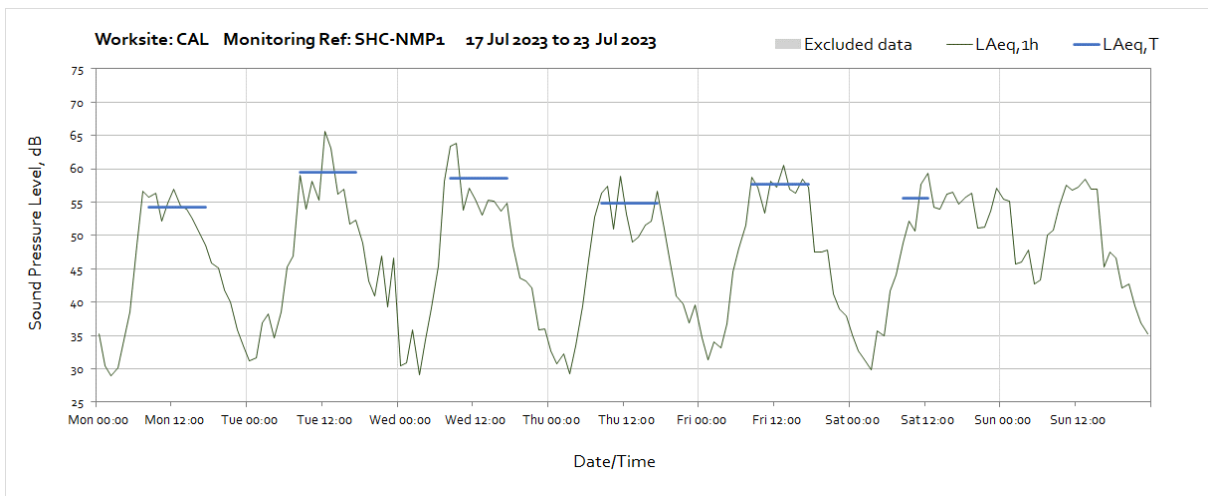
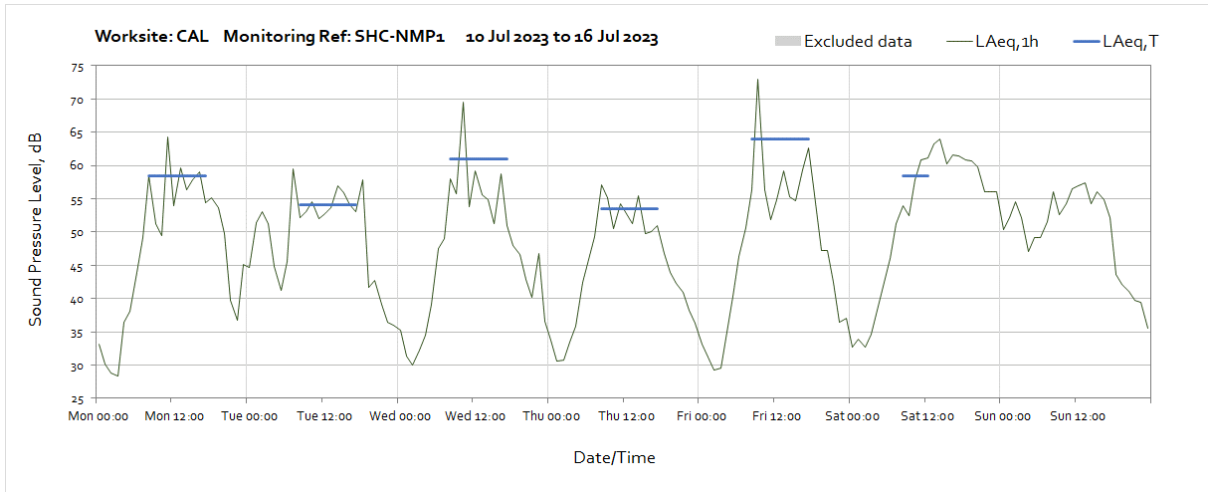


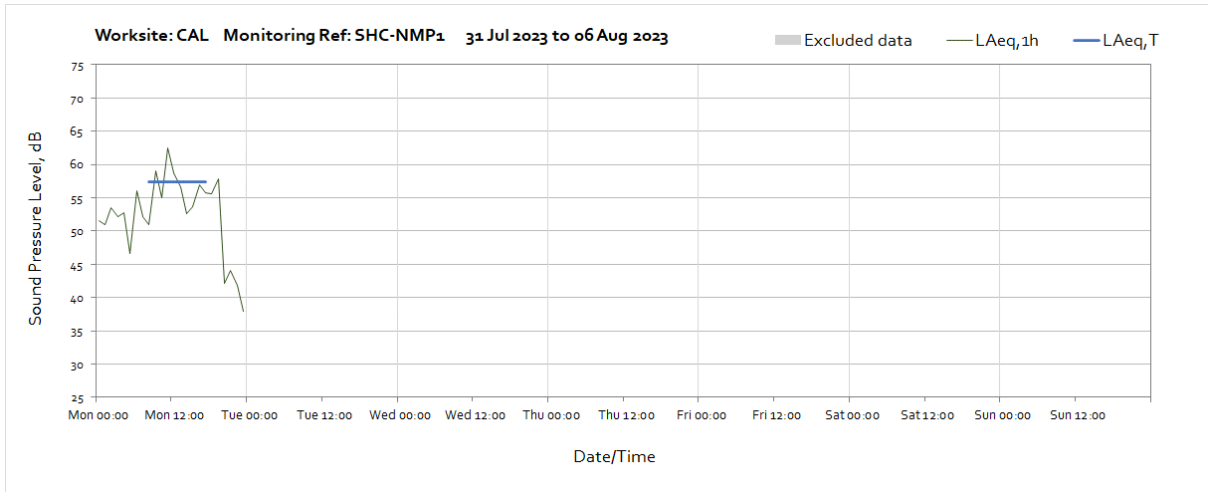




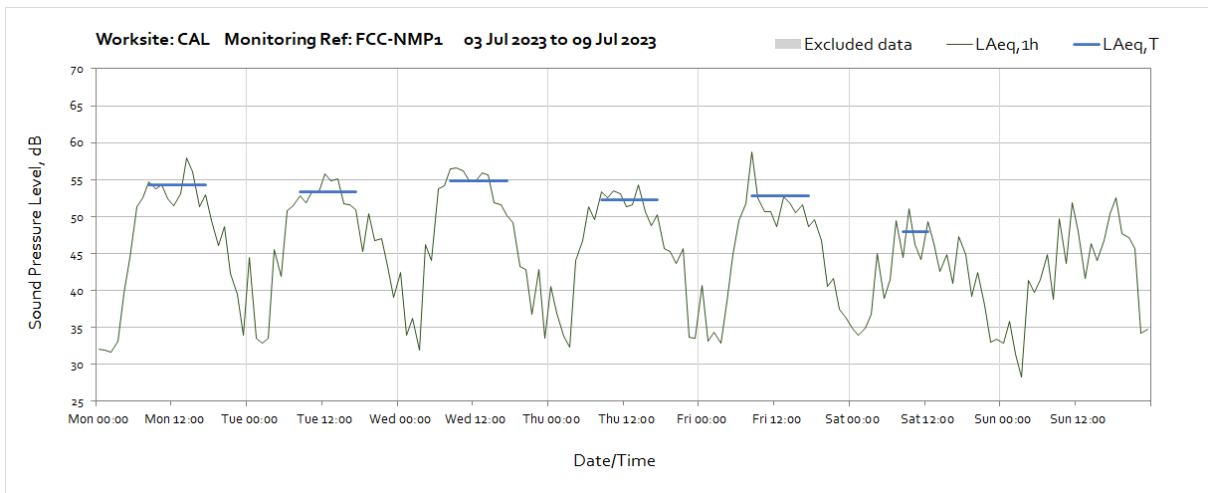
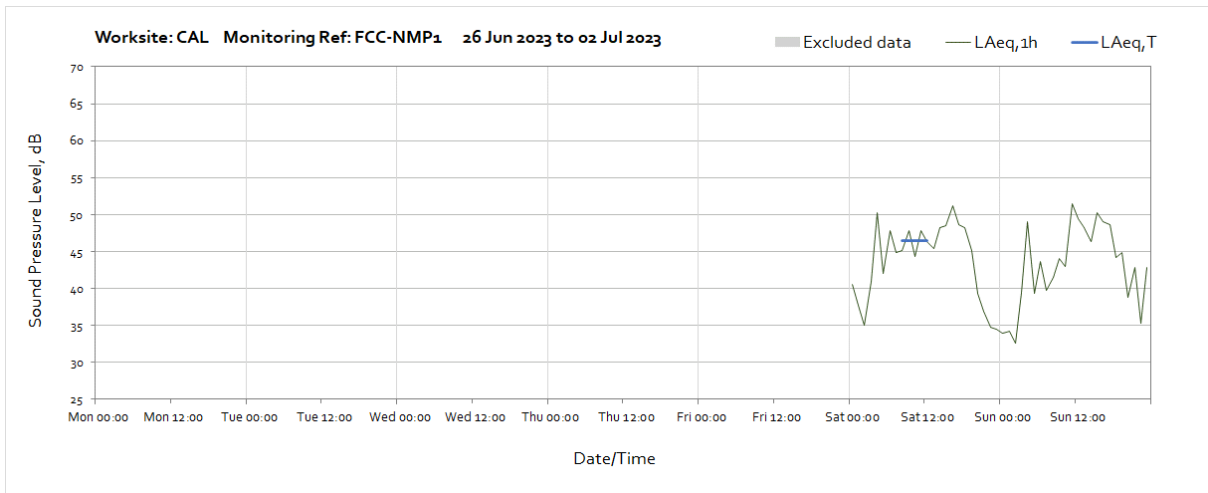
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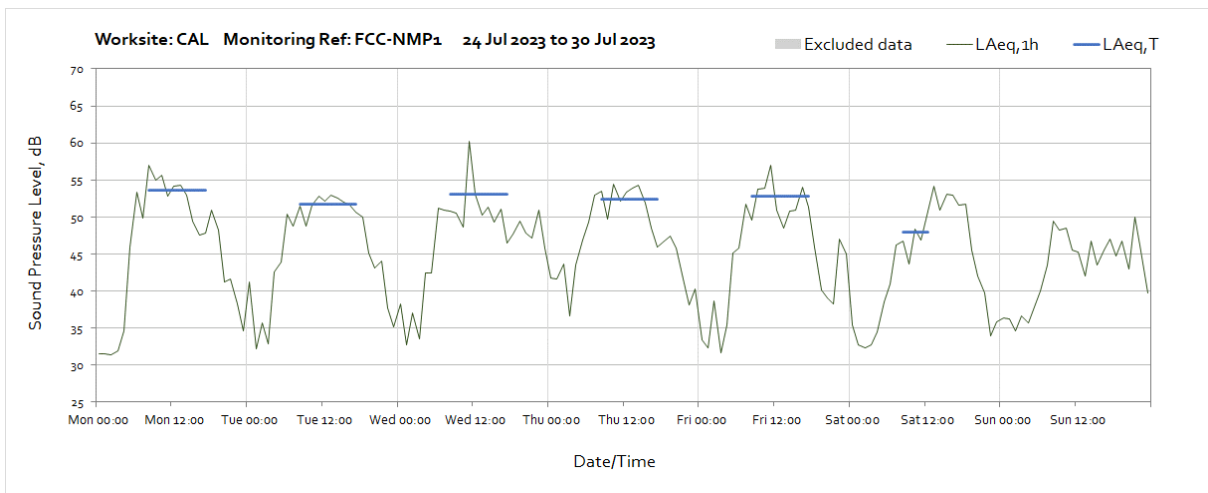
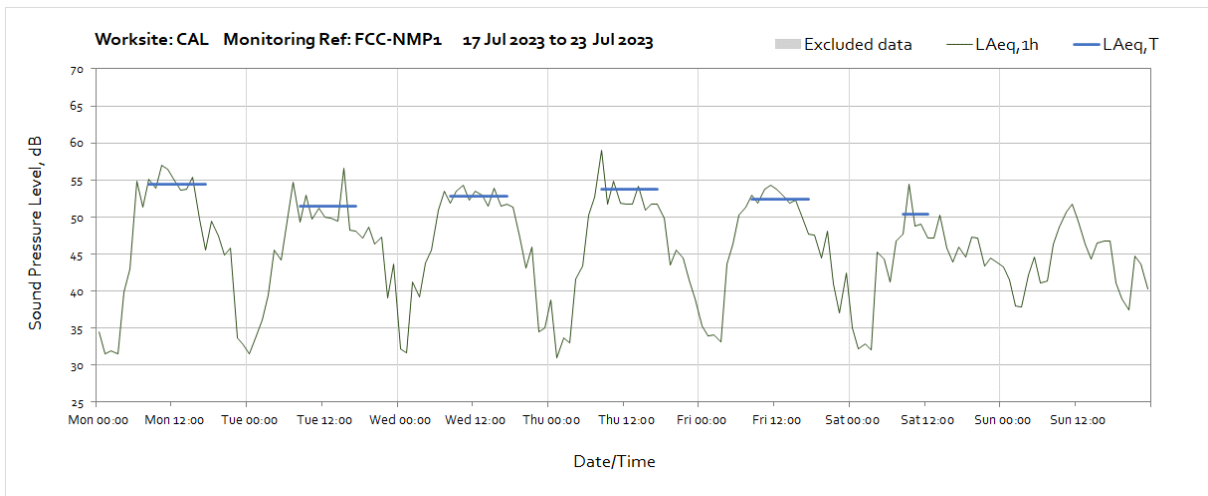
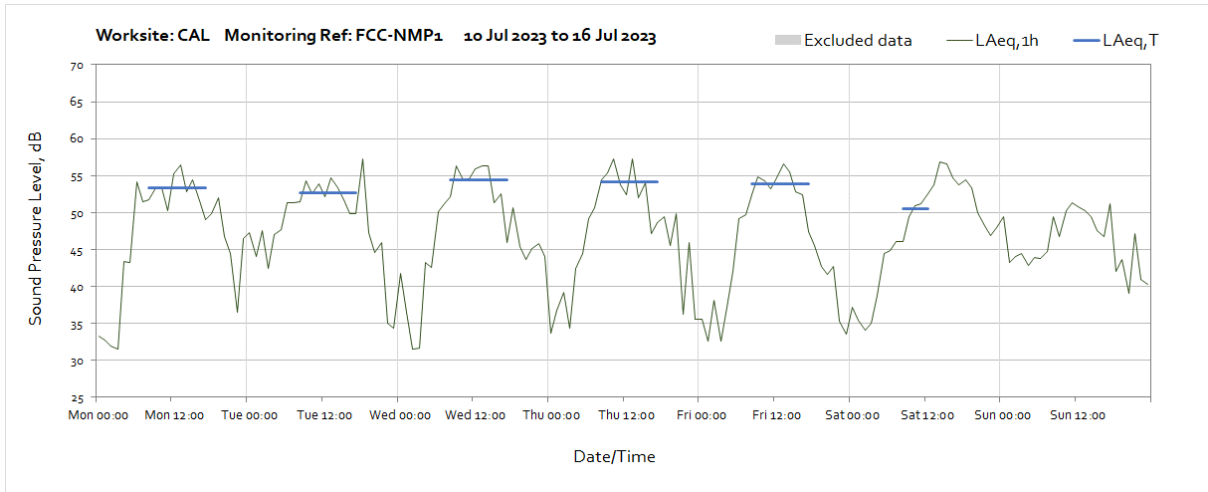


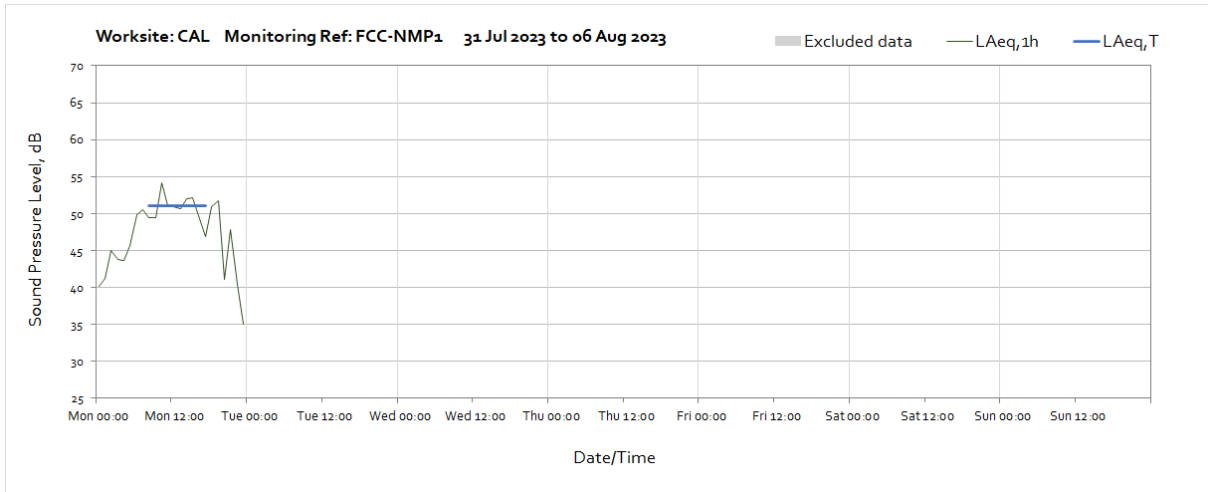




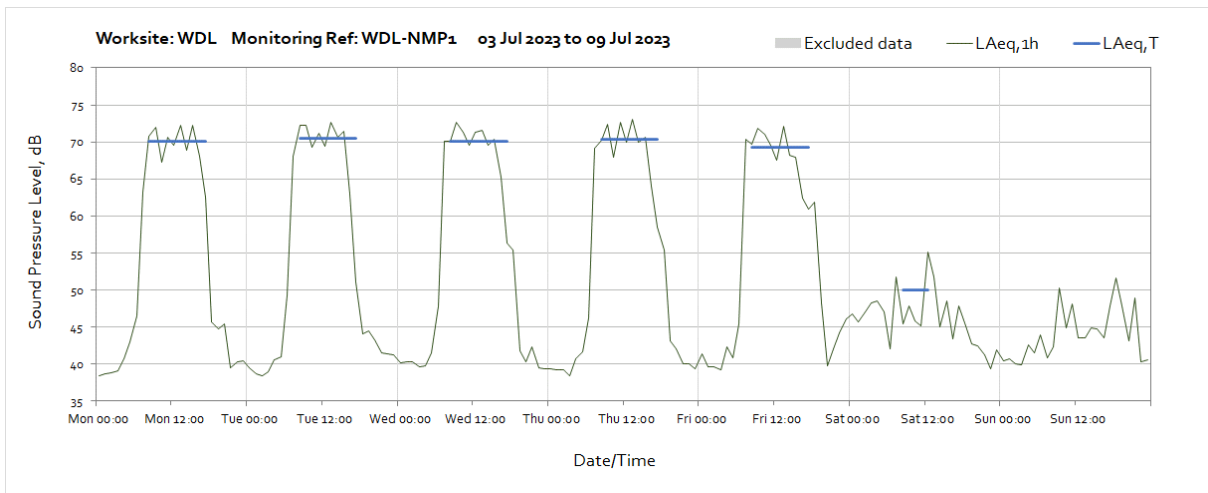
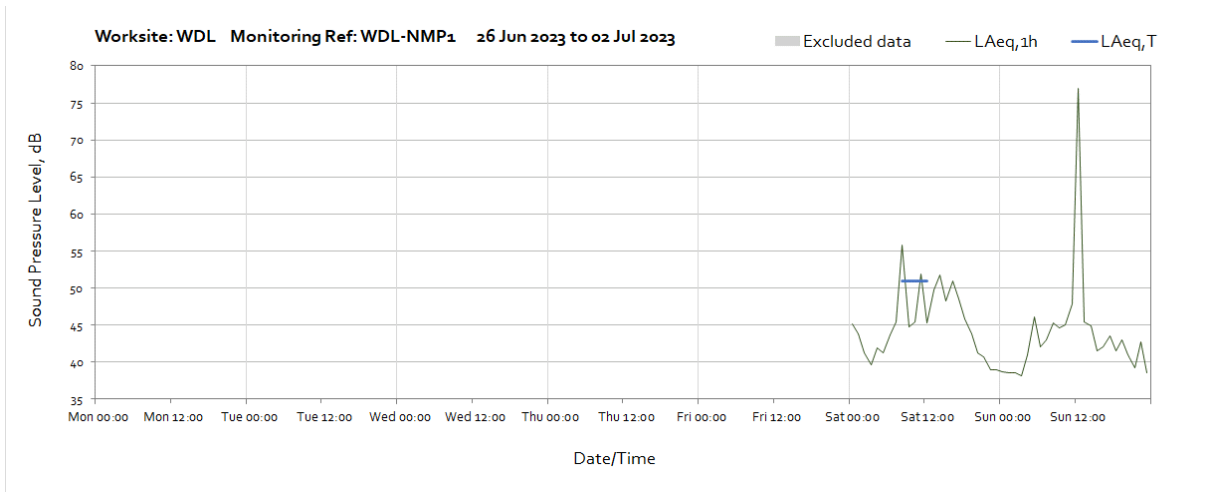
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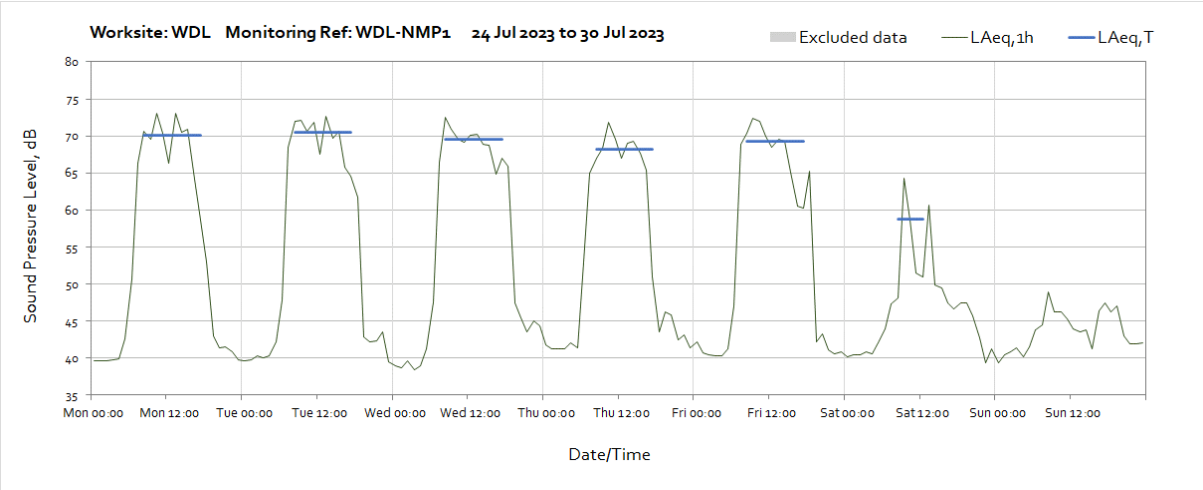
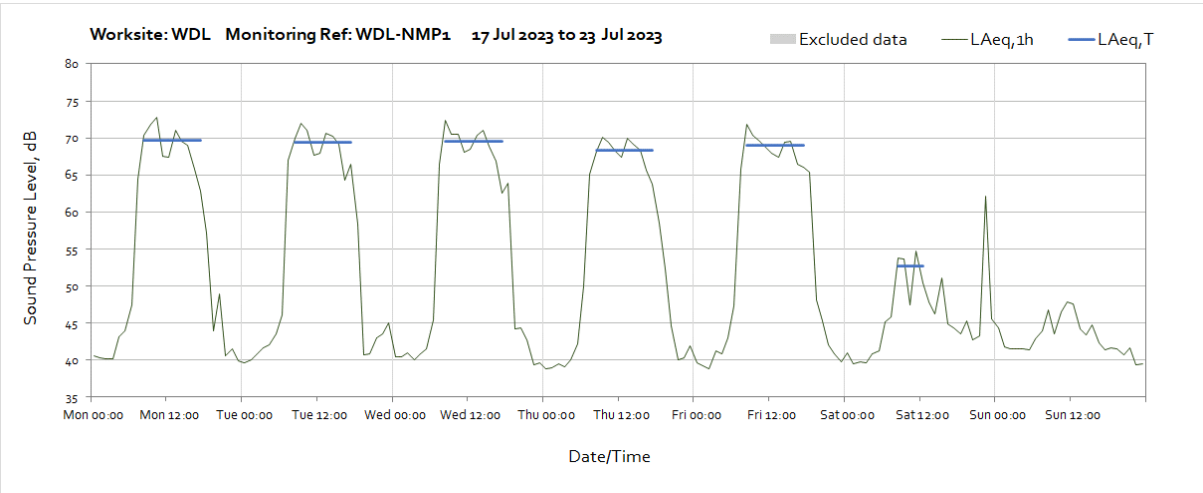
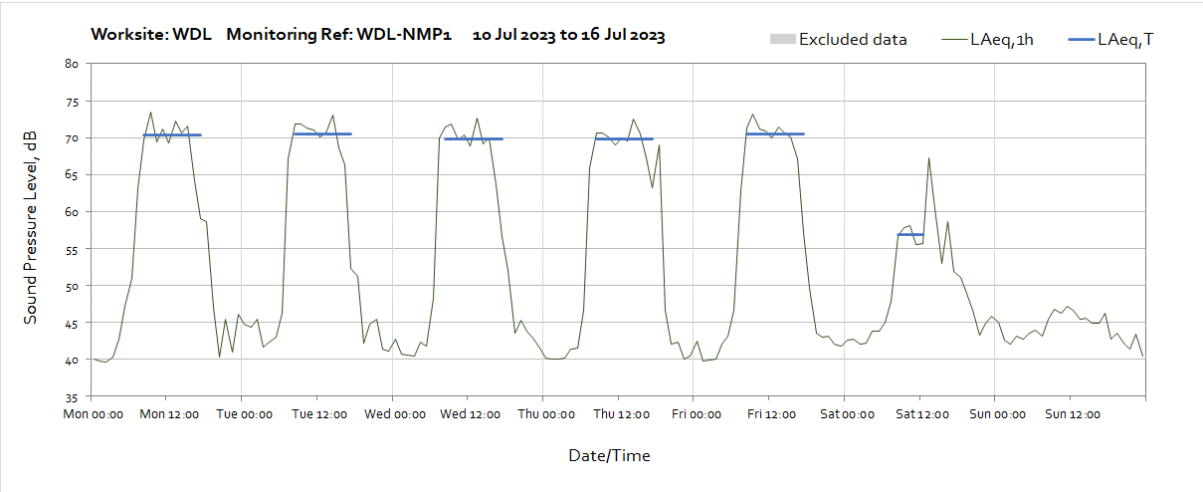


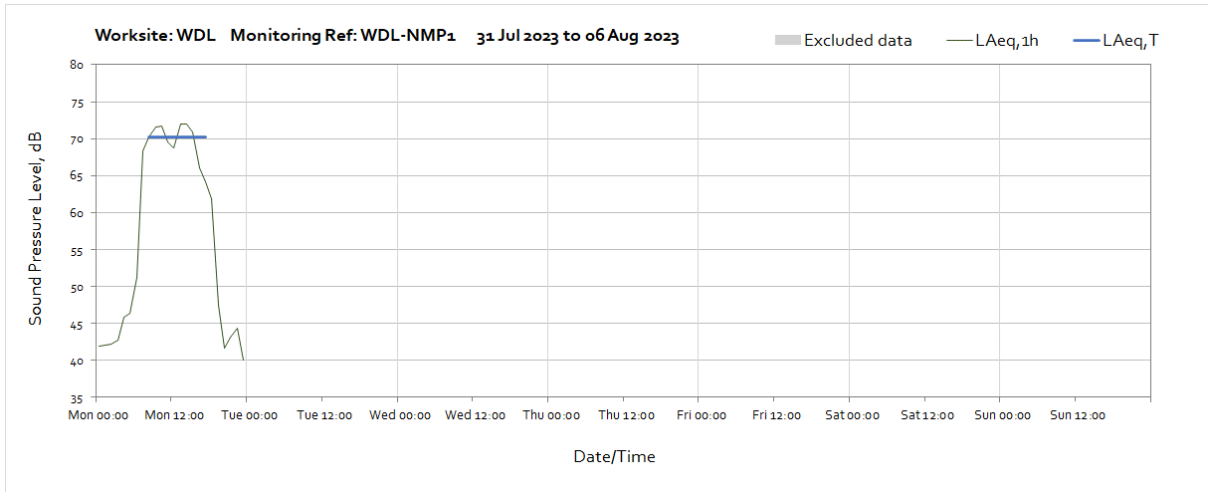




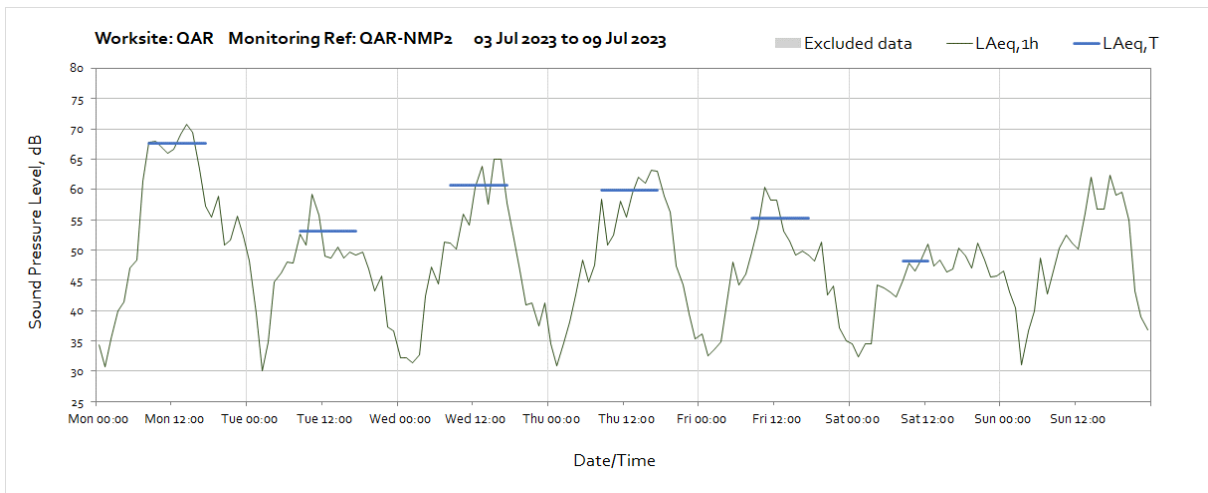
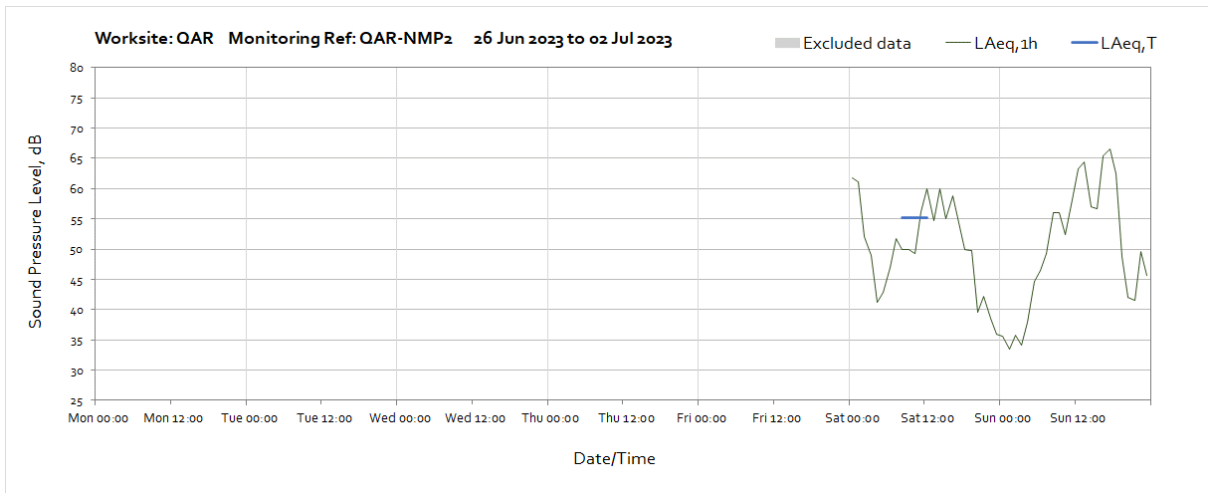
Worksite: WDL – Monitoring Ref: WDL-NMP1

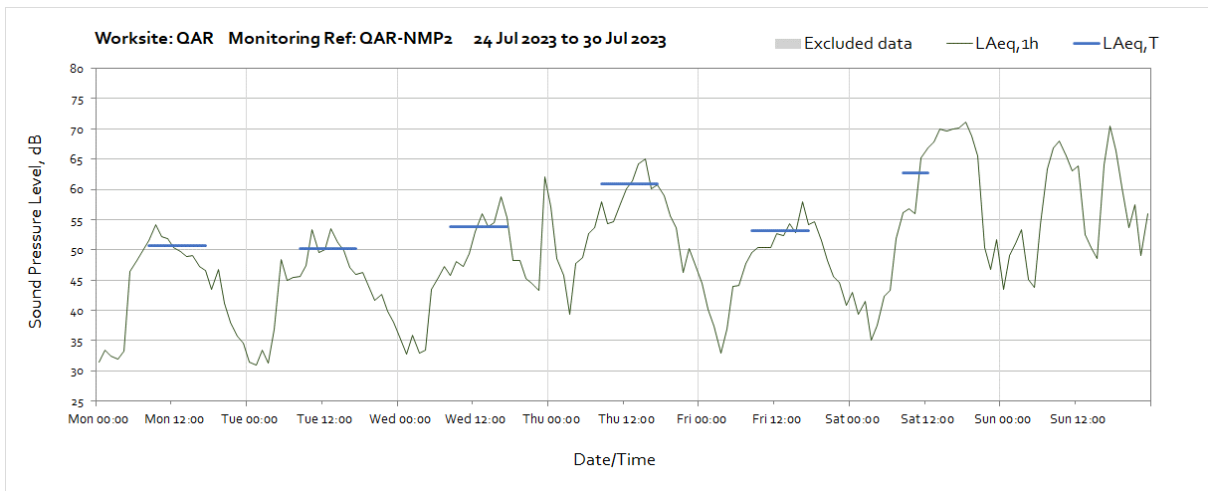
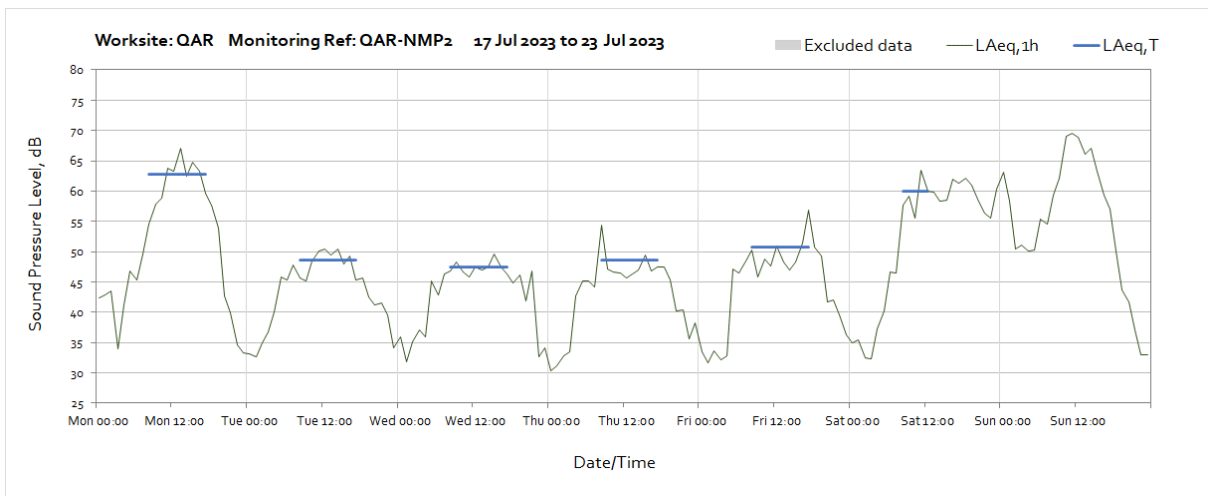
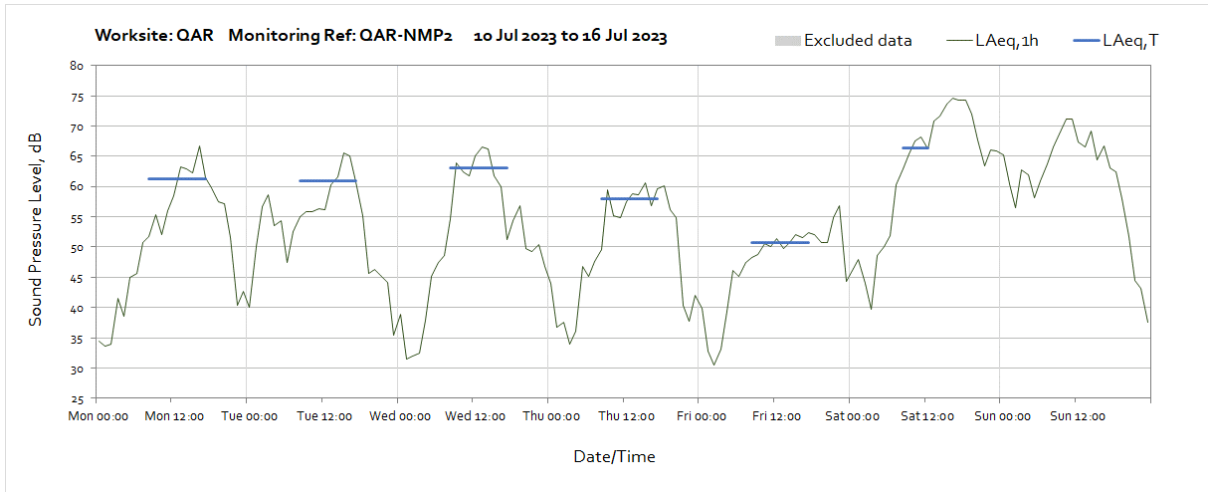


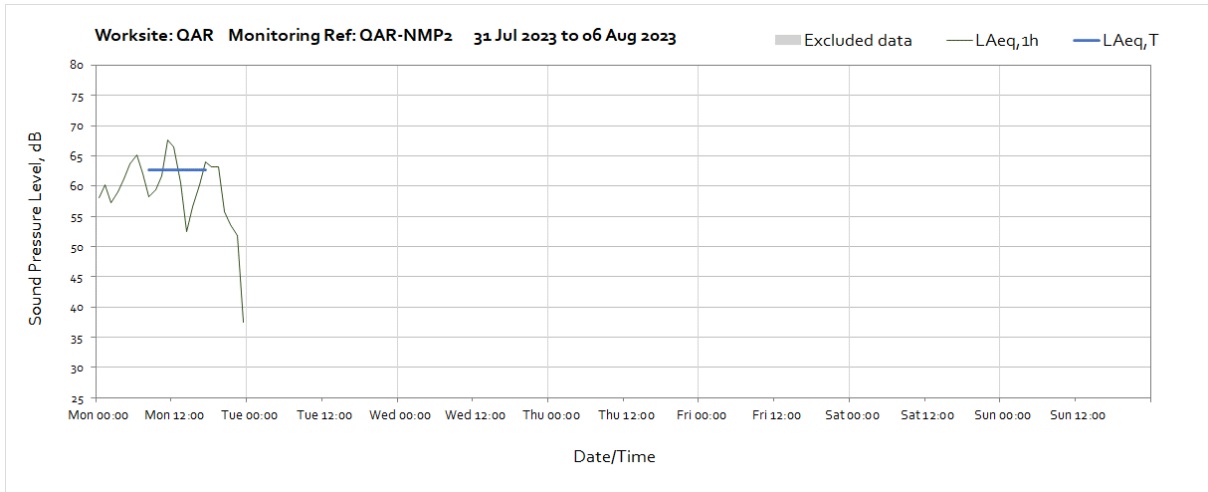




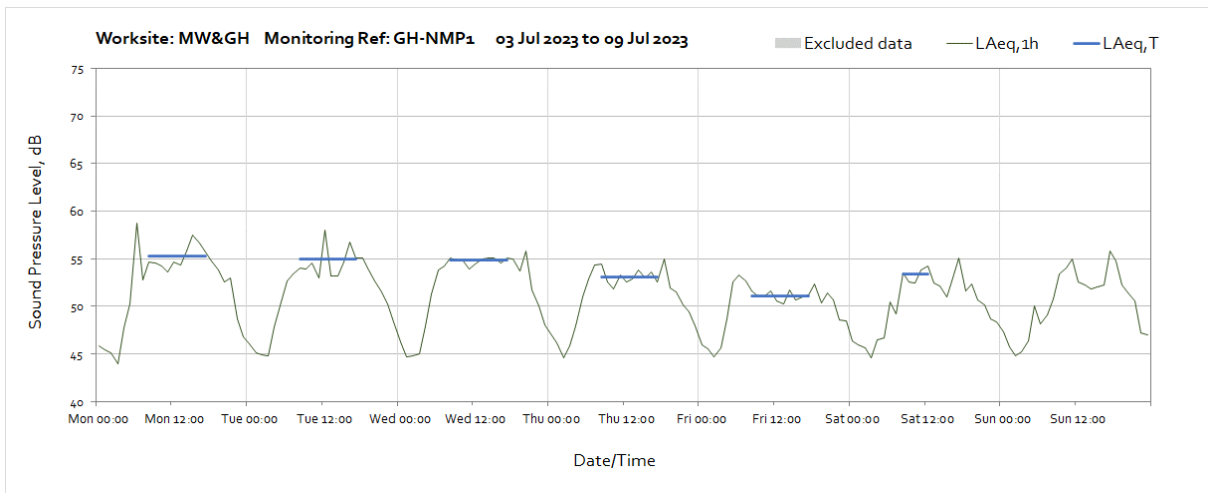
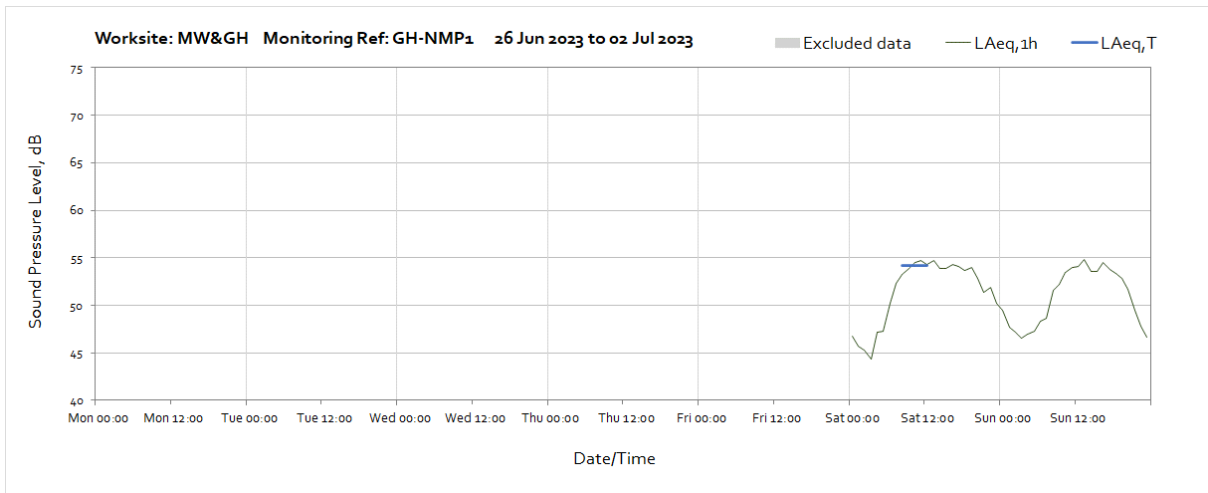
Worksite: QAR – Monitoring Ref: QAR-NMP2

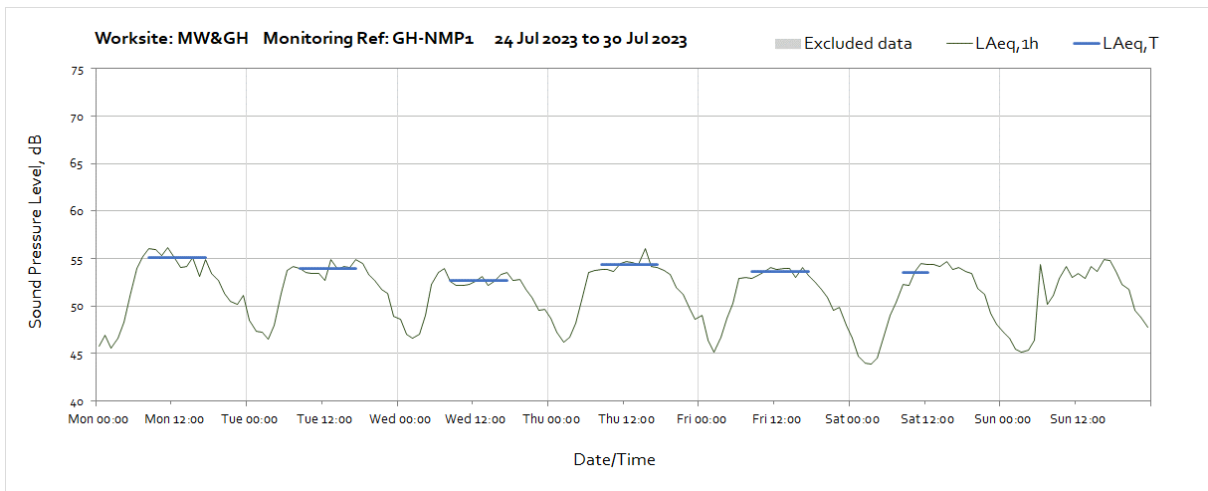
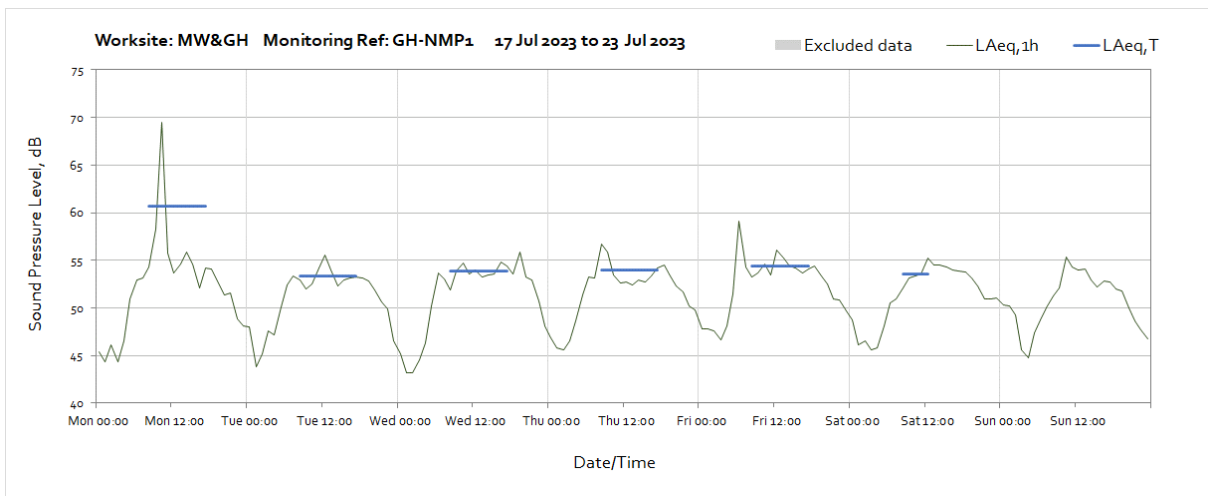
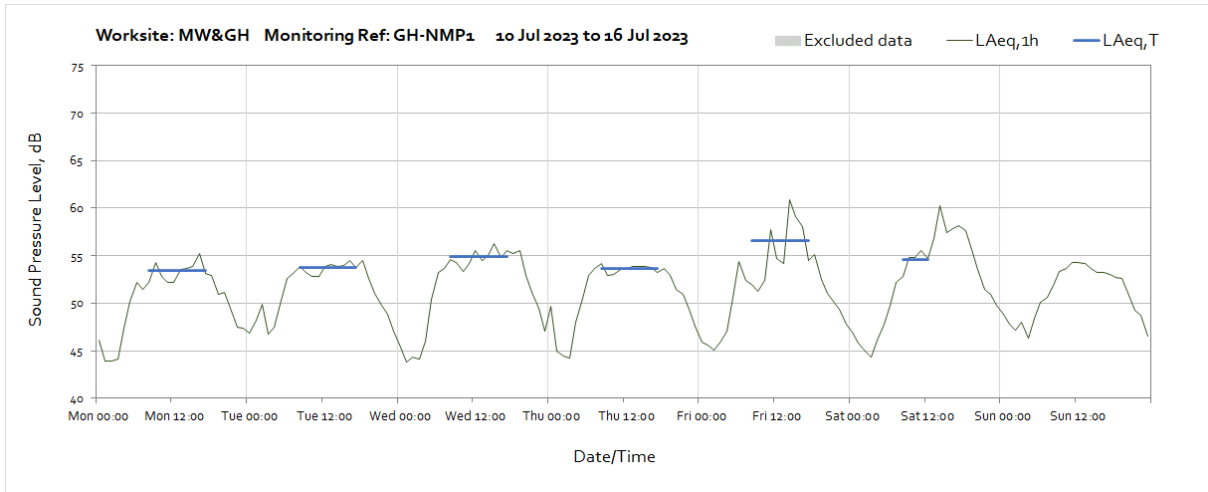


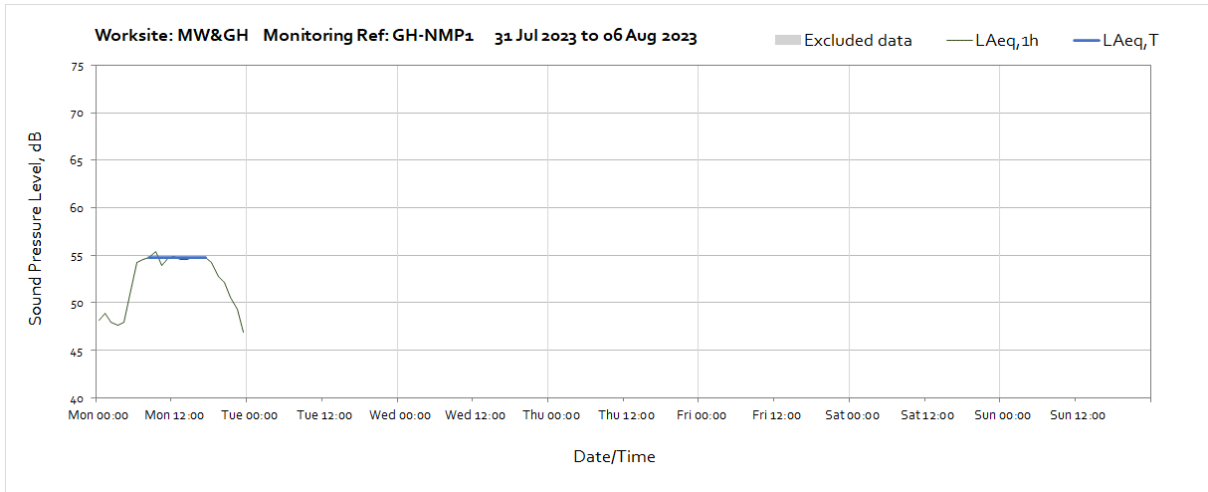




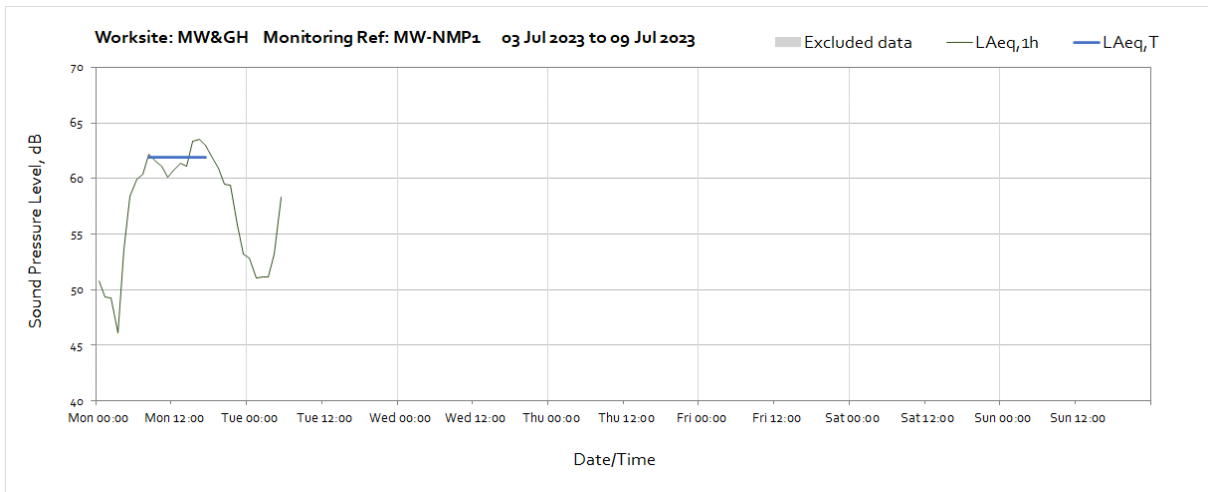
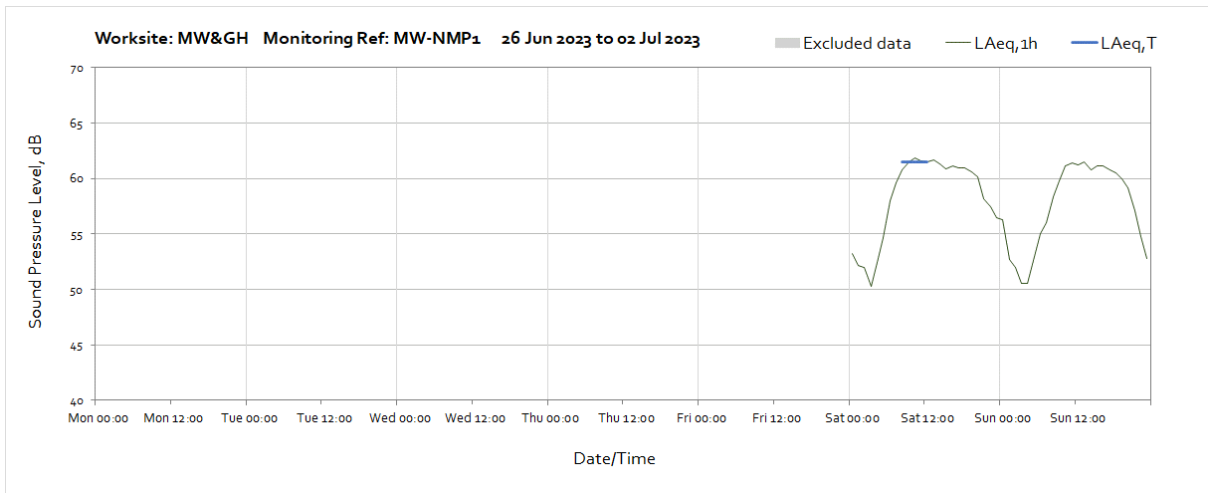
Worksite: MW&GH - Monitoring Ref: GH-NMP1





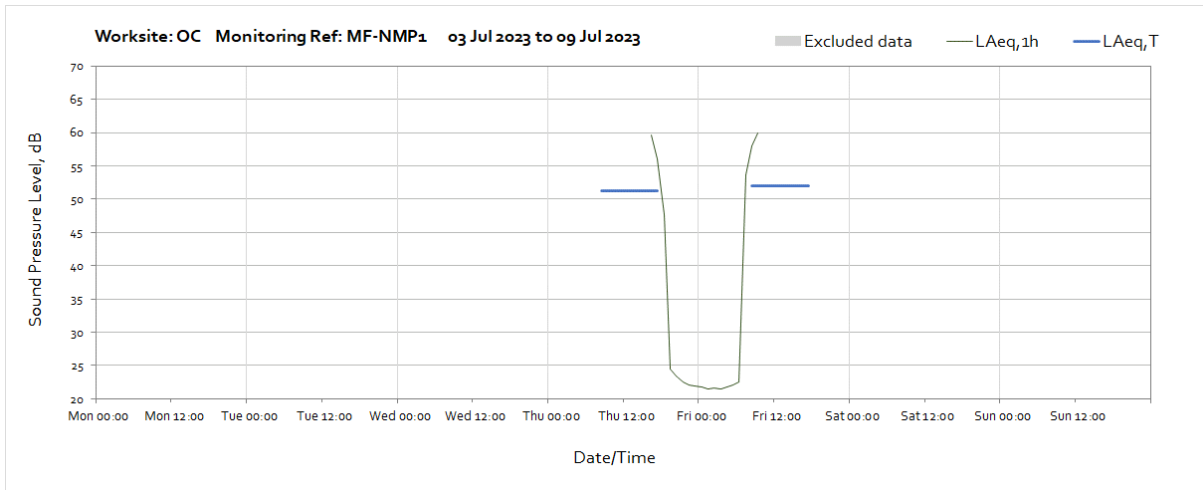


Worksite: MW&GH - Monitoring Ref: MW-NMP1

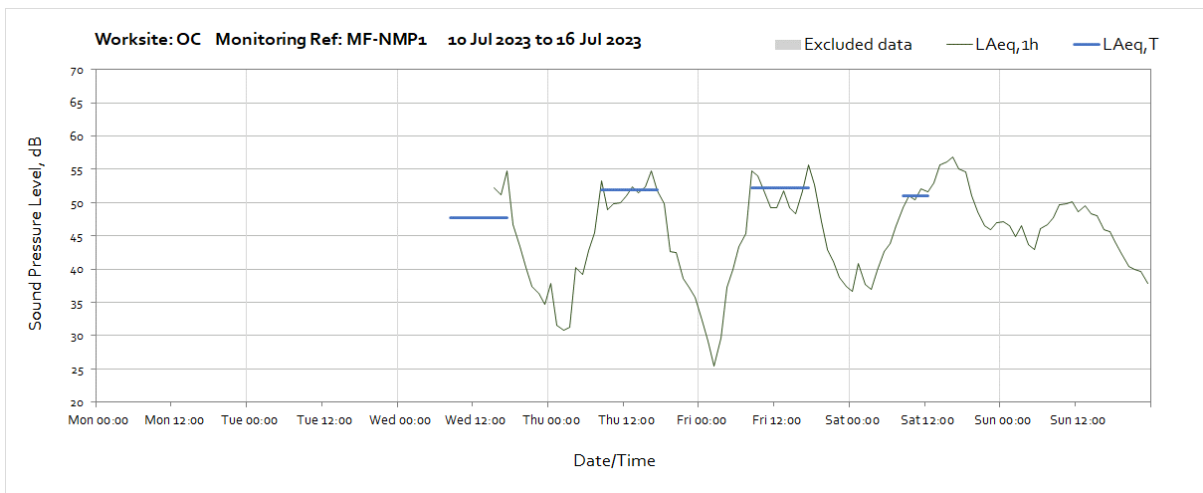


Note: Missing data from 06:00 on Tuesday 4th July until month end was due to loss of power to monitoring station caused by the theft of solar panels and battery.

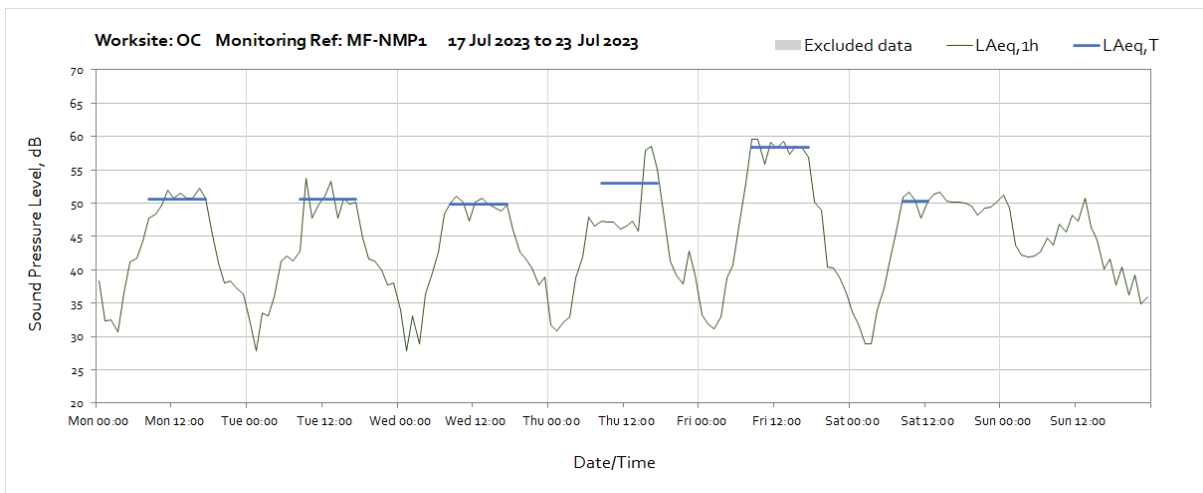
Worksite: OC – Monitoring Ref: MF-NMP1

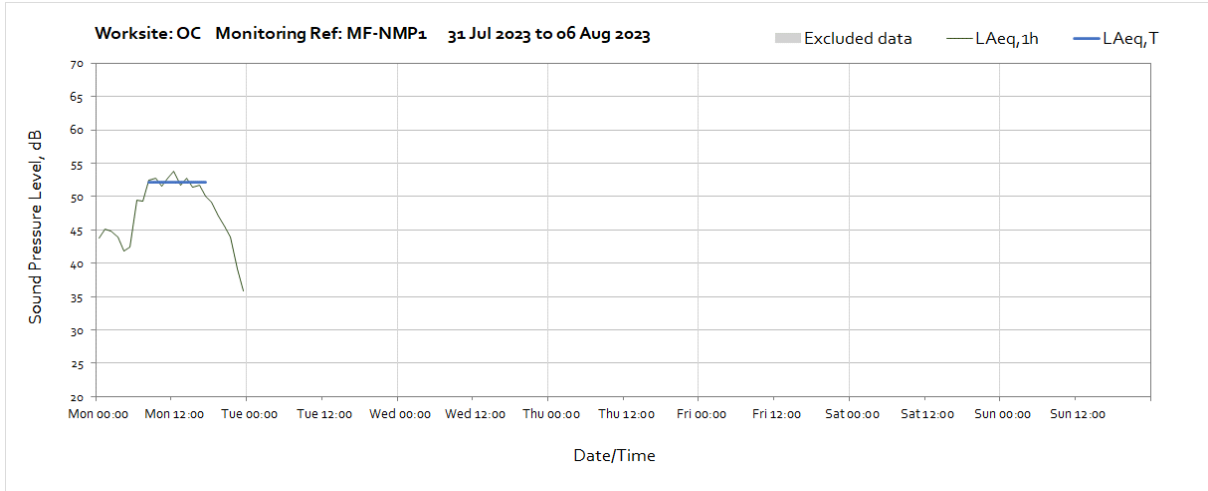
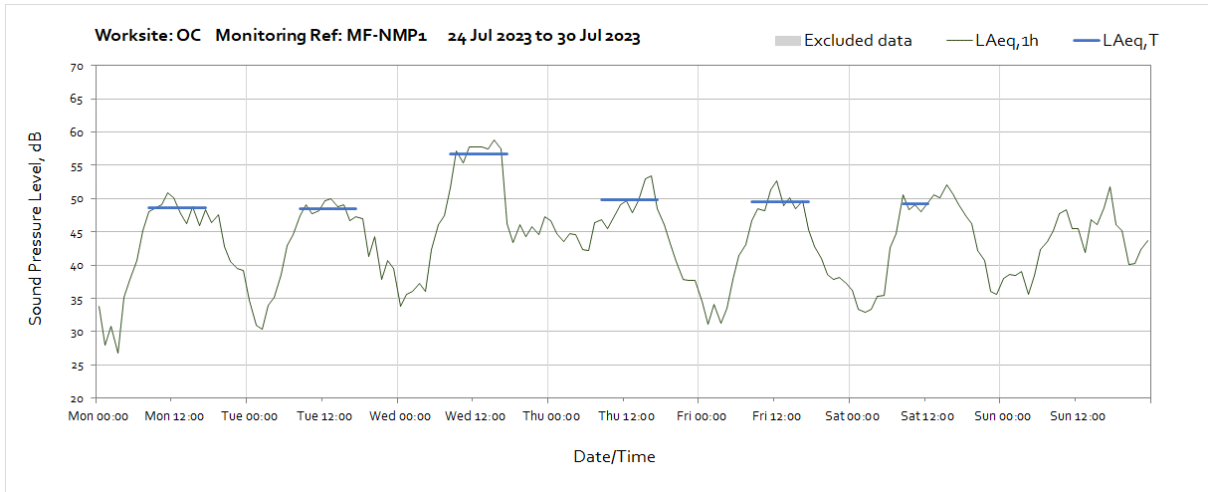


Note: Monitor was reinstalled at 16:00 on Thursday 6th July. Missing data between 10:00 Friday 7th July and 15:00 on Wednesday 12th July was due to monitor battery fault which has now been replaced.

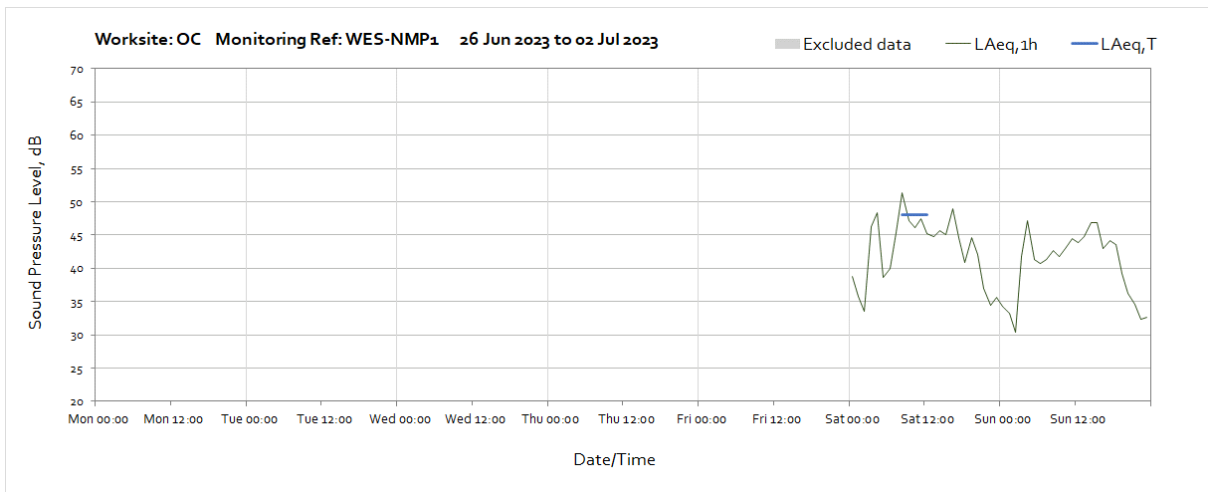


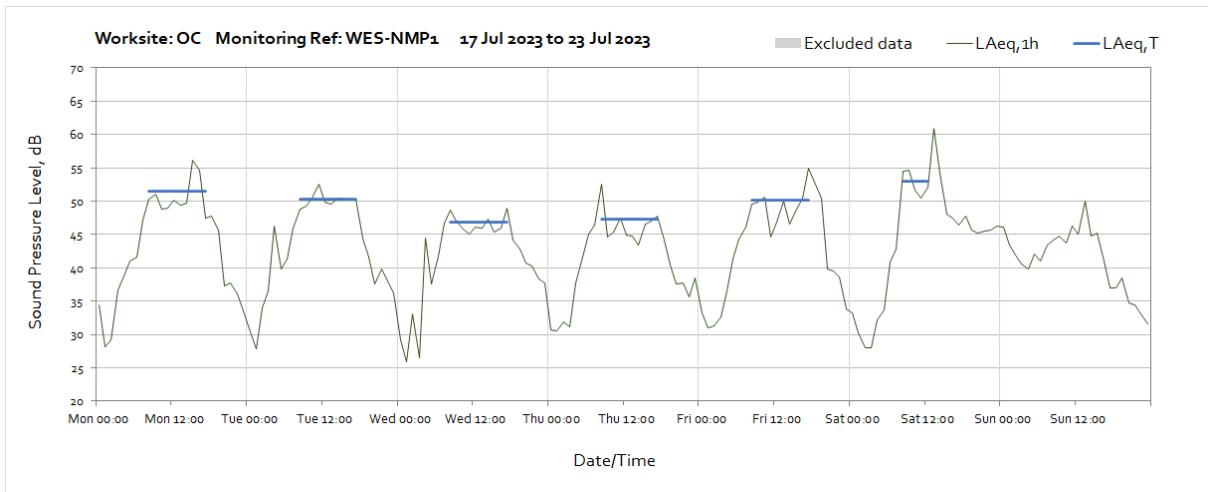
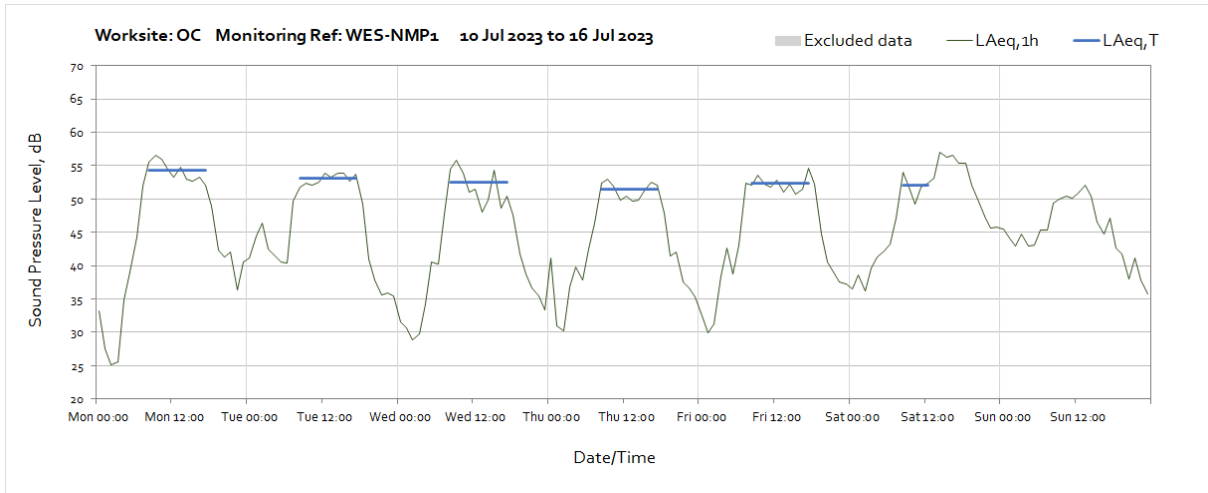
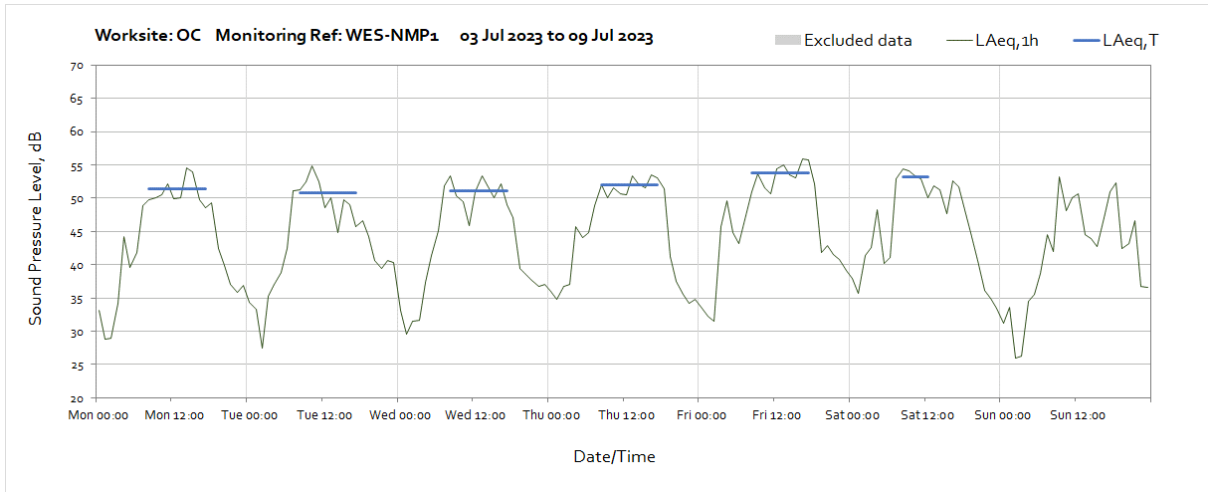
Note: Missing data between 10:00 Friday 7th July and 15:00 on Wednesday 12th July was due to monitor battery fault which has now been replaced.

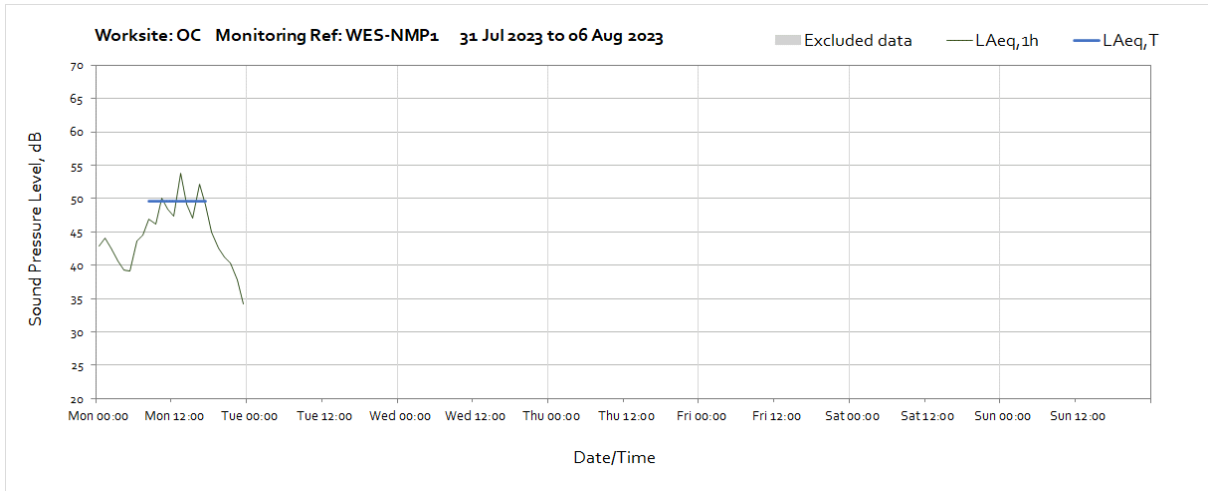
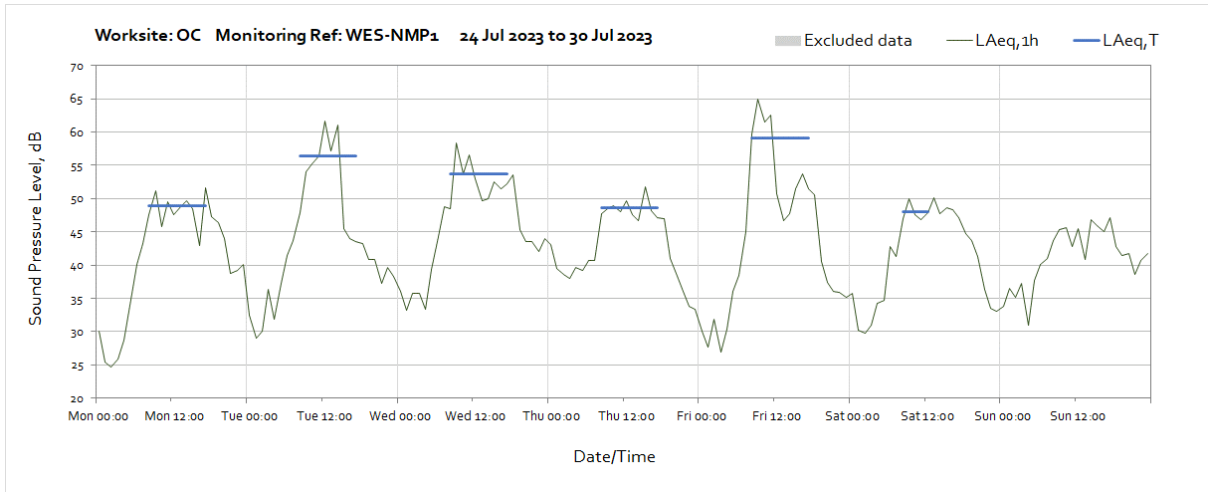




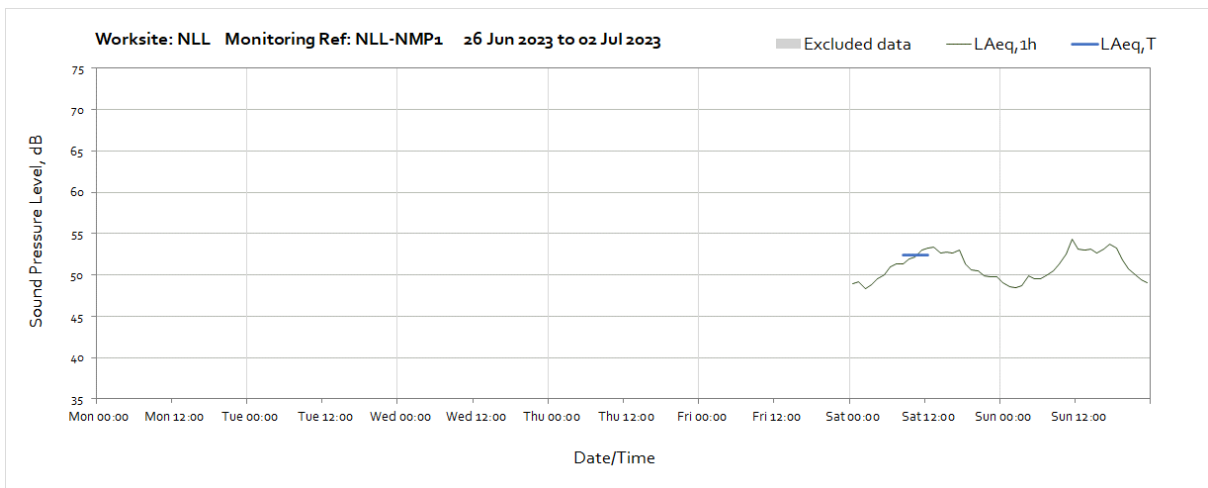
Worksite: OC - Monitoring Ref: WES-NMP1

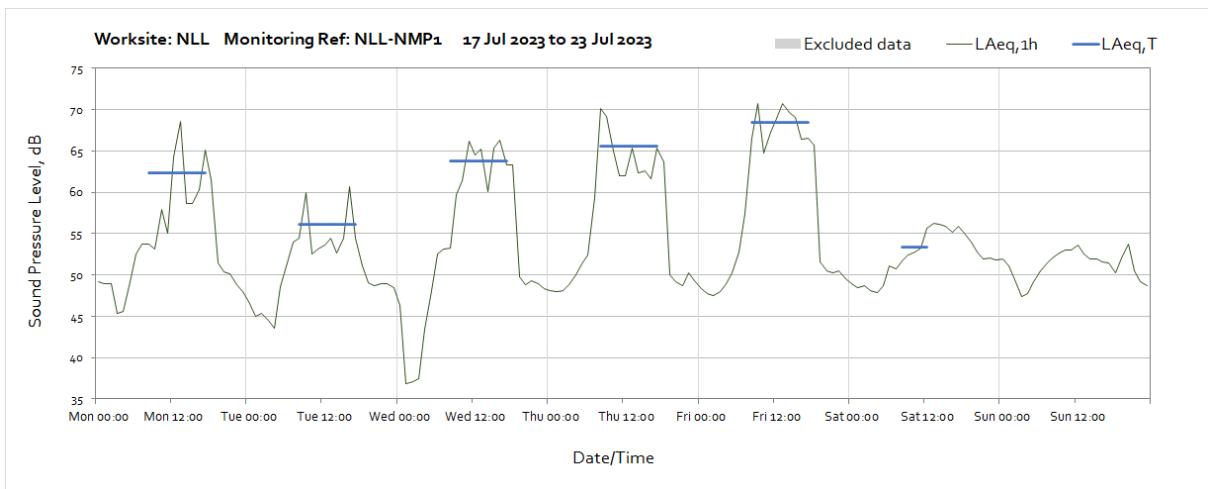
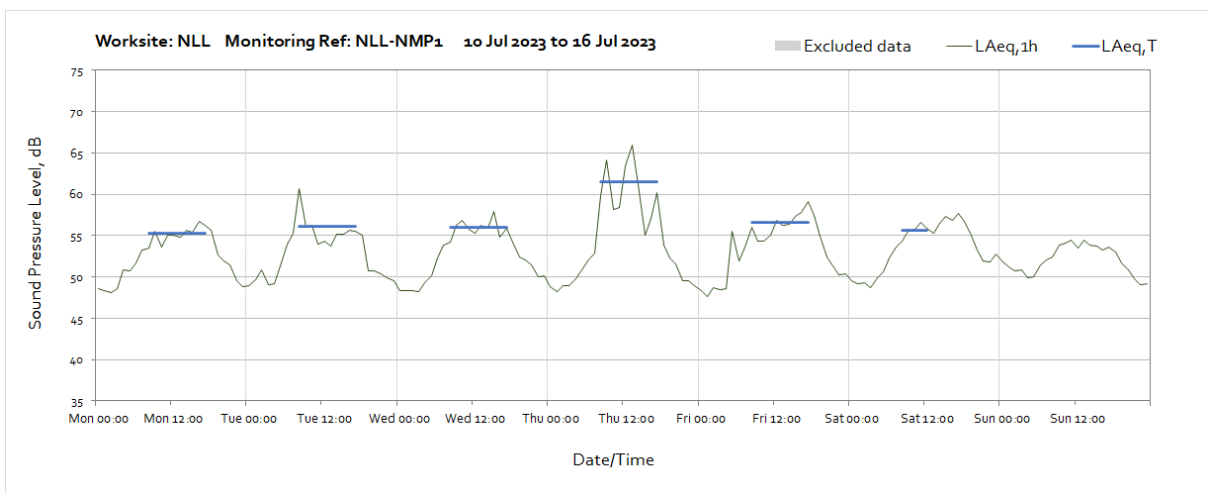
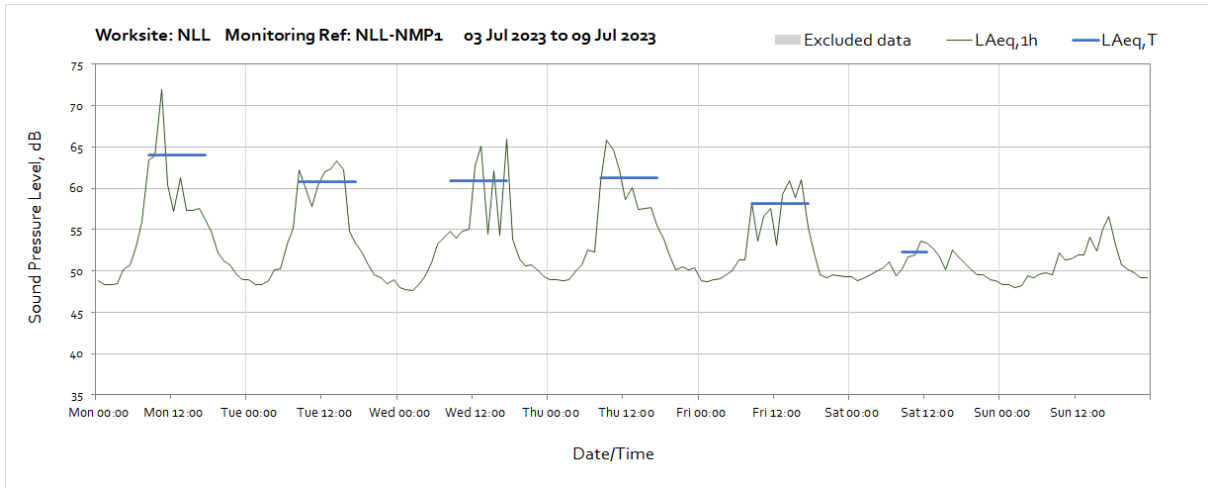


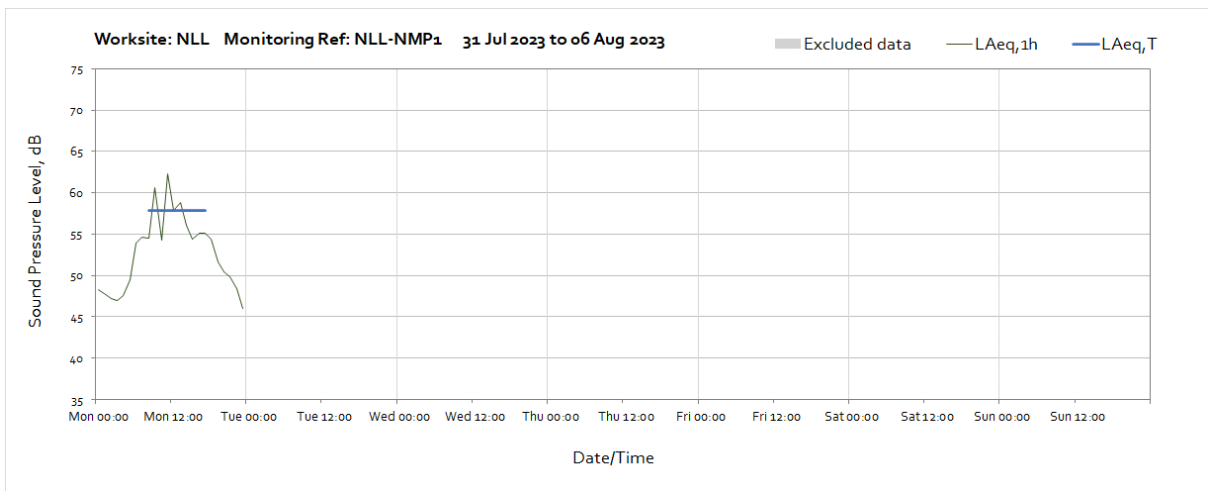
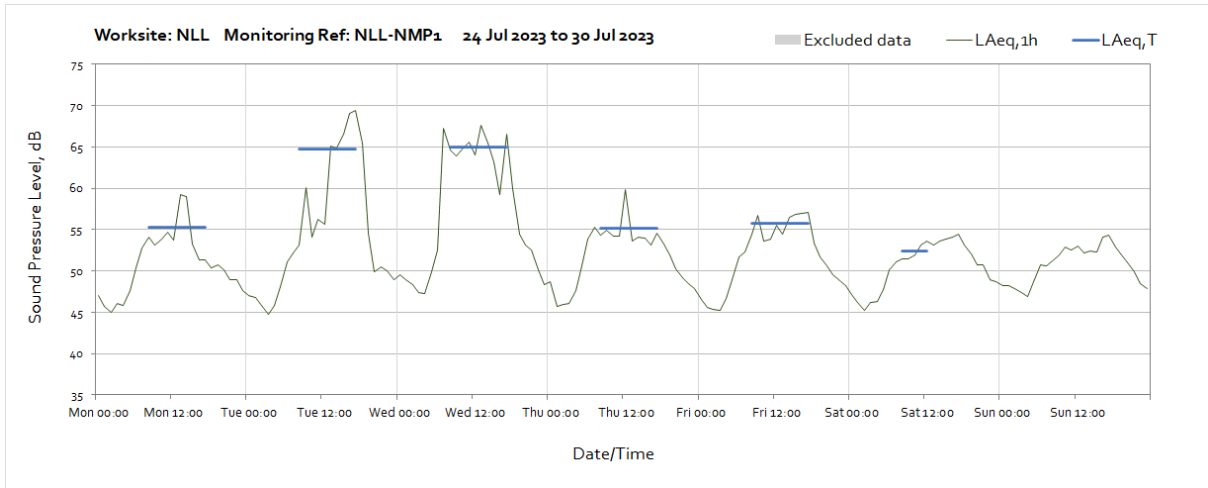




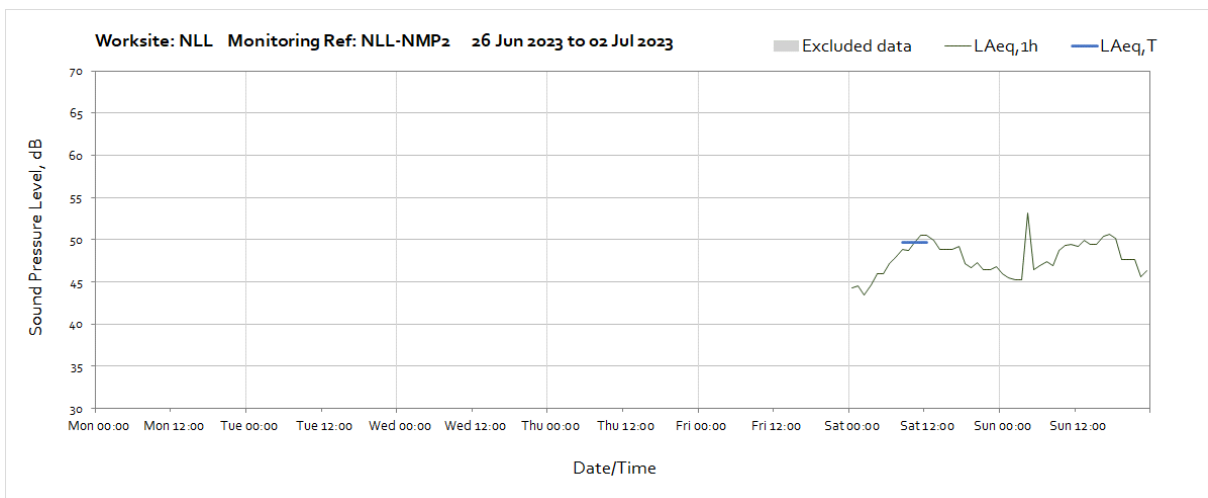
Worksite: NLL - Monitoring Ref: NLL-NMP1

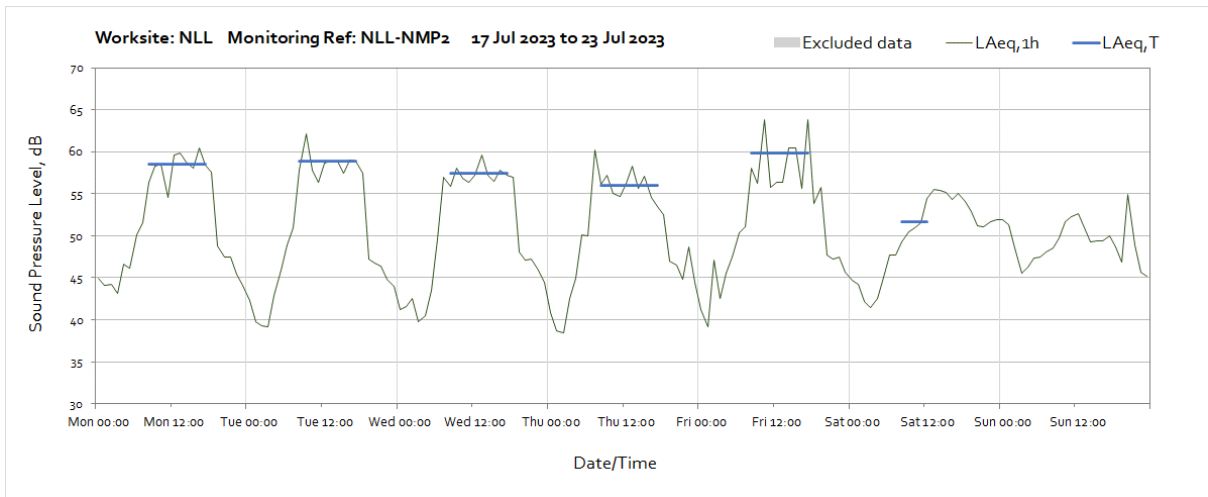
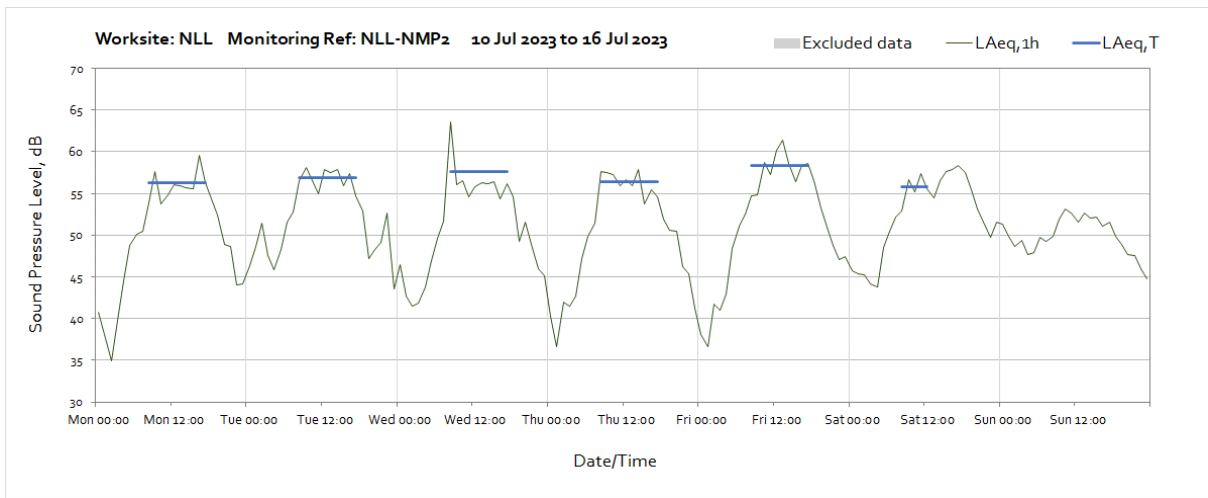
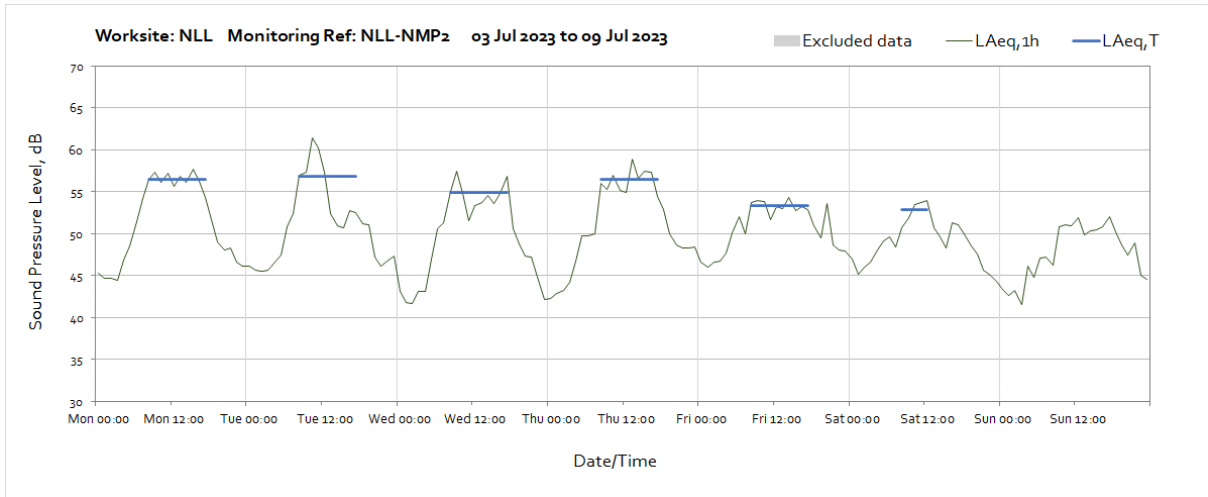


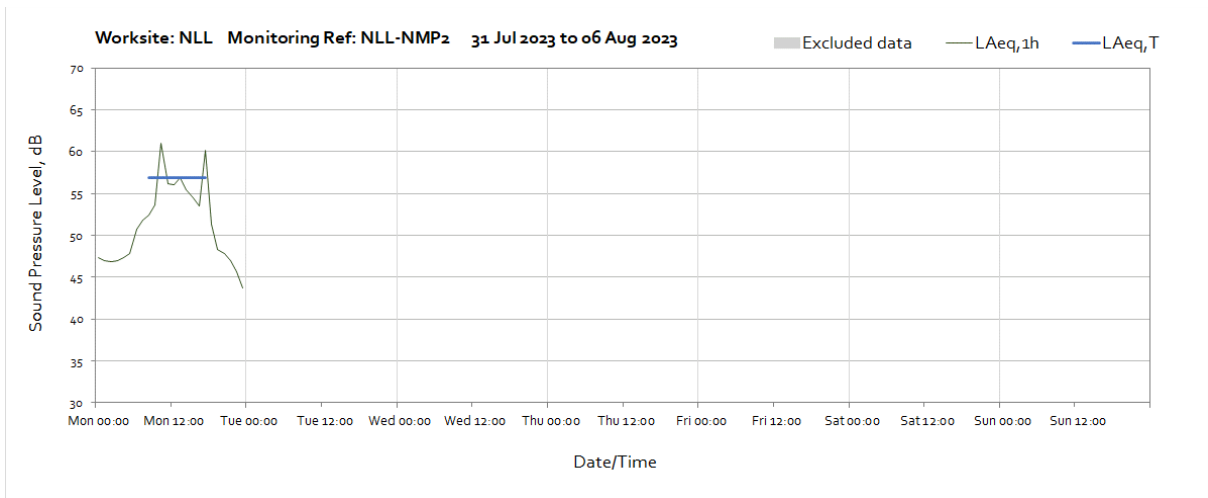
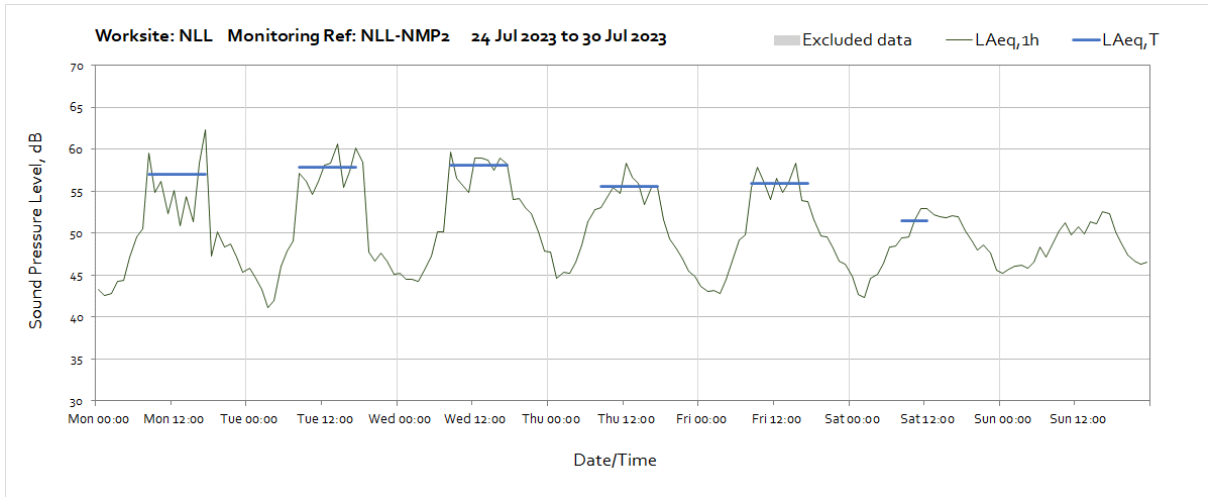




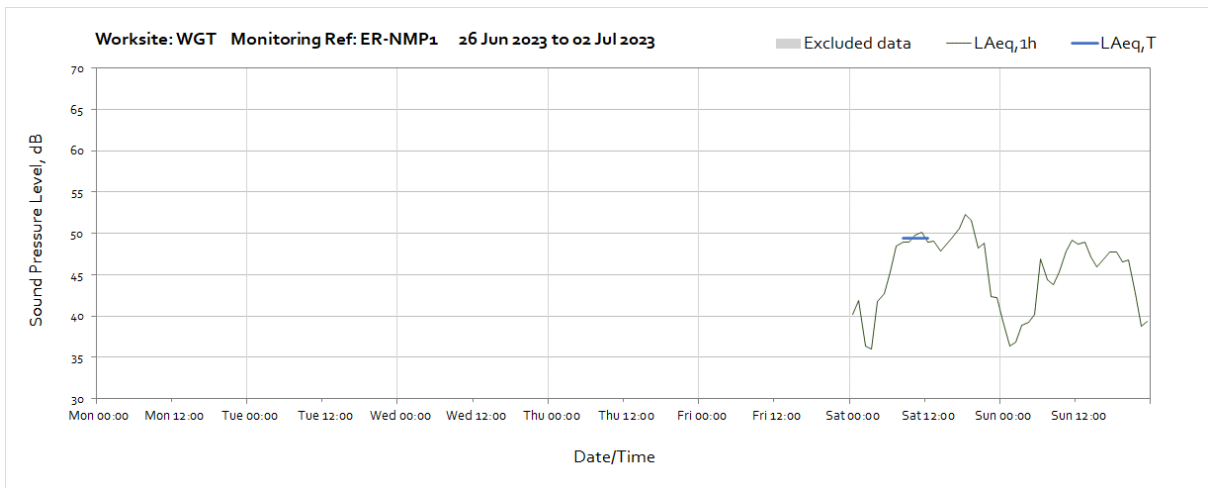
Worksite: NLL - Monitoring Ref: NLL-NMP2

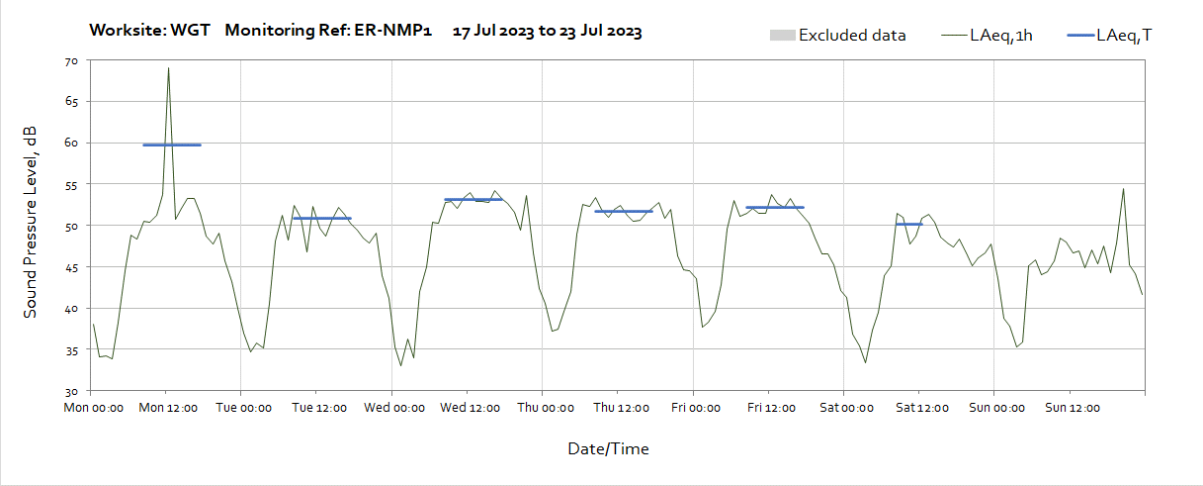
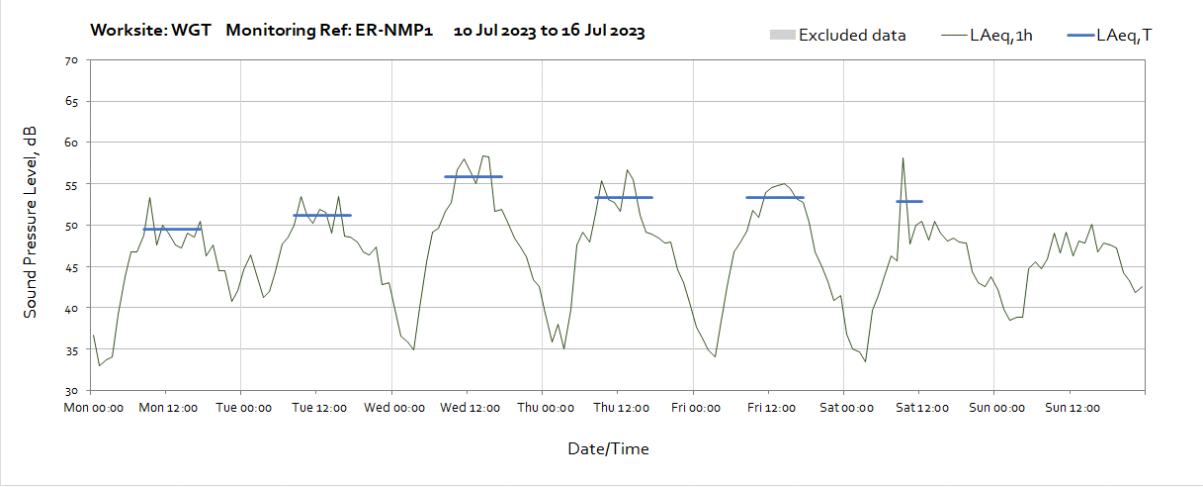
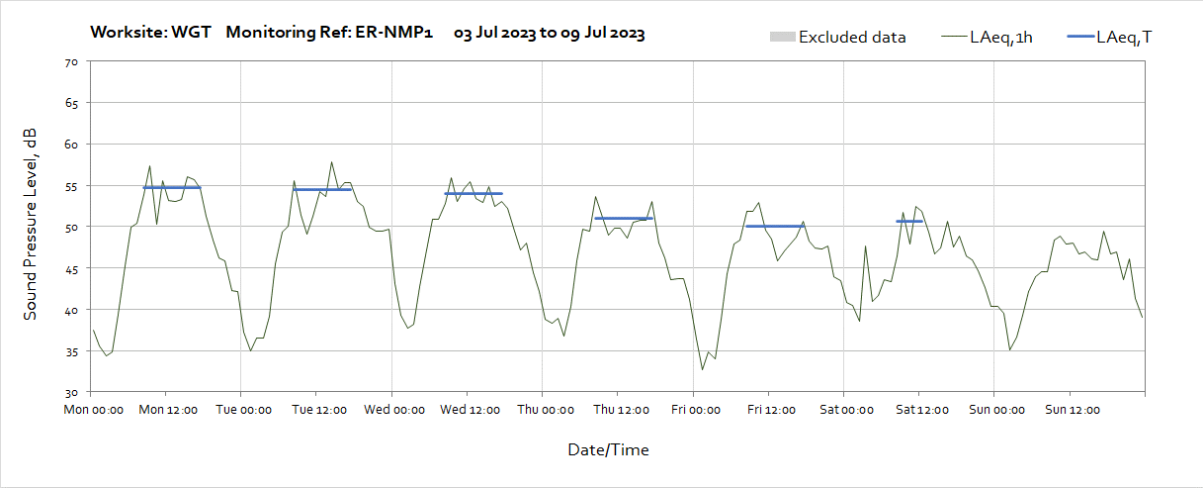


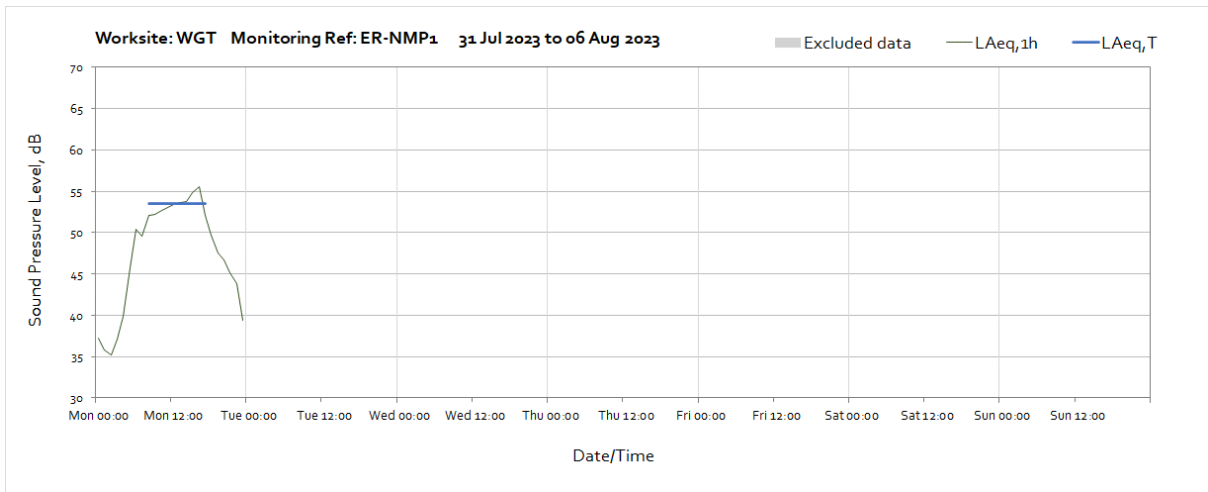
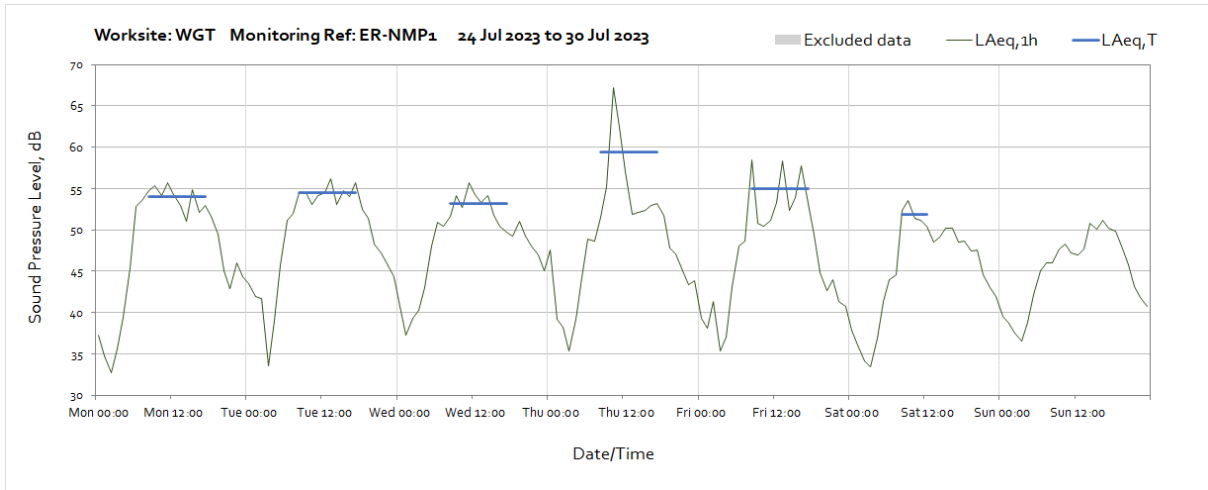




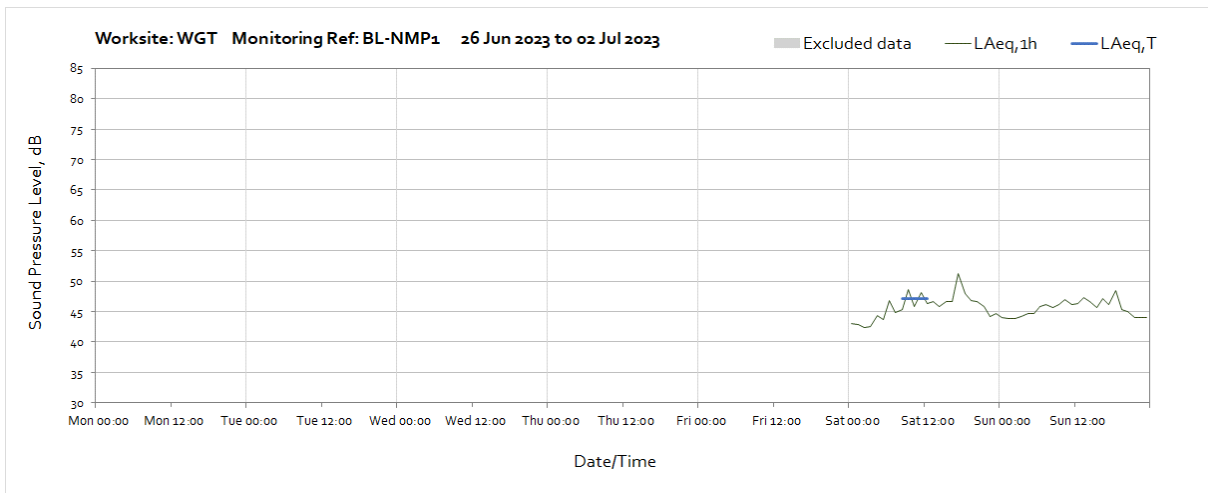
Worksite: WGT - Monitoring Ref: ER-NMP1

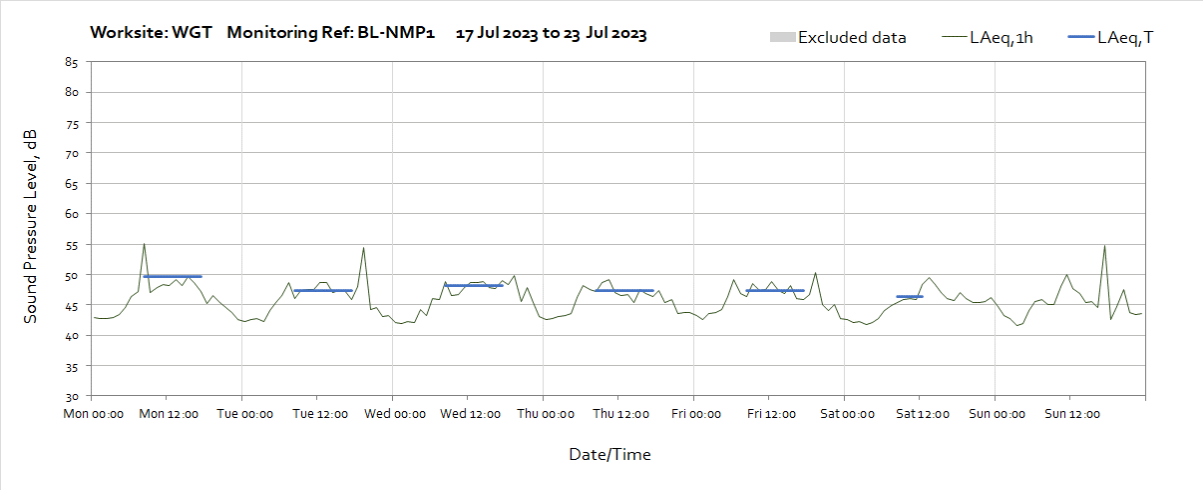
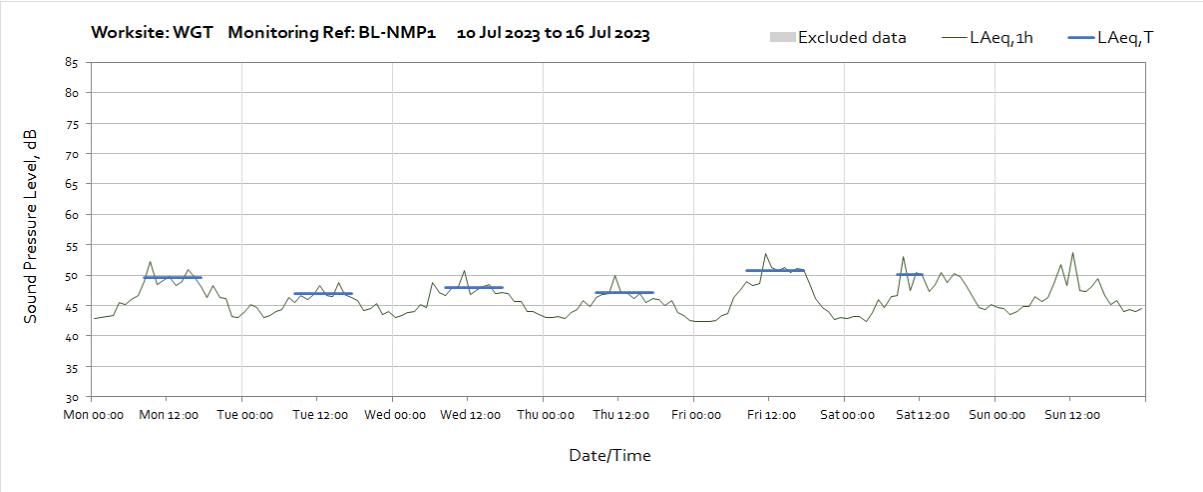
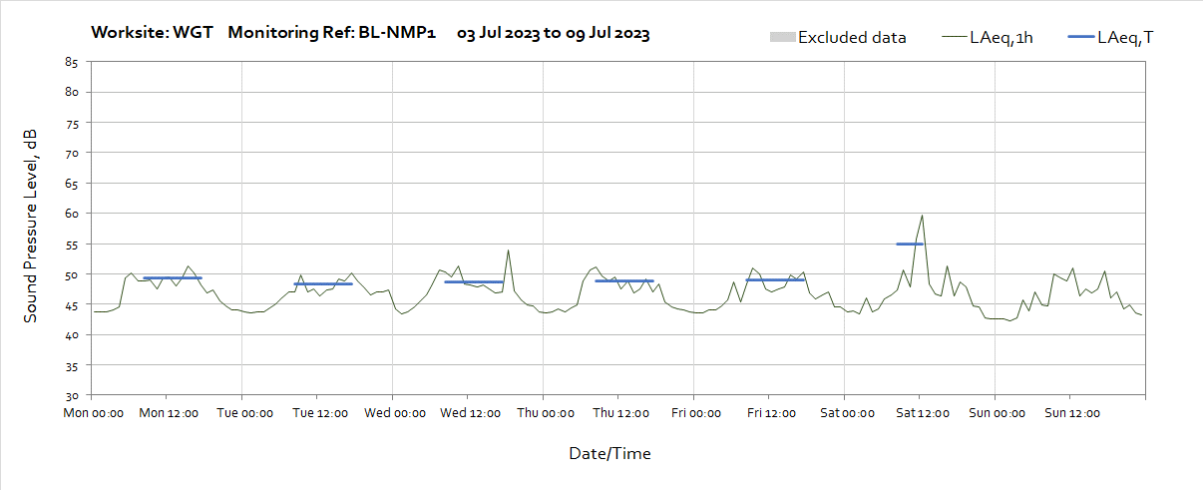


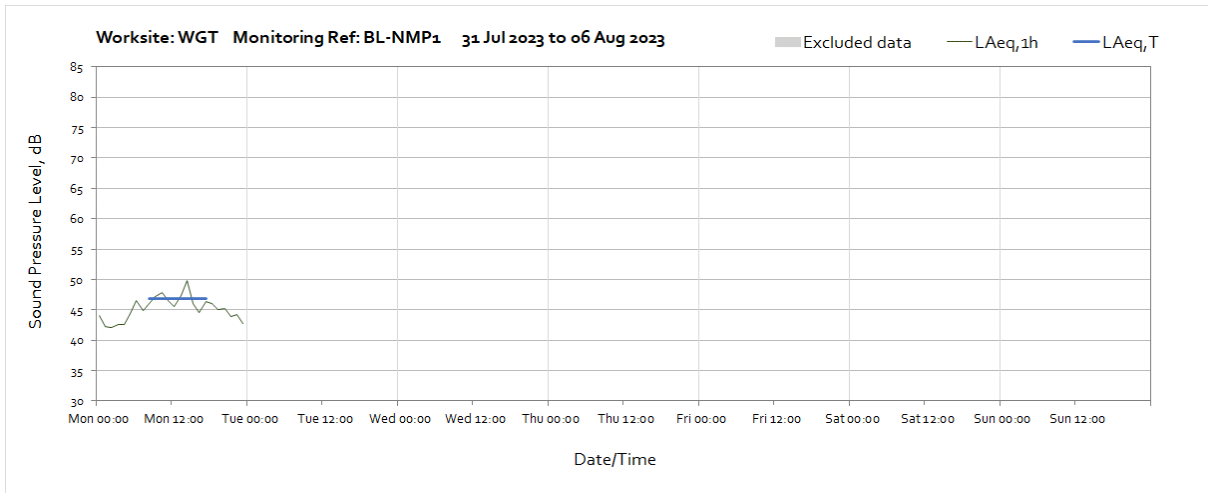
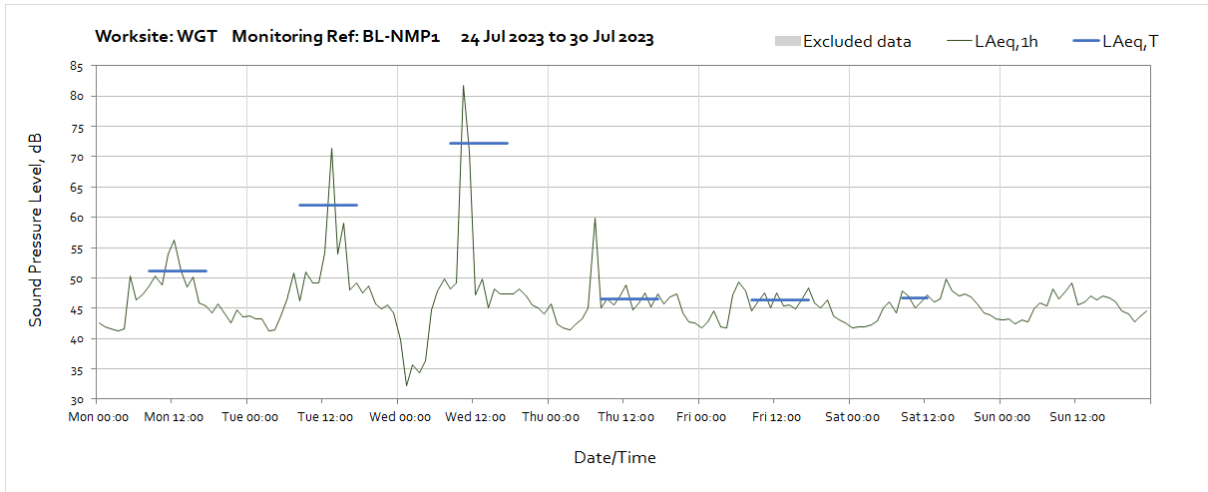




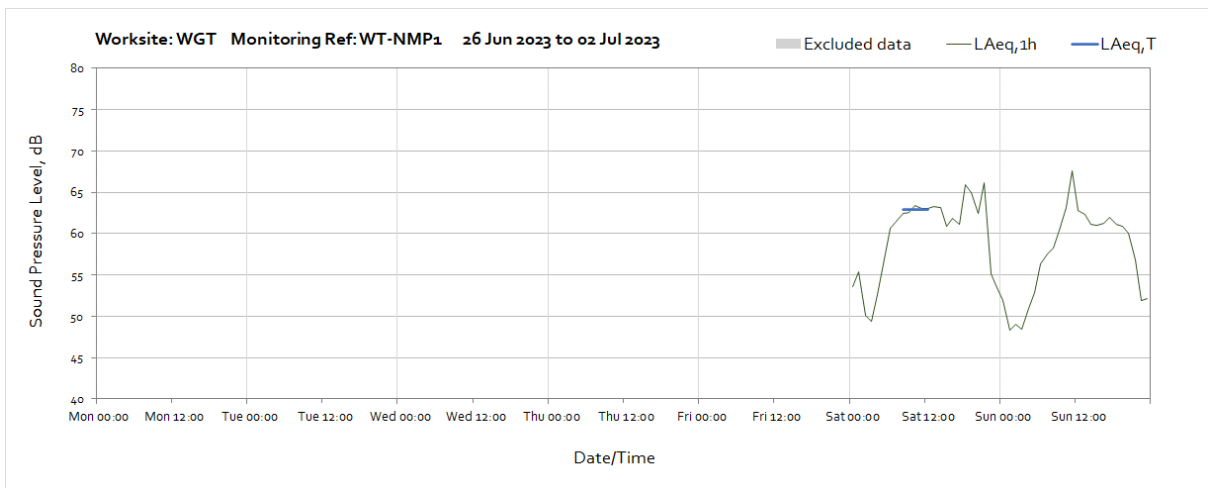
Worksite: WGT - Monitoring Ref: BL-NMP1

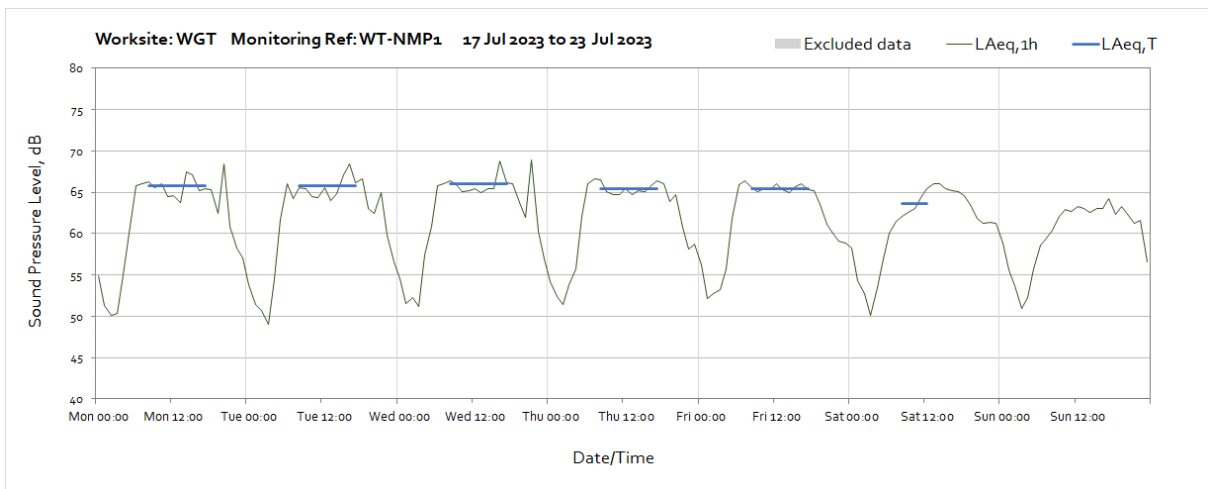
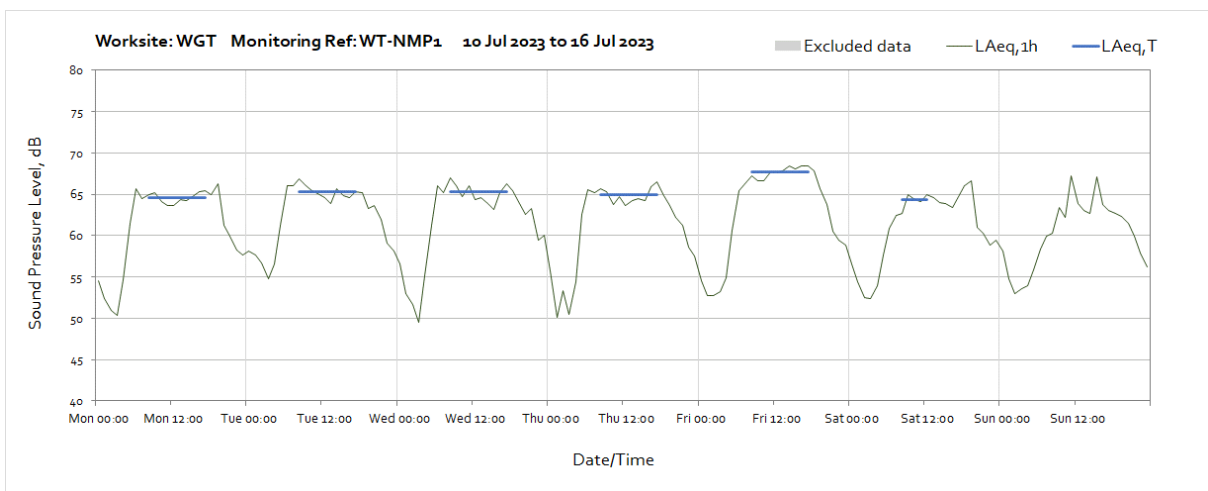
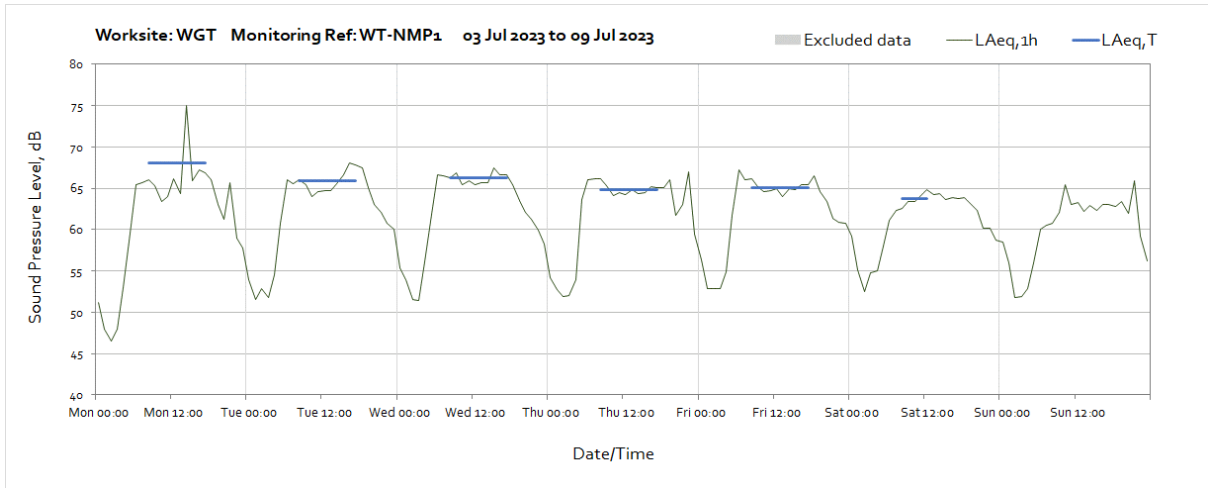


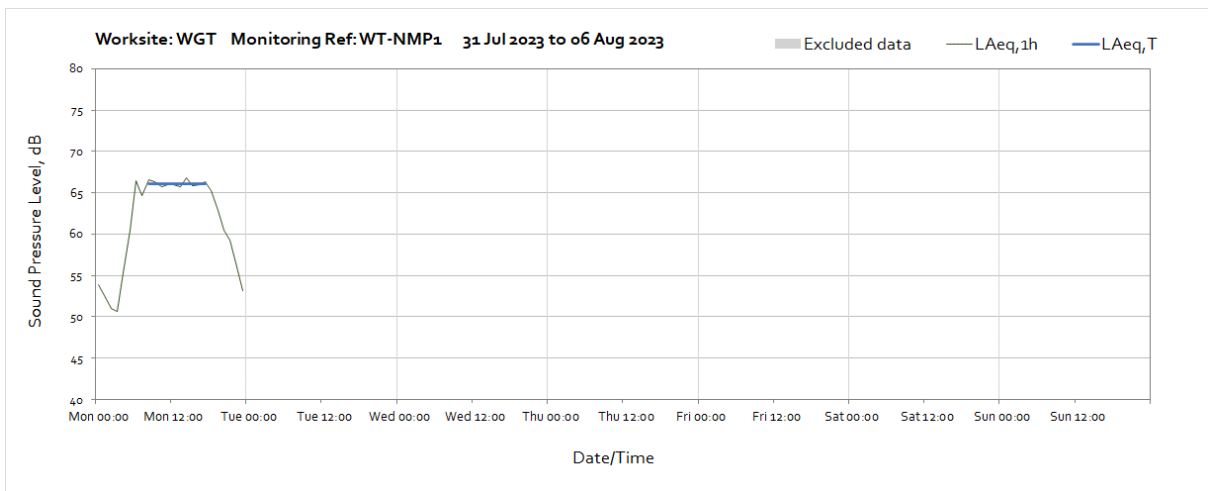
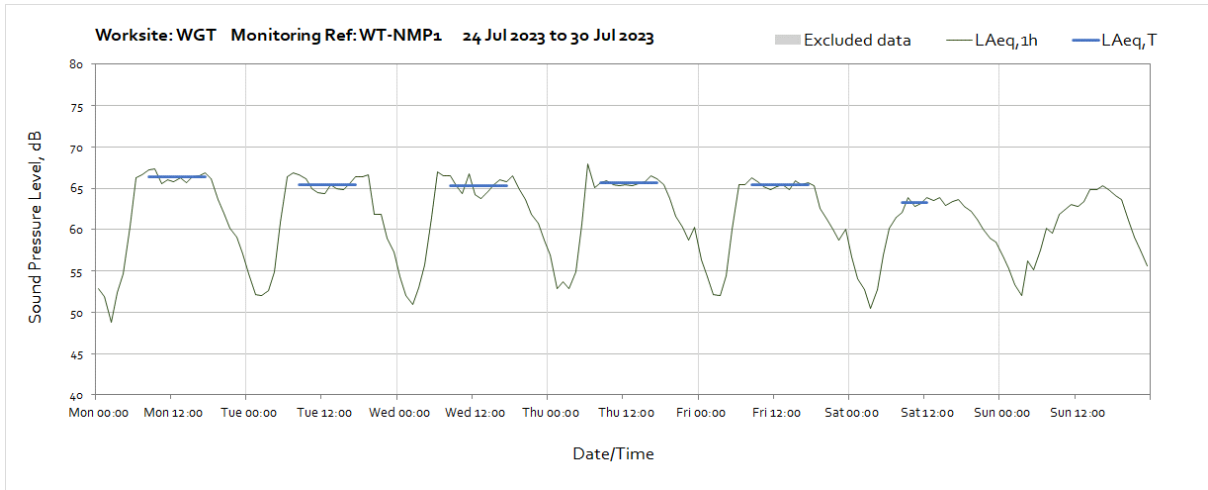




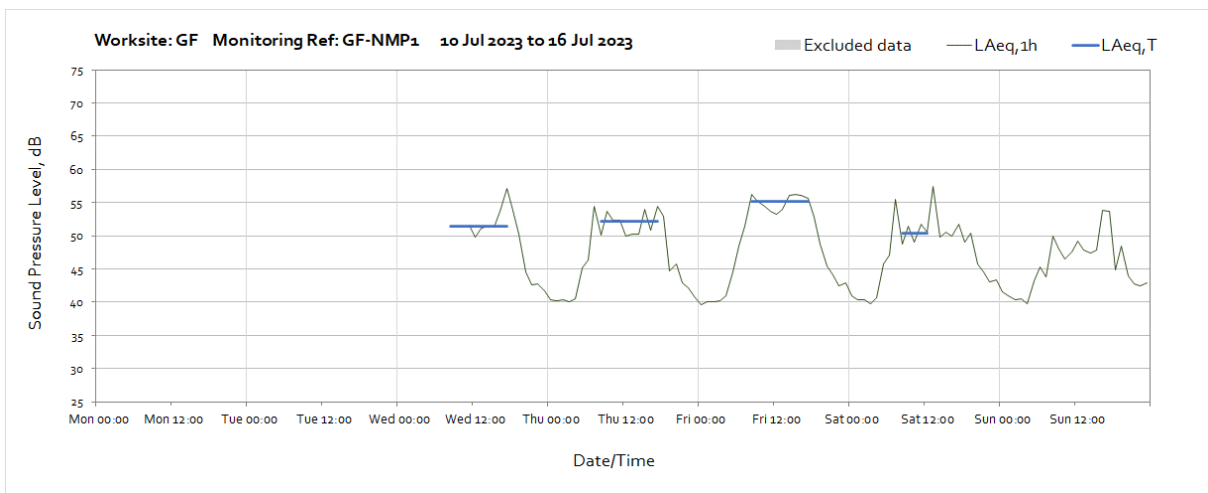
Worksite: WGT - Monitoring Ref: WT-NMP1



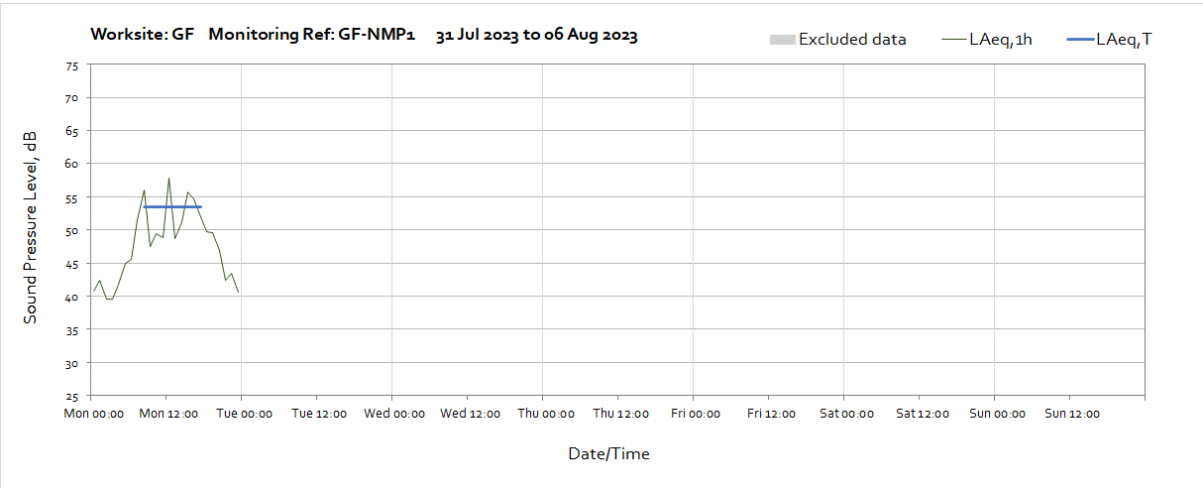
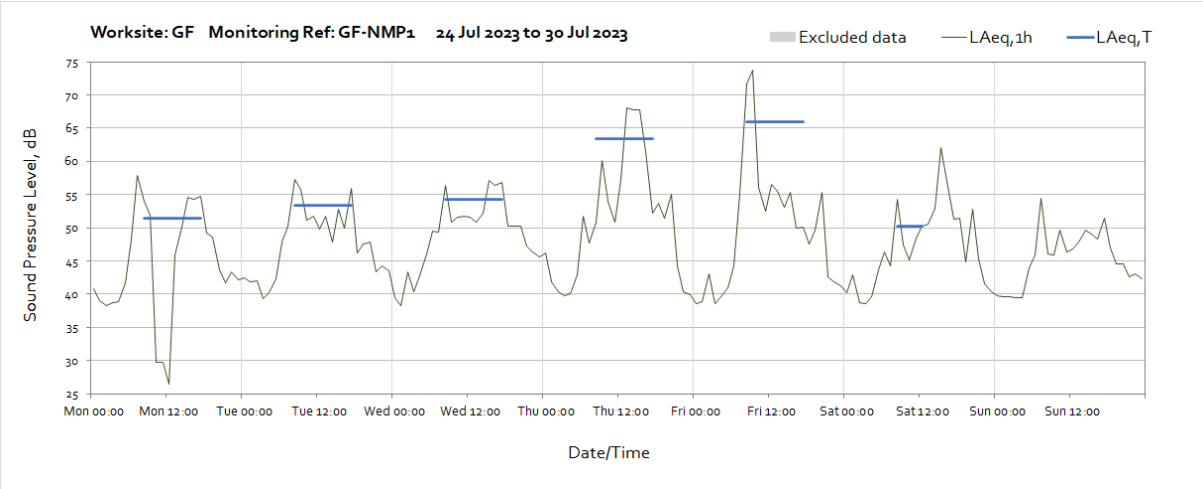
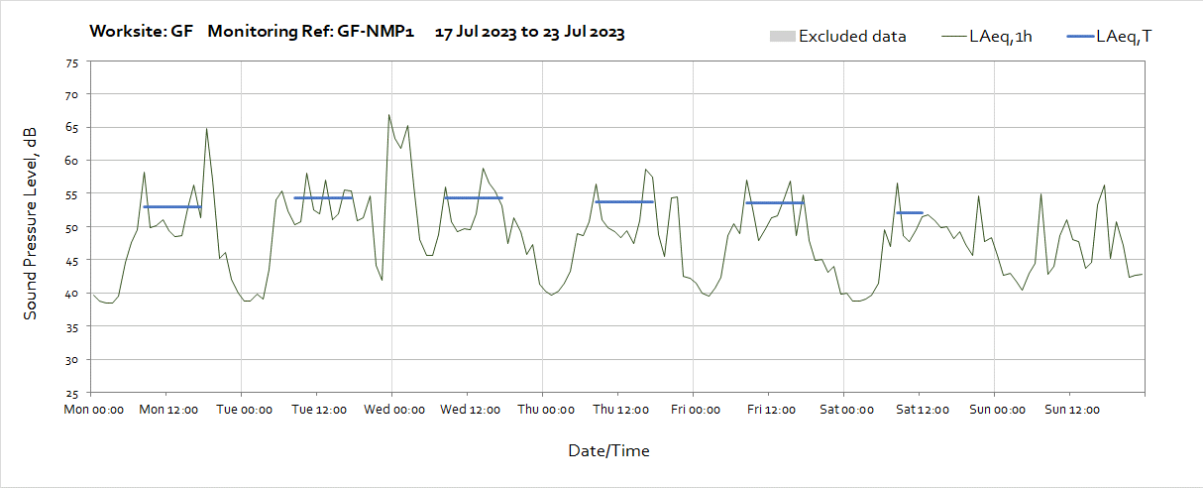




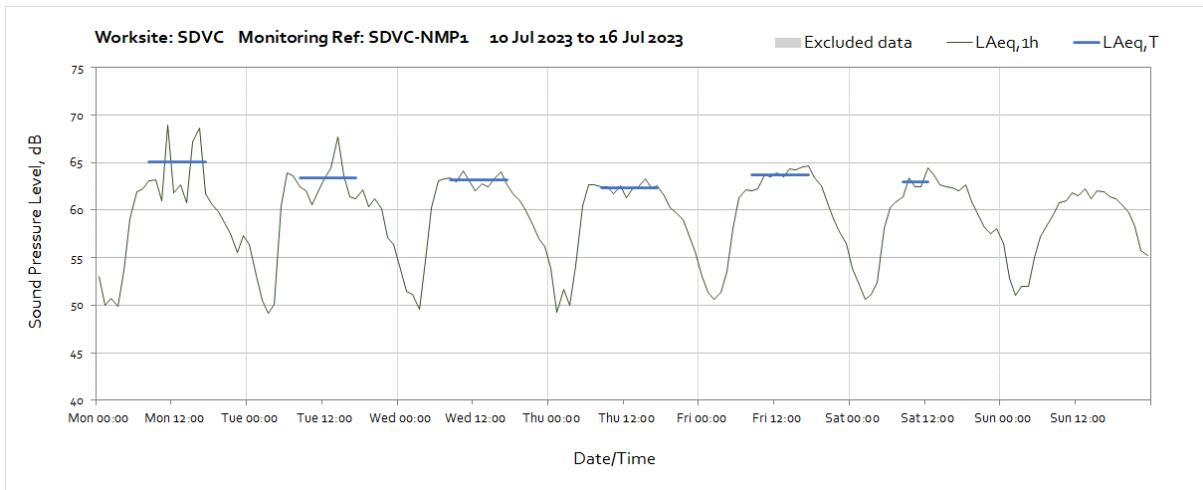
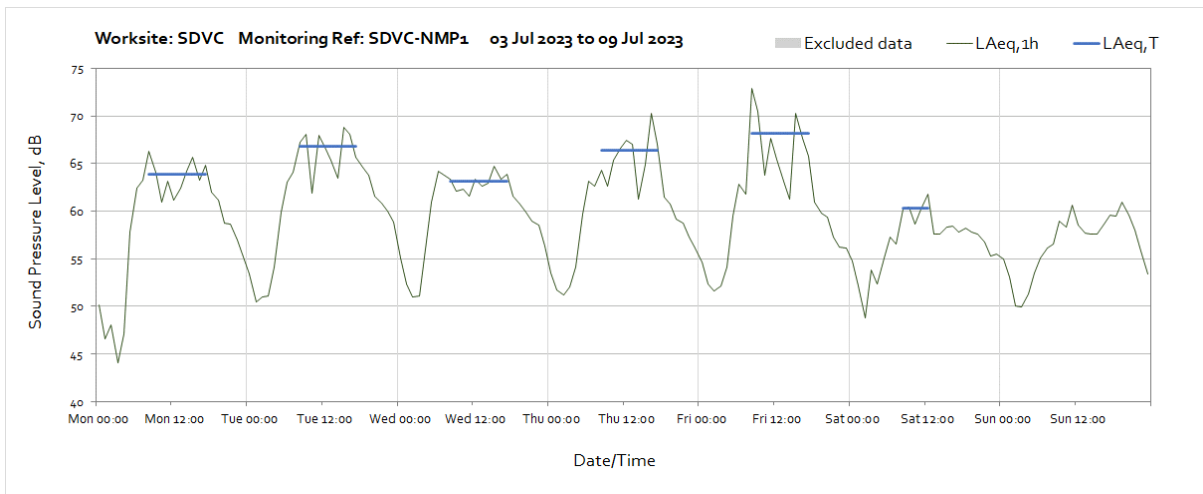
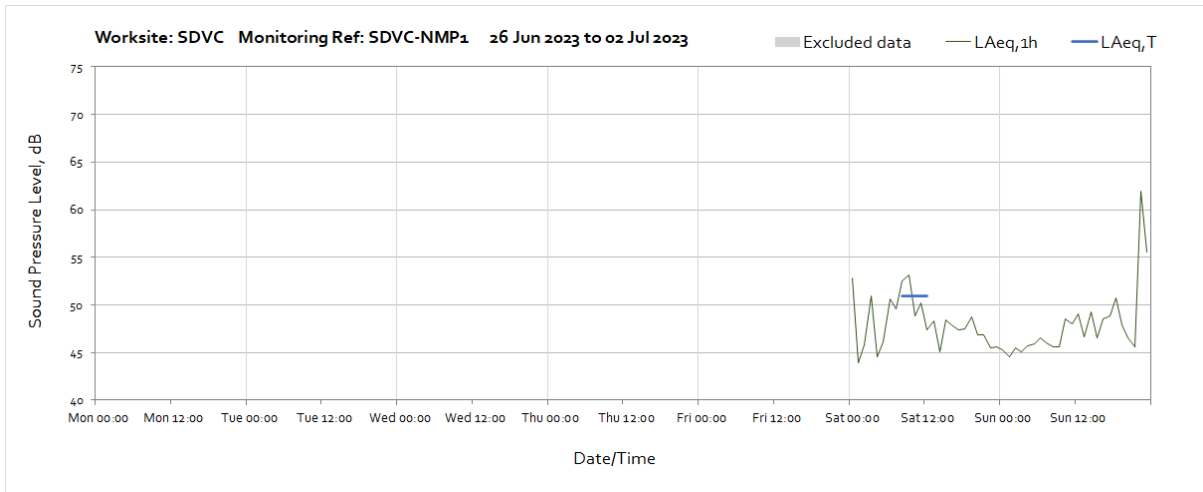
Worksite: GF – Monitoring Ref: GF-NMP1

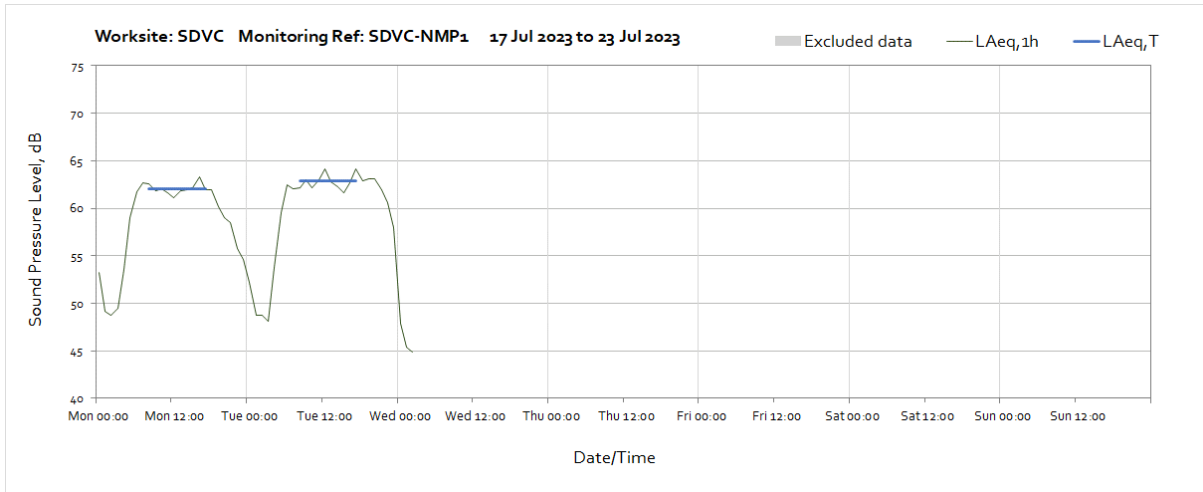


Note: Monitor was reinstalled at 11:00 on Wednesday 12th July.

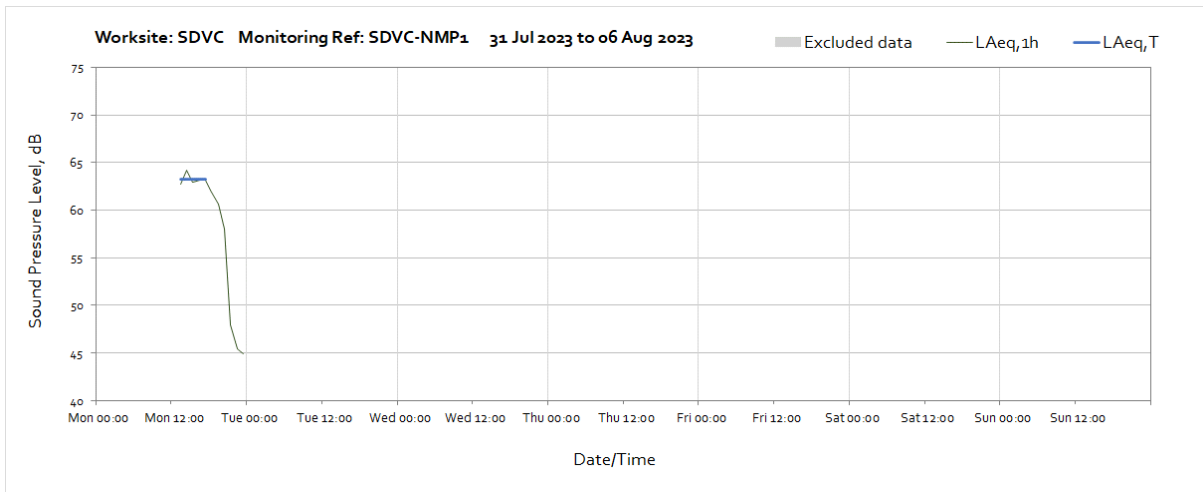


Worksite: SDVC – Monitoring Ref: SDVC-NMP1



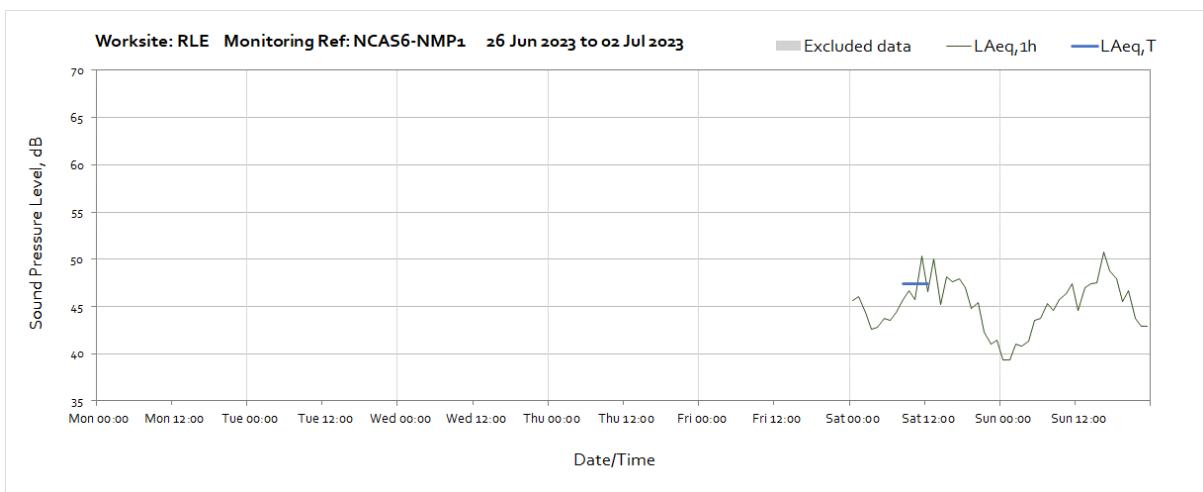


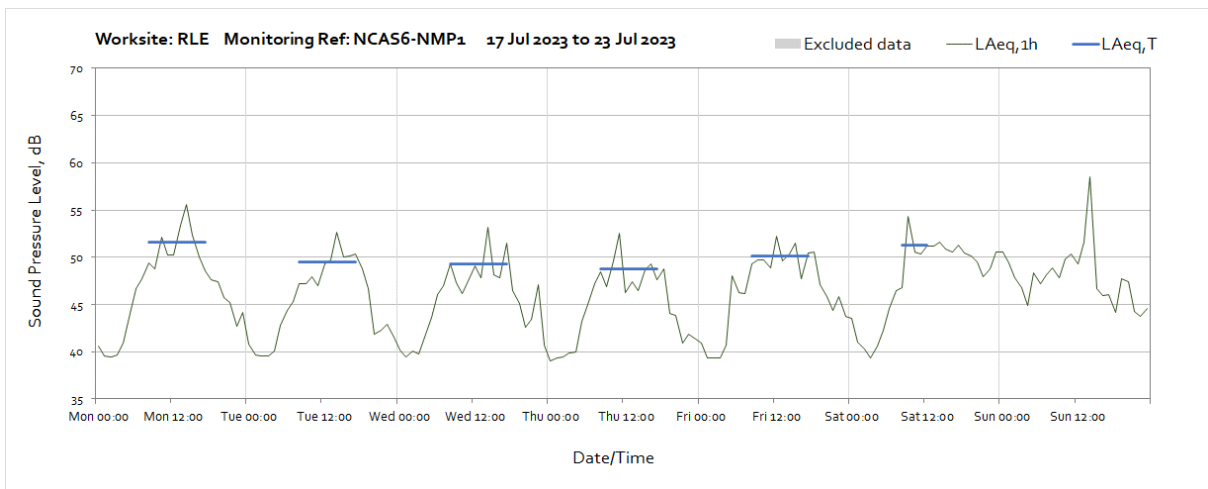
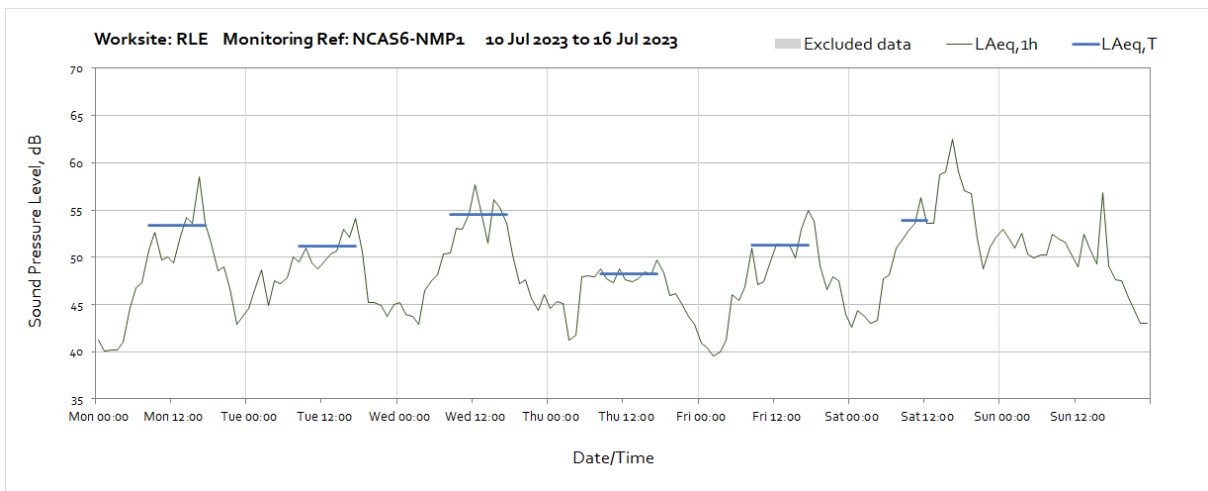
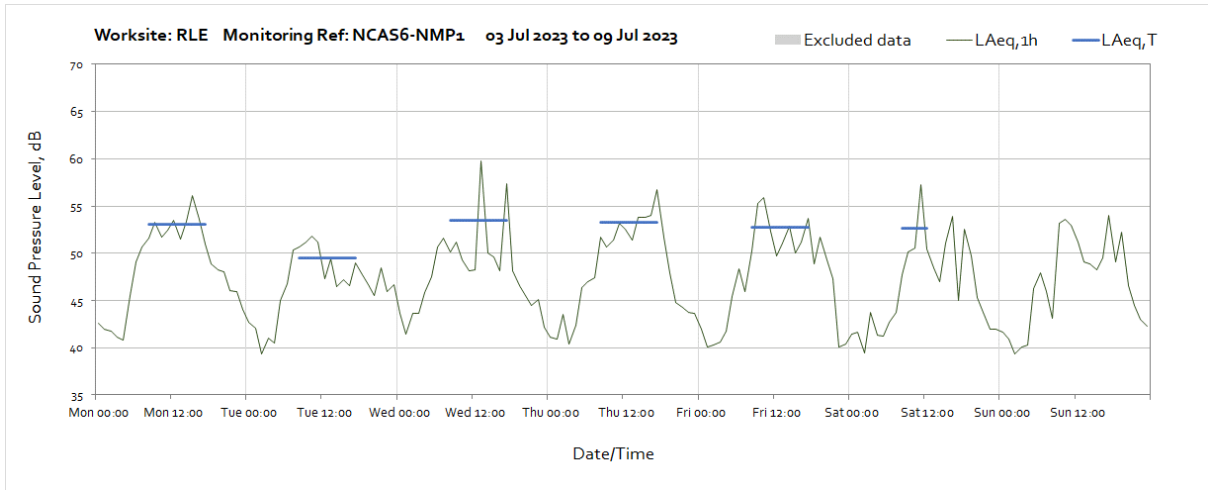
Note: Missing data between 03:00 on Wednesday 19th July and 12:00 on Monday 31st July was due to depleted monitor battery.

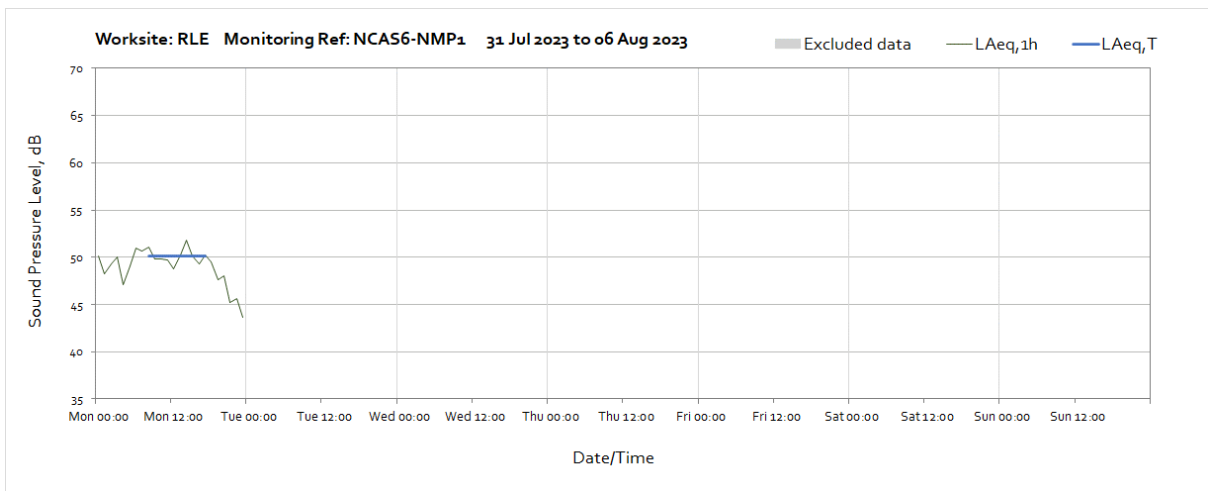
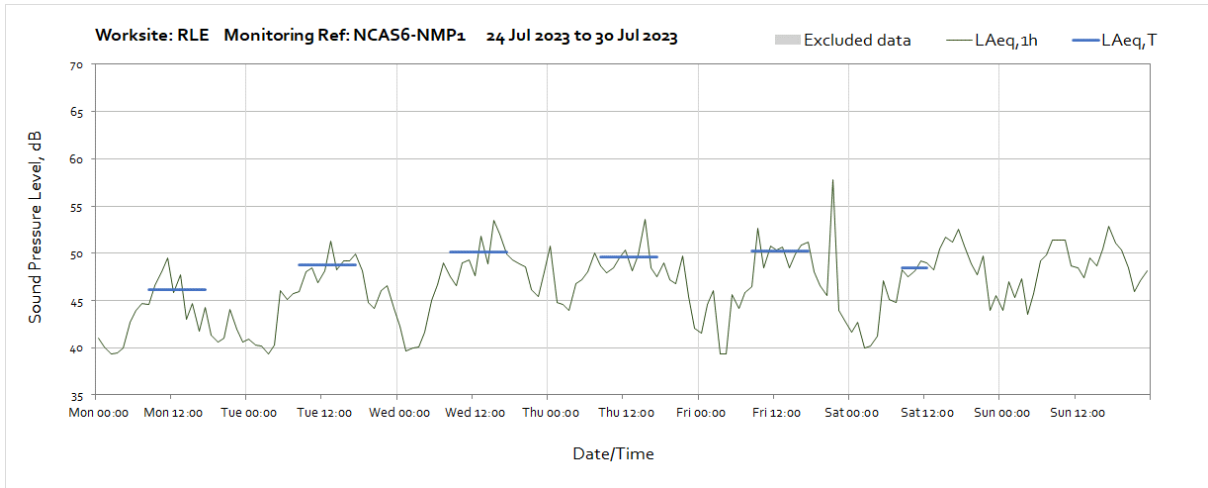


Note: Missing data between 03:00 on Wednesday 19th July and 12:00 on Monday 31st July was due to depleted monitor battery.

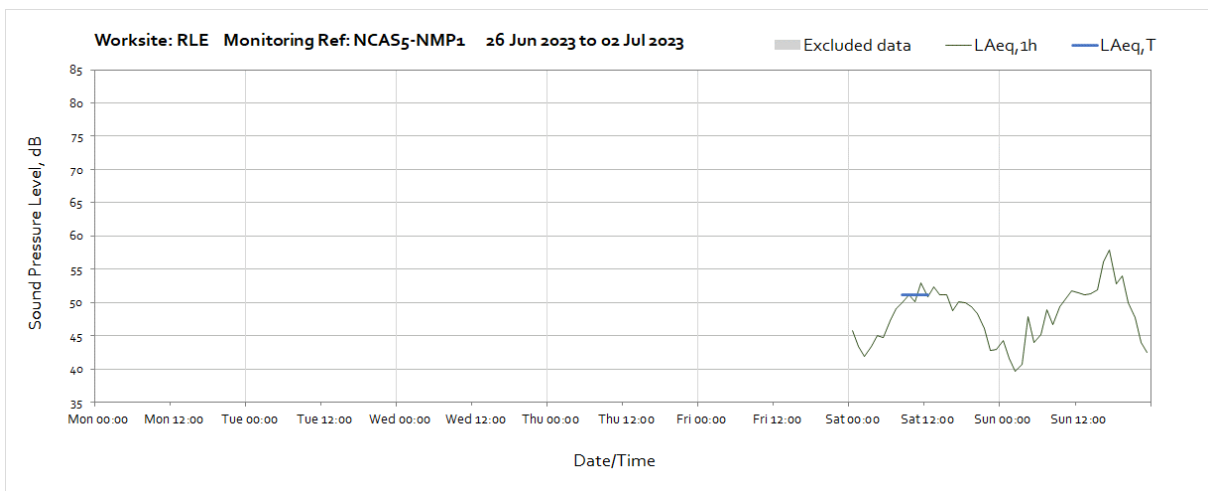
Worksite: RLE – Monitoring Ref: NCAS6-NMP1

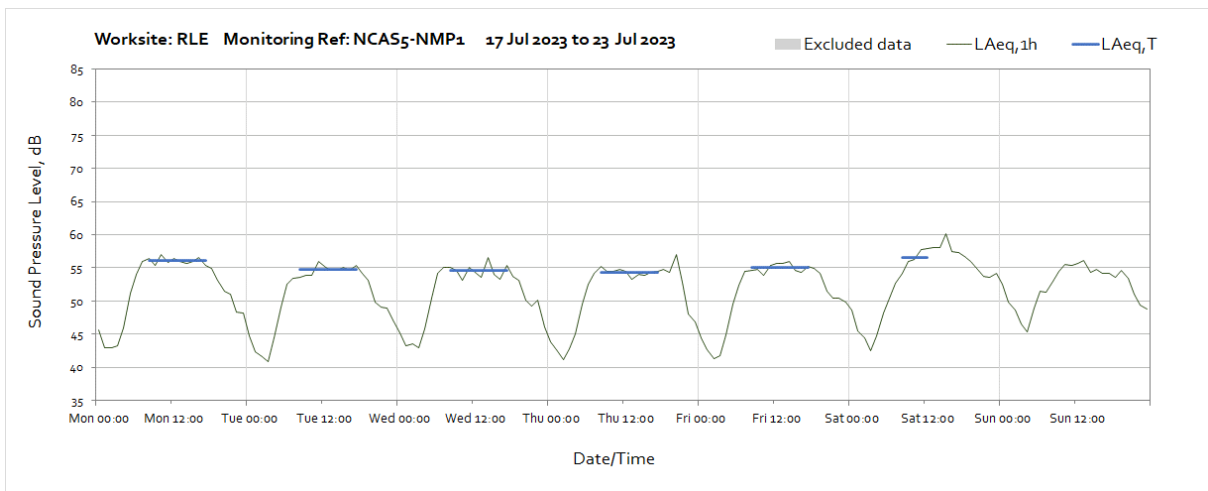
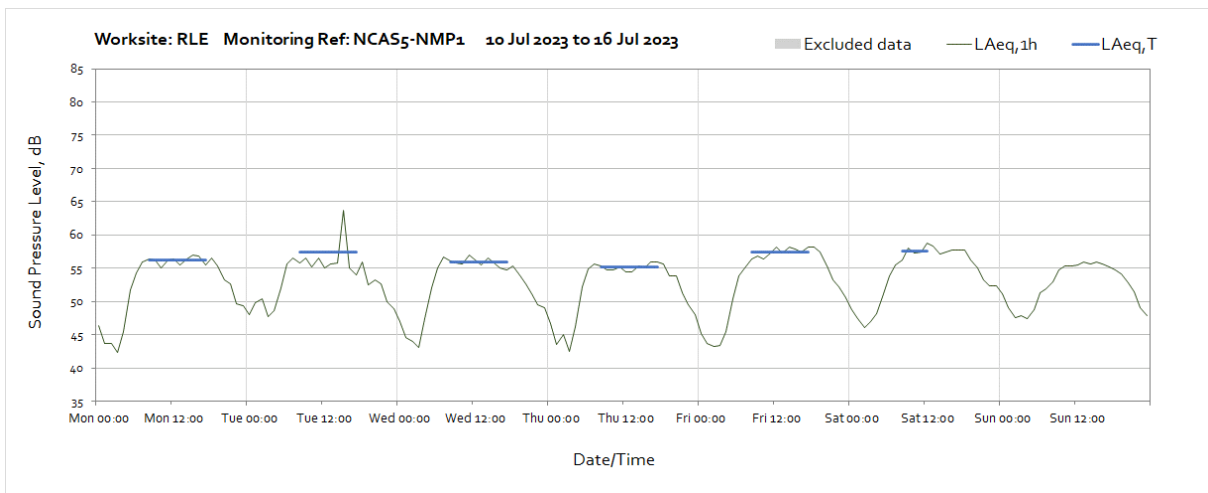
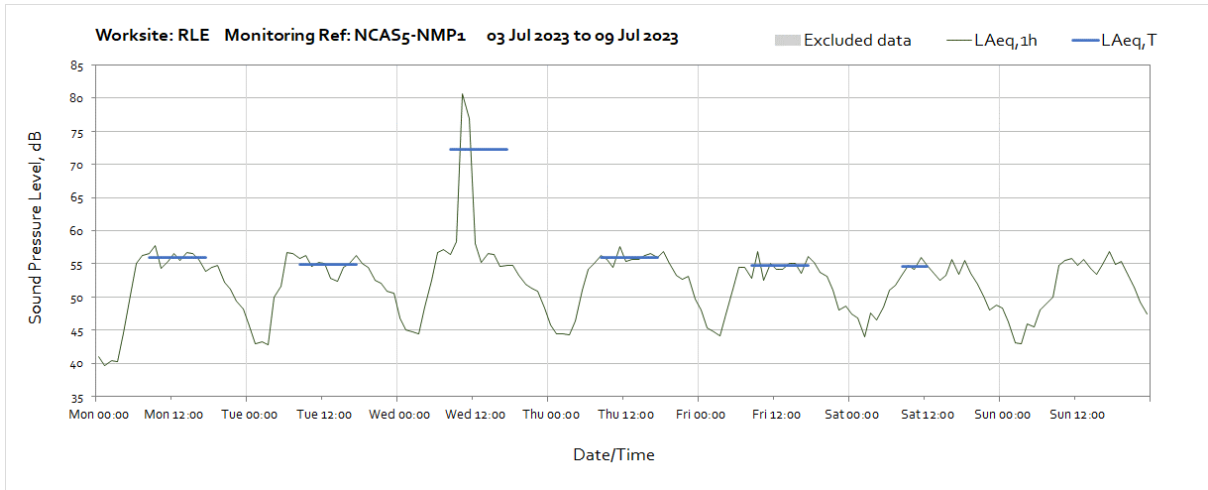


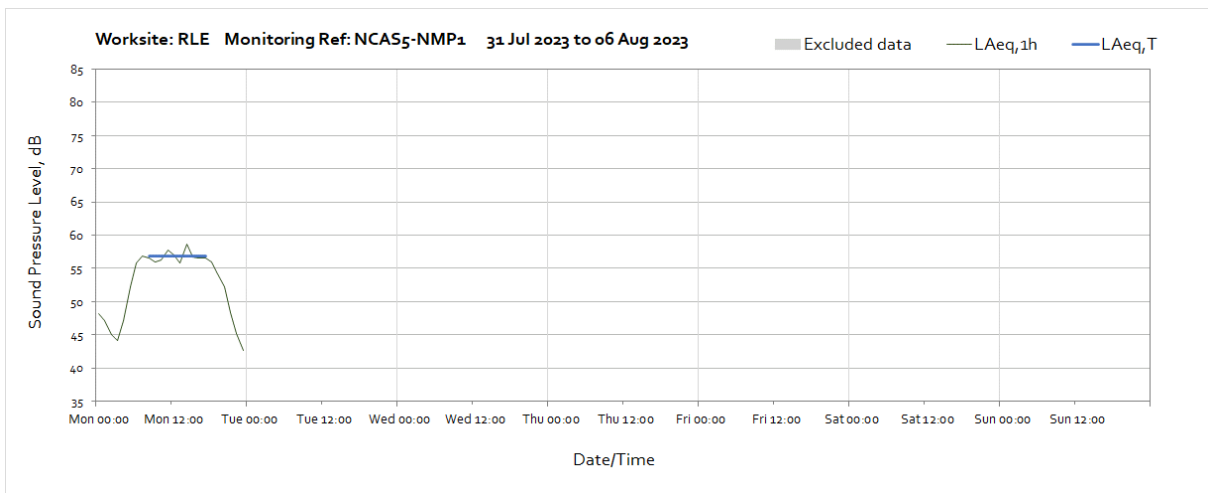
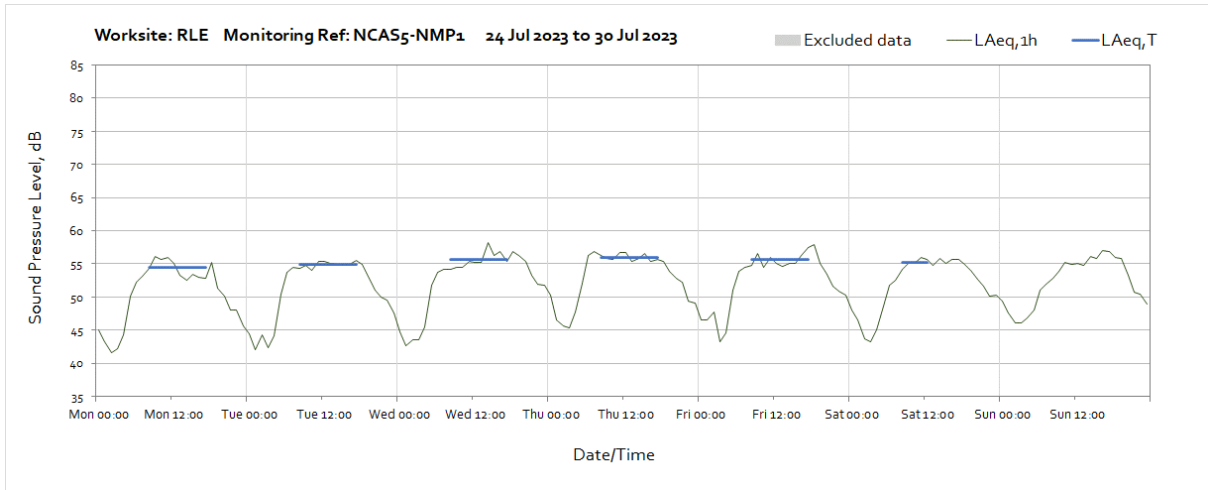




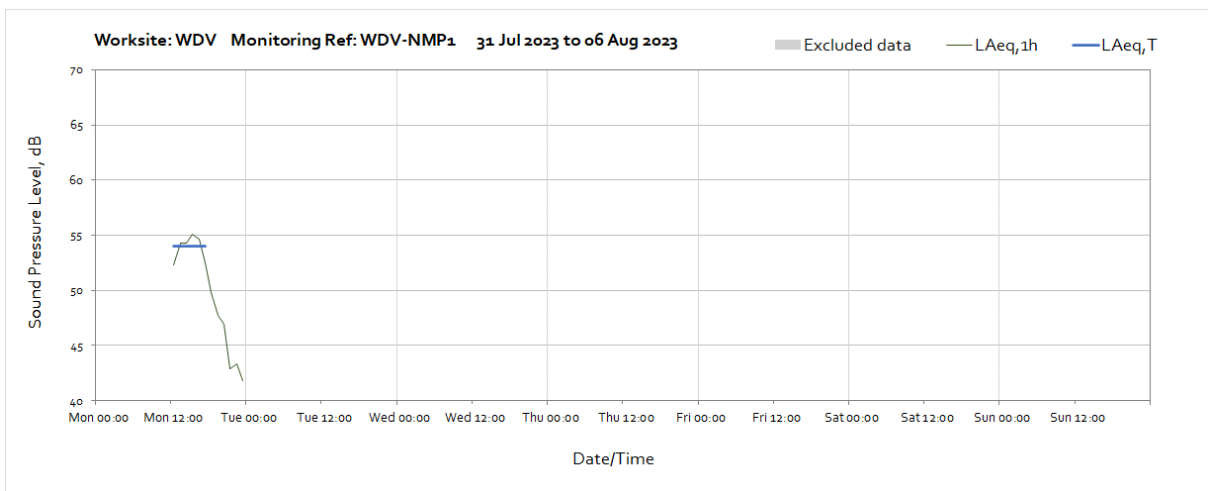
Worksite: RLE - Monitoring Ref: NCAS5-NMP1





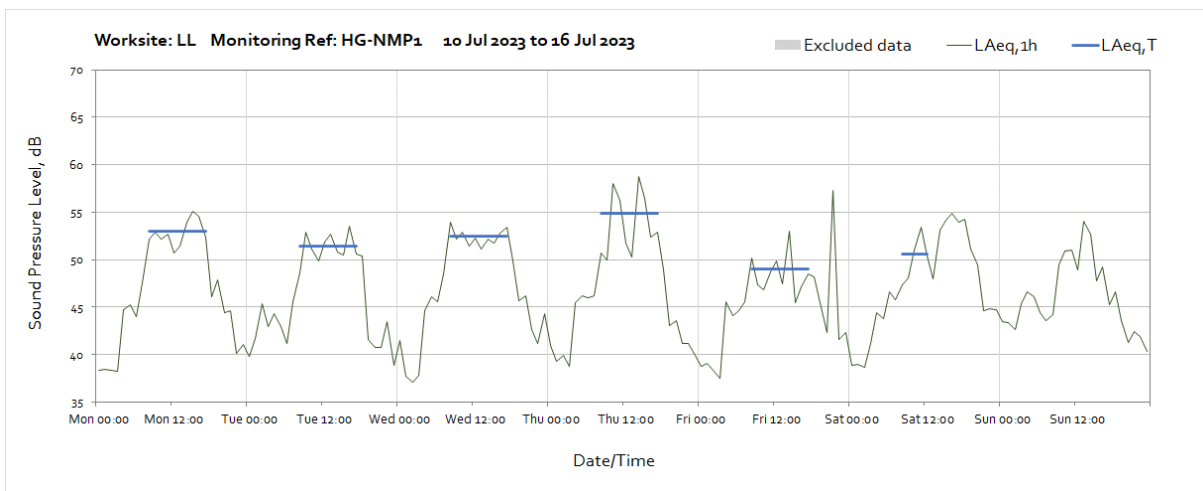
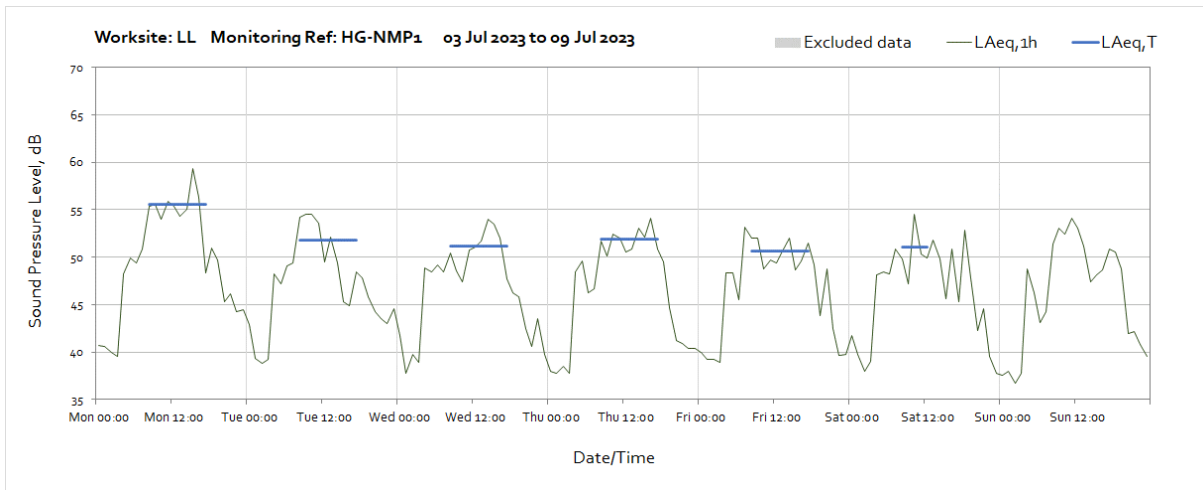
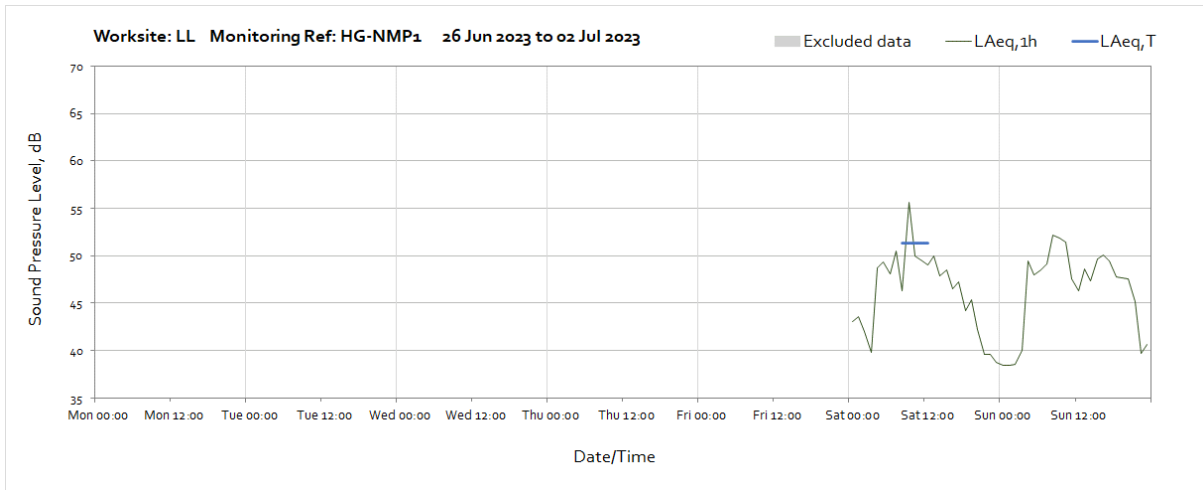


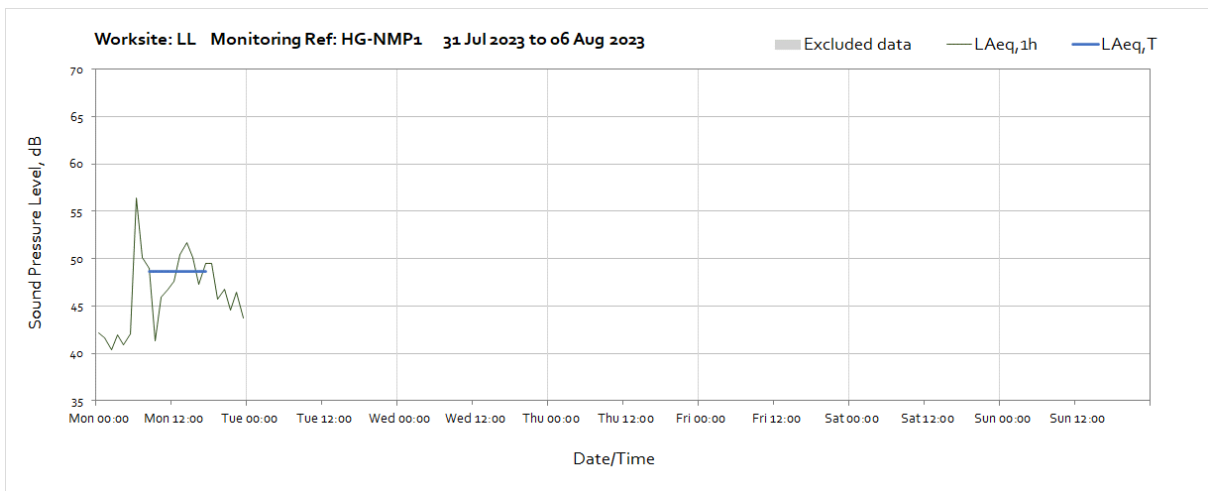
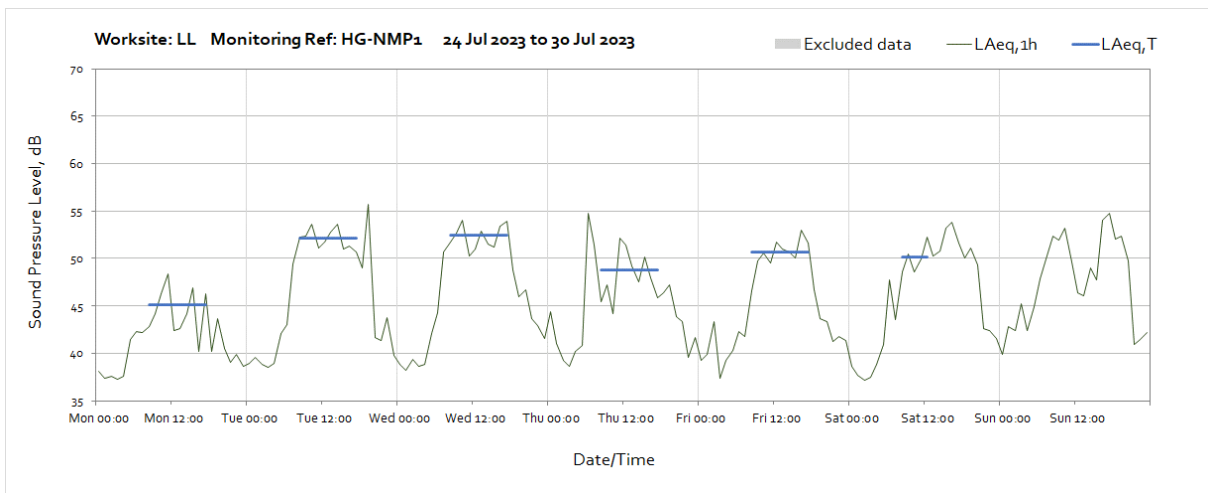
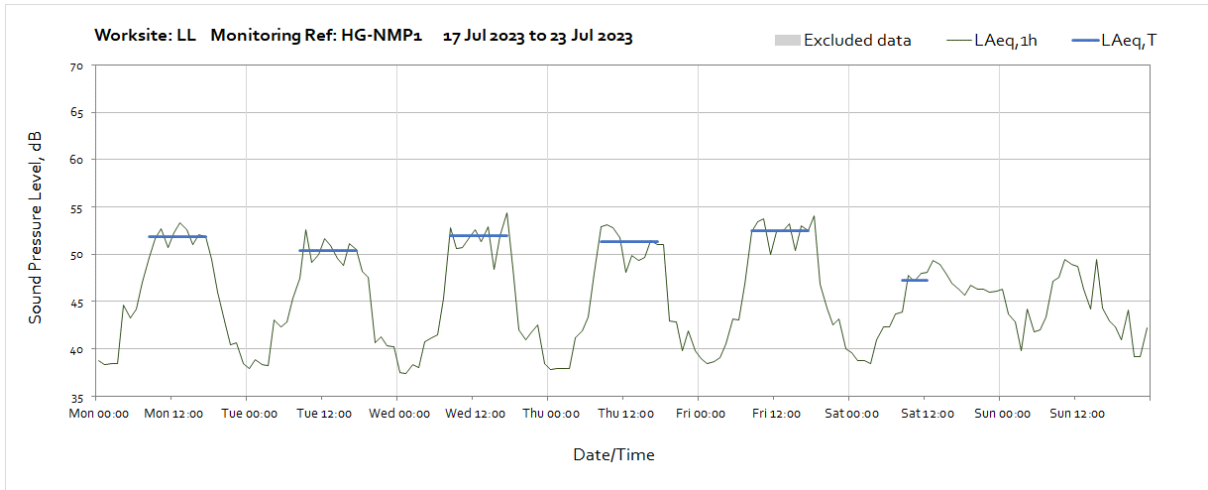
Worksite: WDV – Monitoring Ref: WDV-NMP1



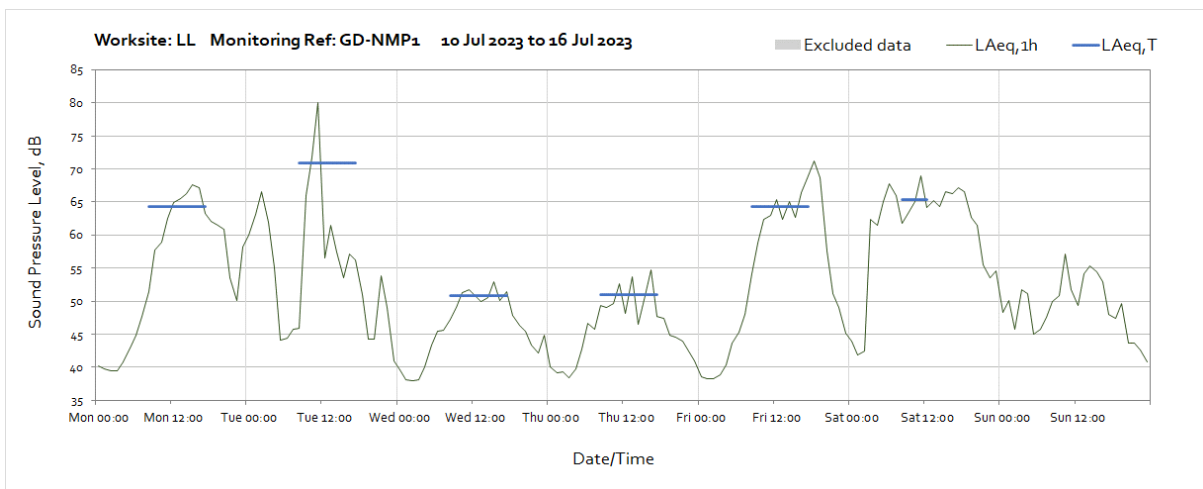
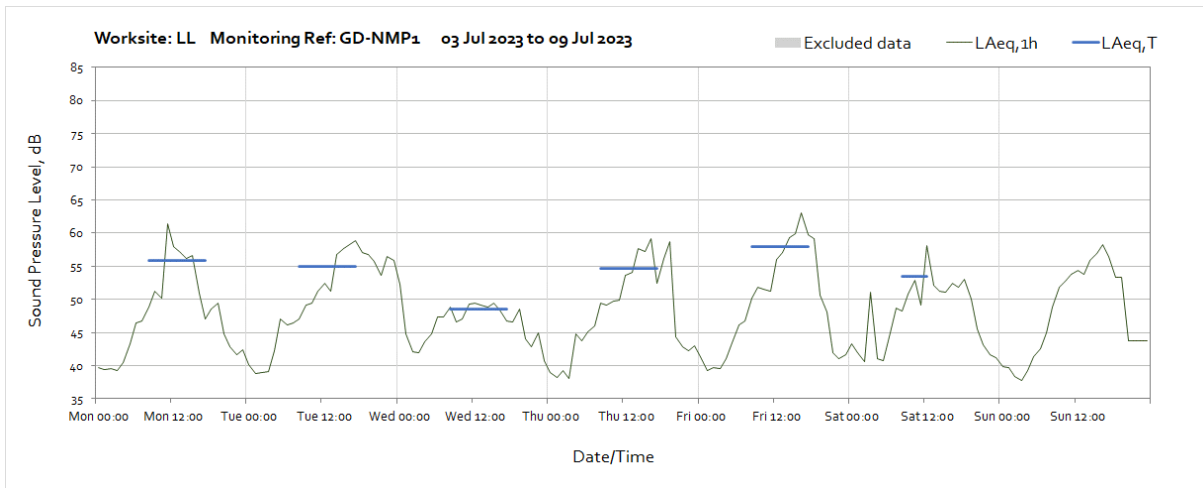
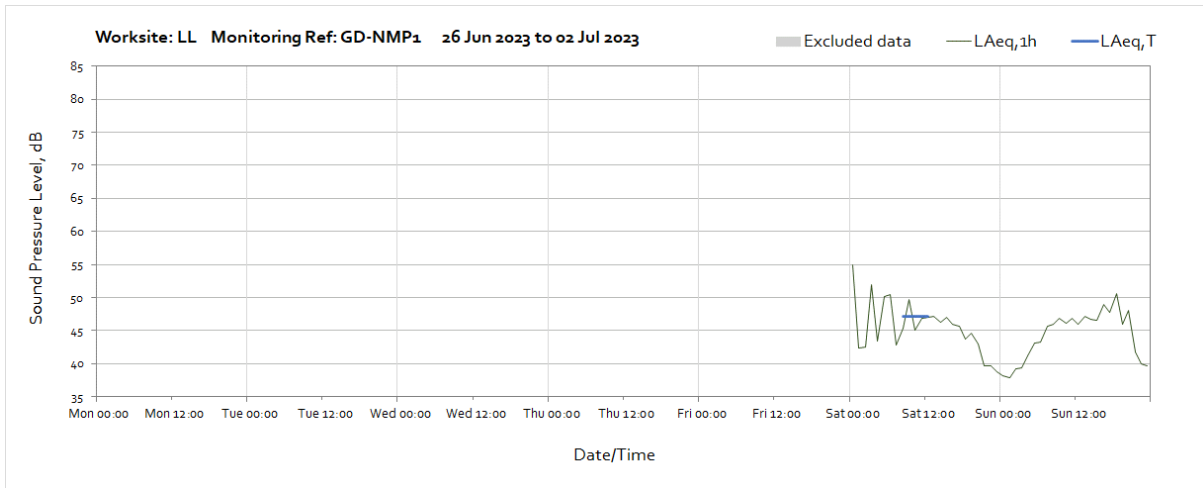
Note: Missing data until 12:00 on Monday 31st July was due to damage to monitor power cable which has now been replaced.

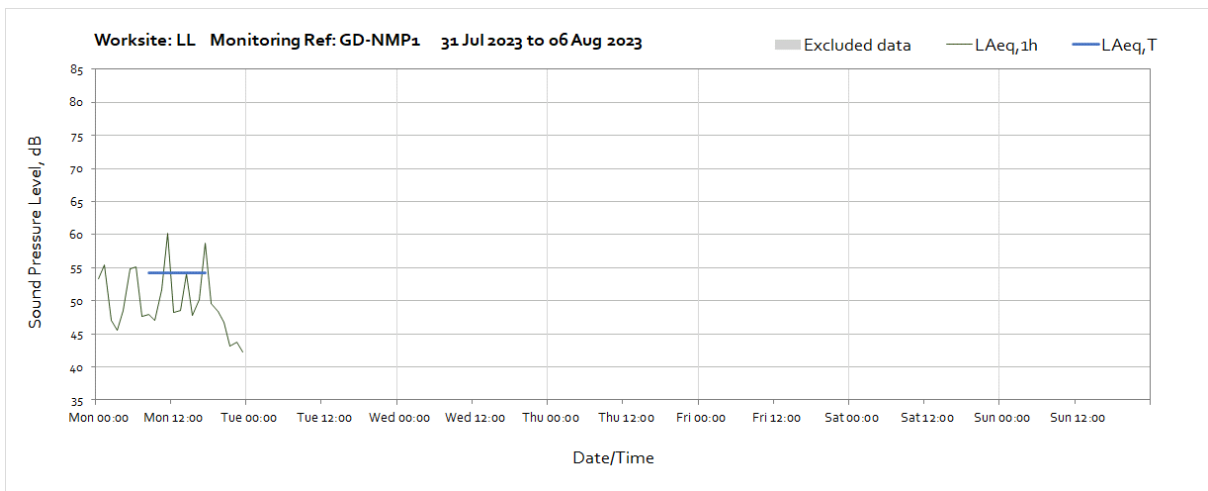
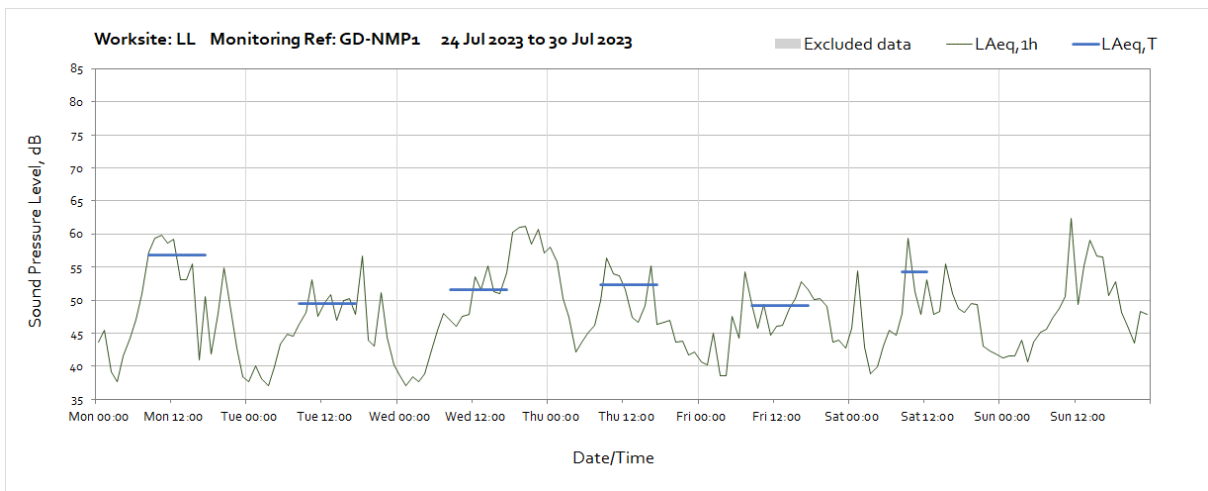
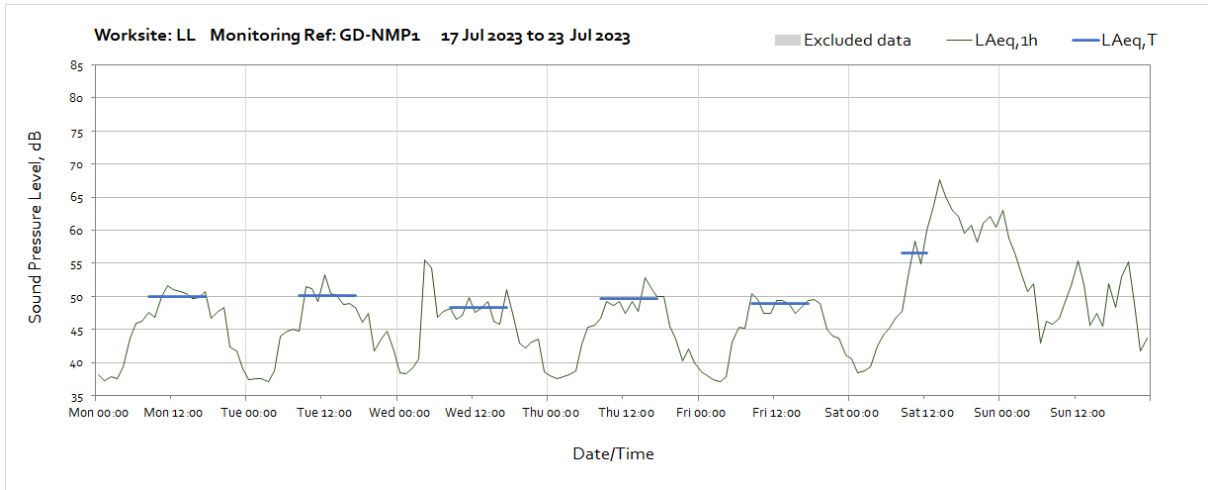
Worksite: LL – Monitoring Ref: HG-NMP1



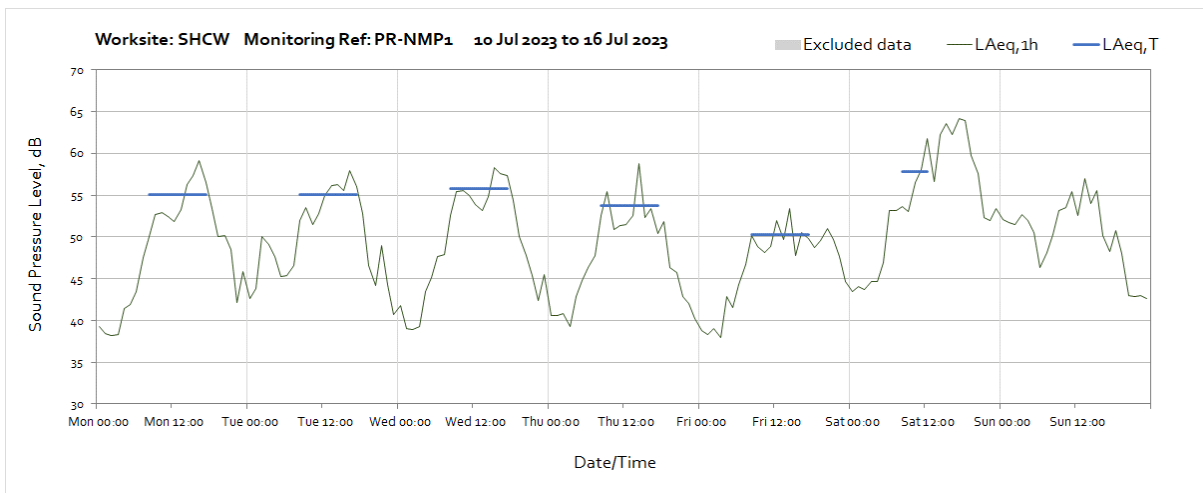
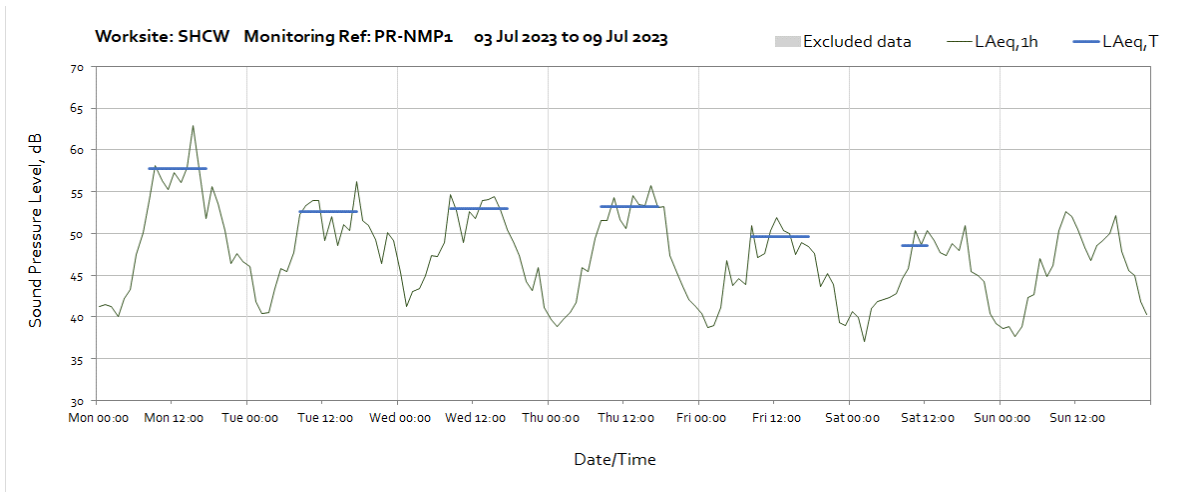
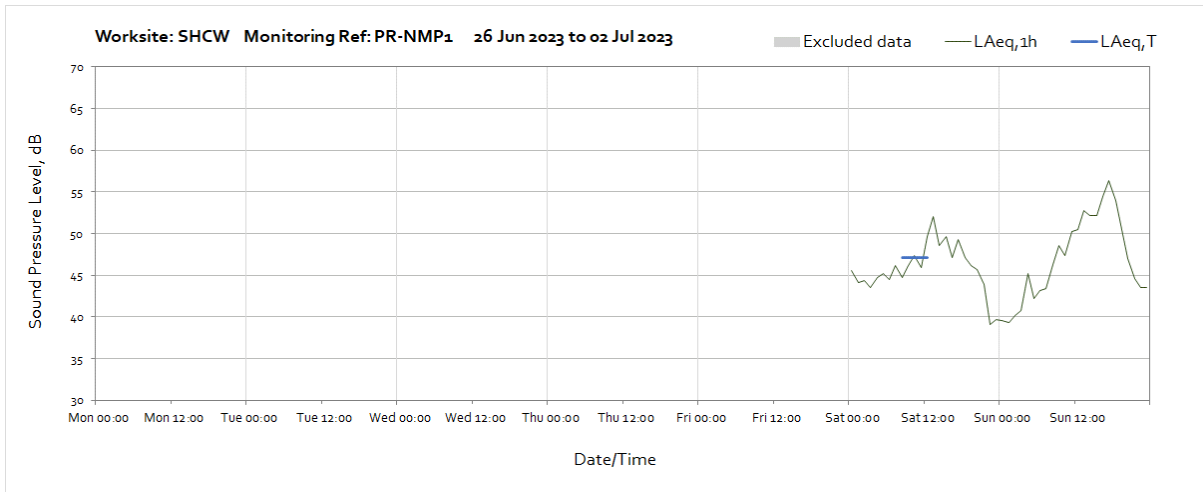


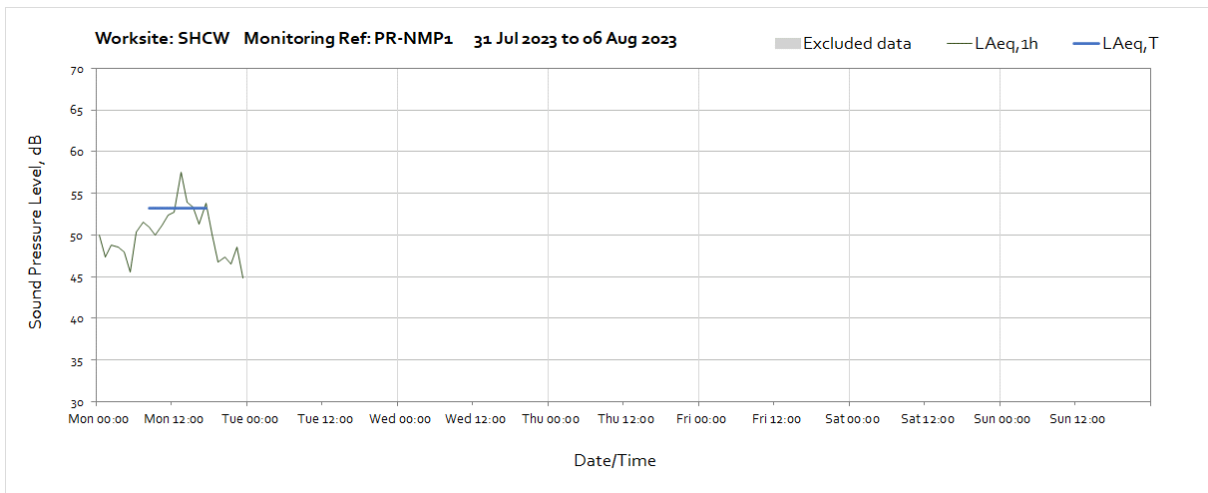
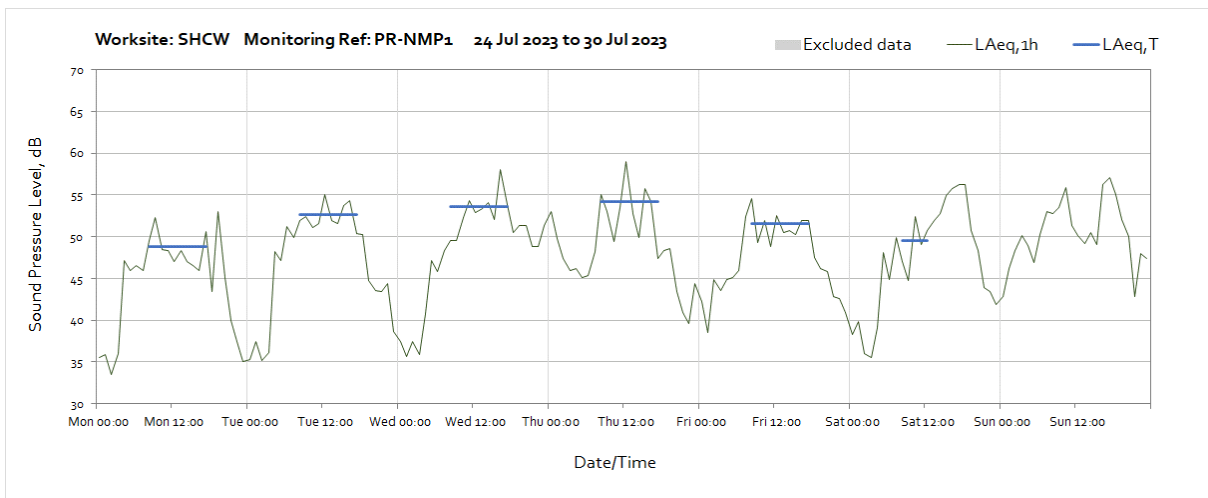
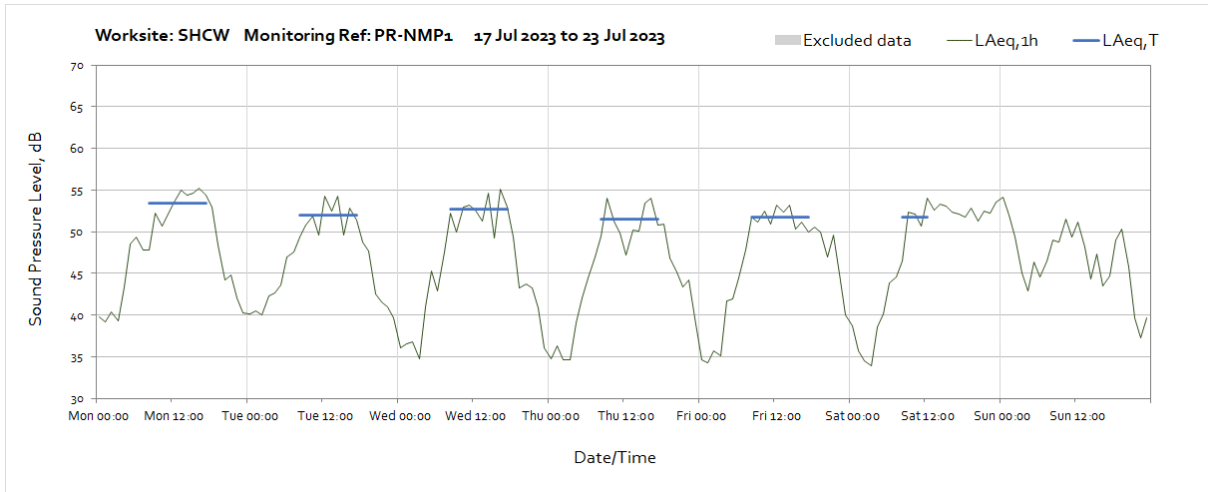
Worksite: LL – Monitoring Ref: GD-NMP1



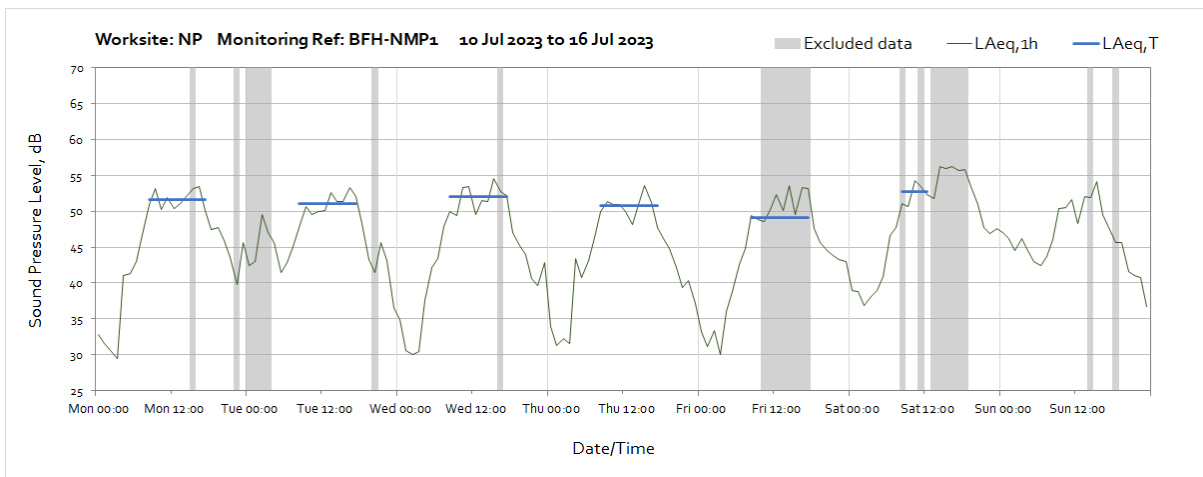
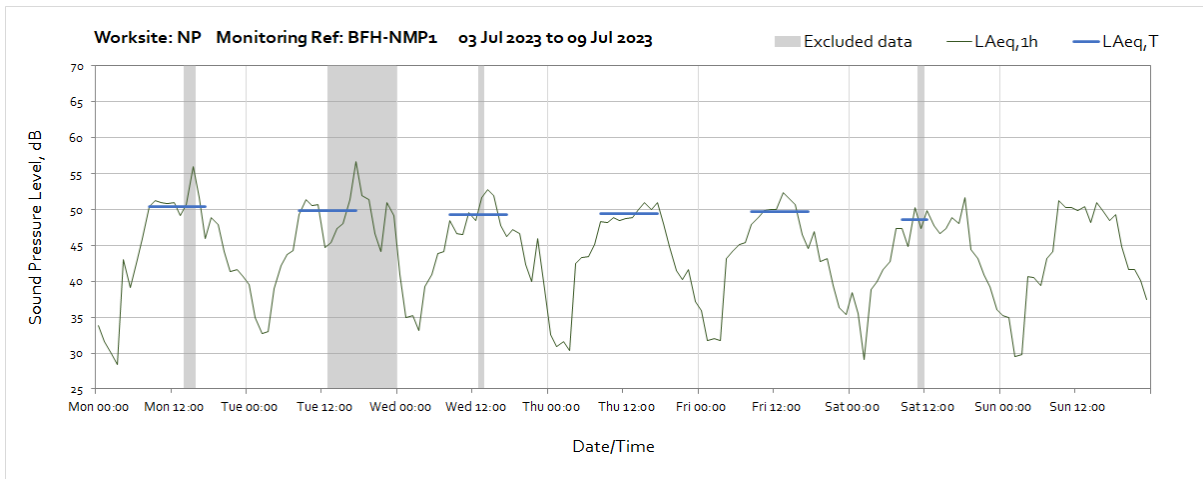
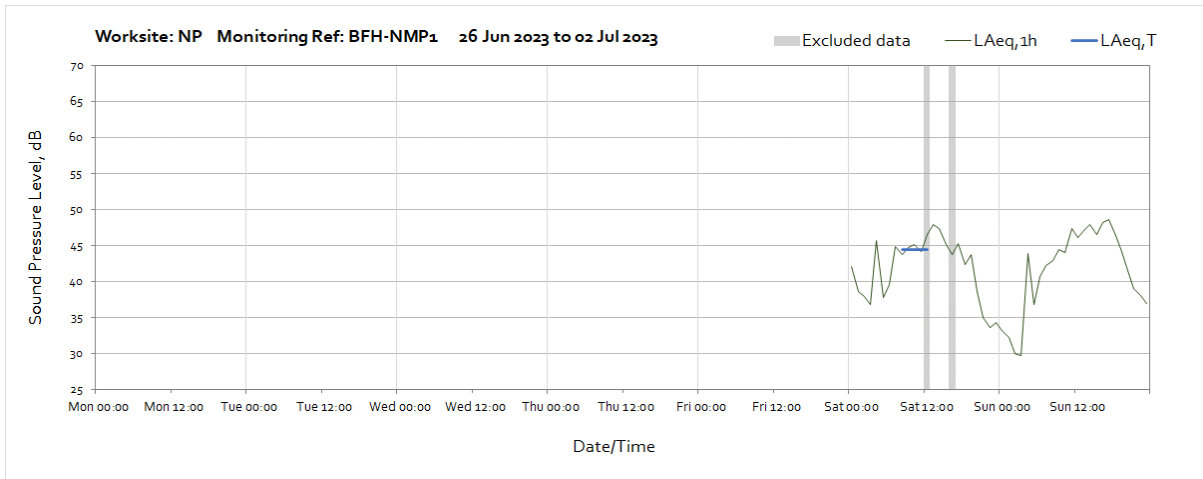


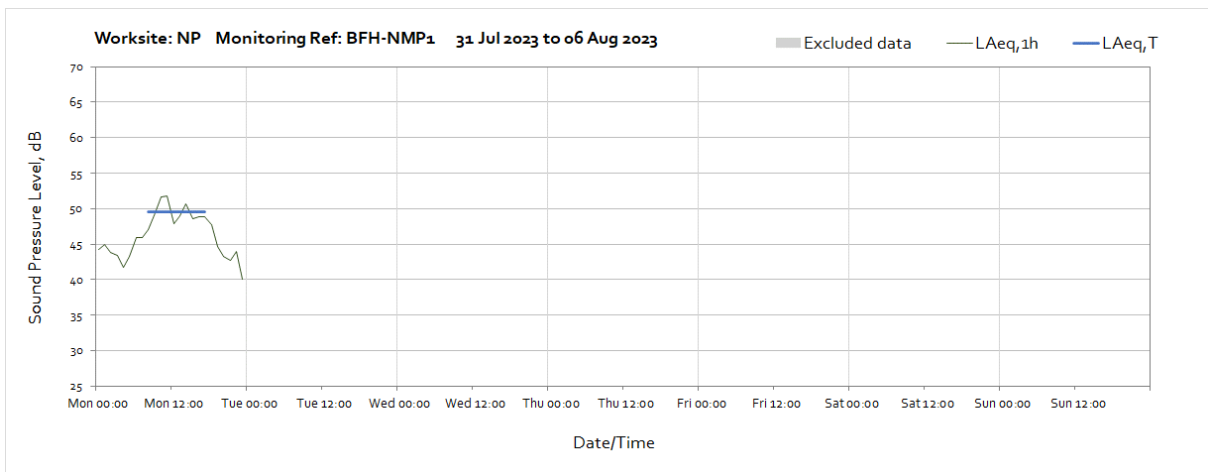
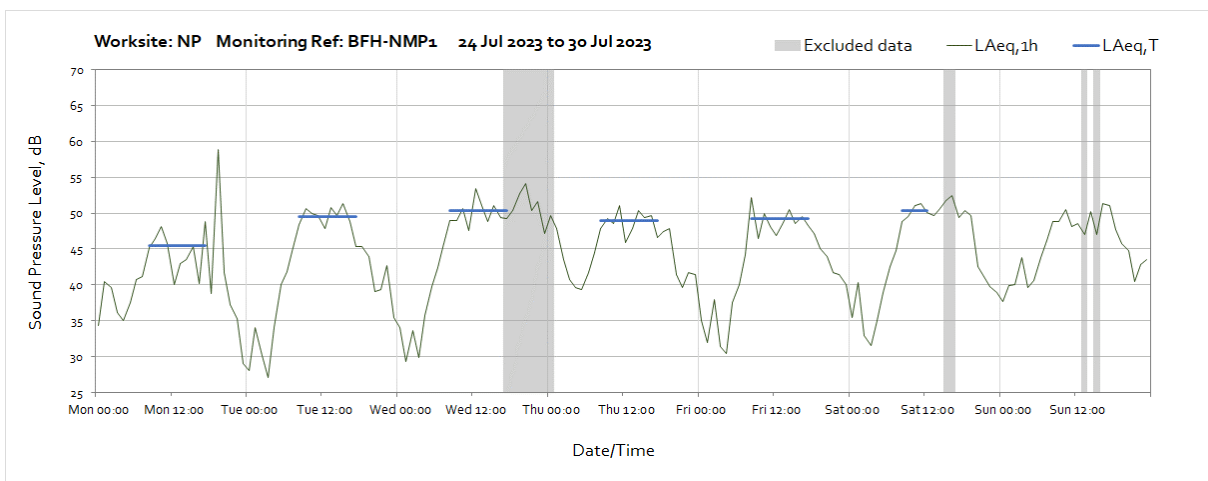
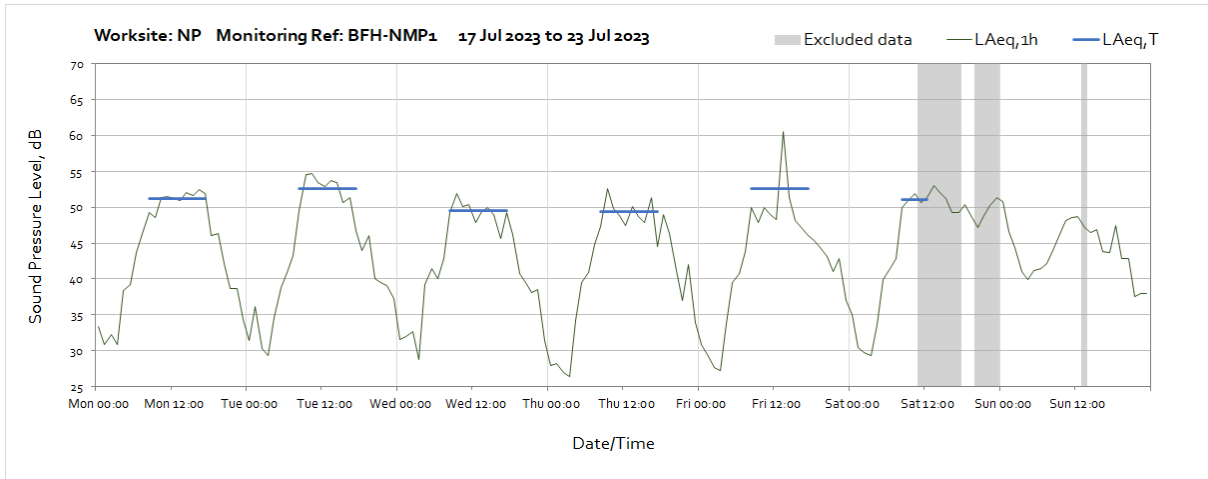
Worksite: SHCW – Monitoring Ref: PR-NMP1



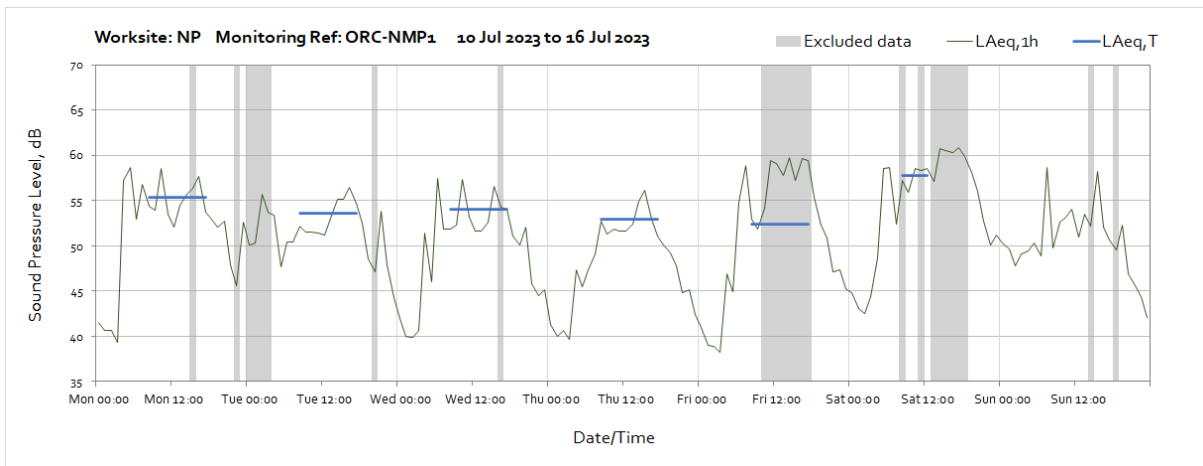
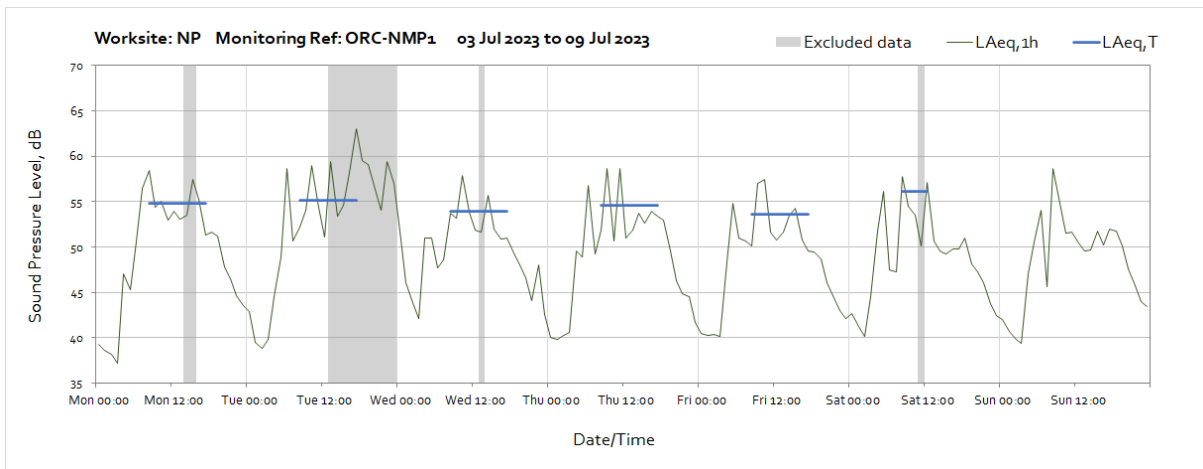
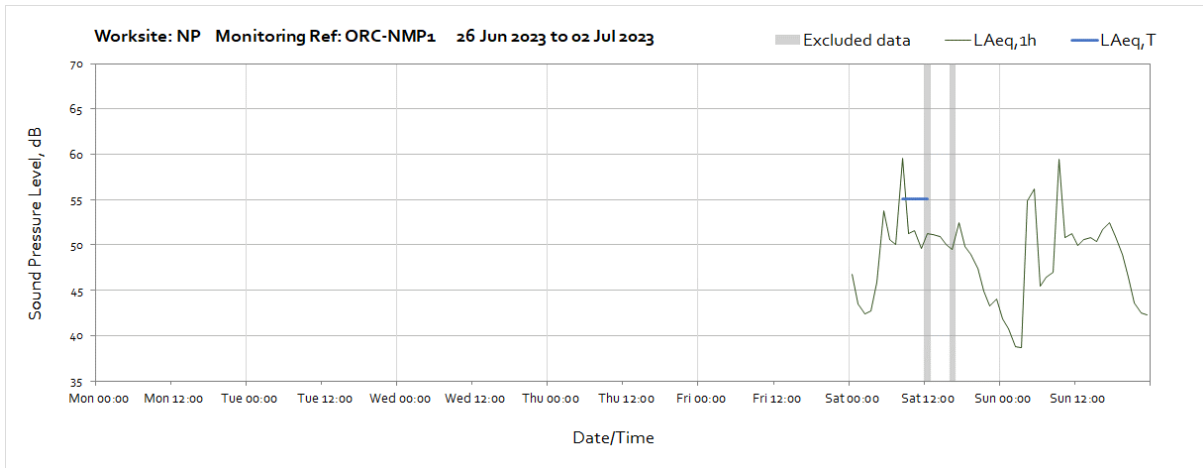


Worksite: NP – Monitoring Ref: BFH-NMP1

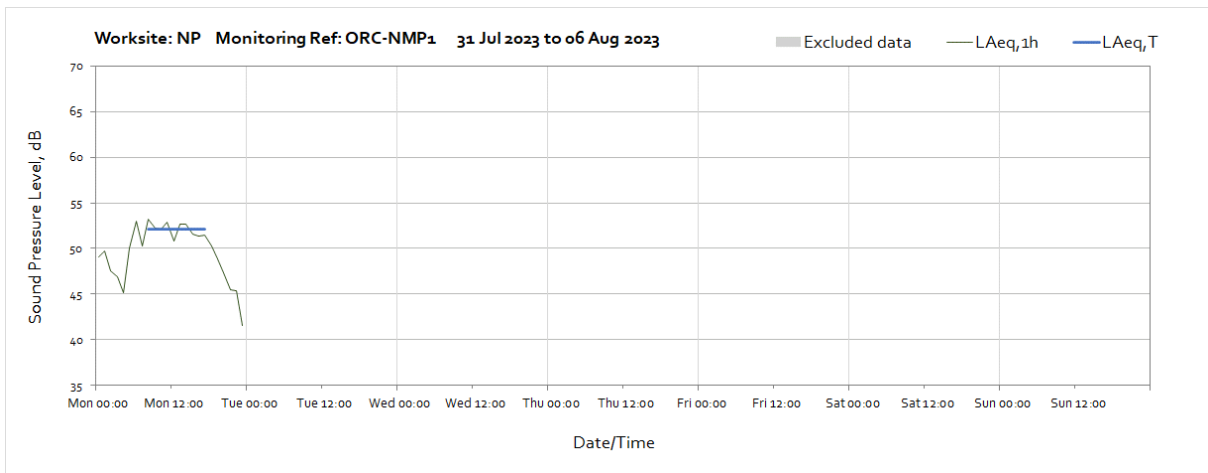
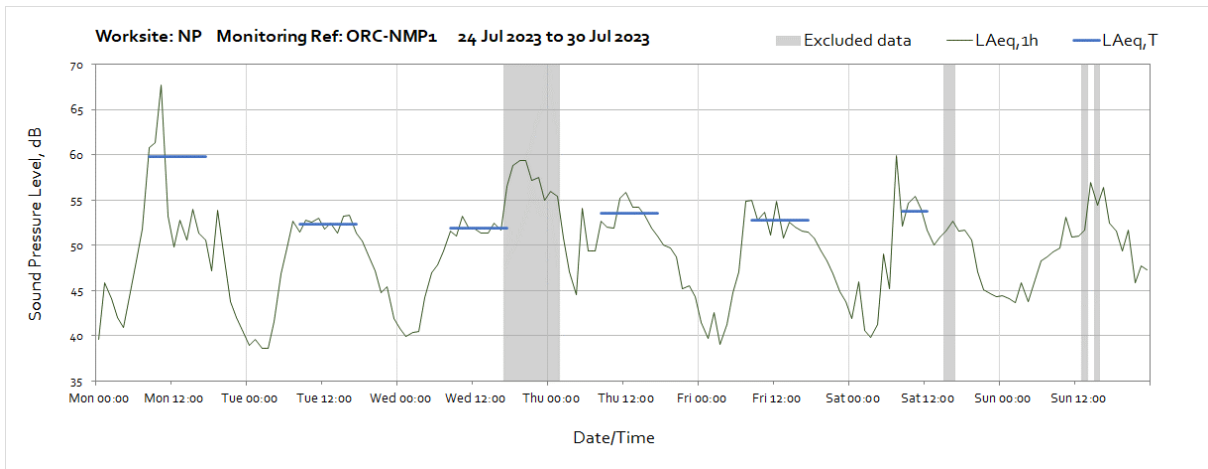
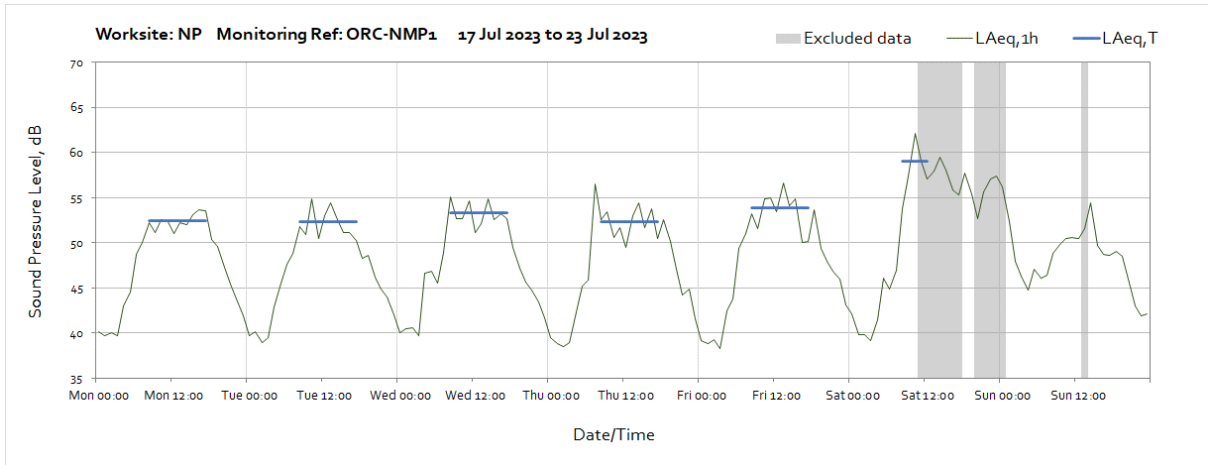




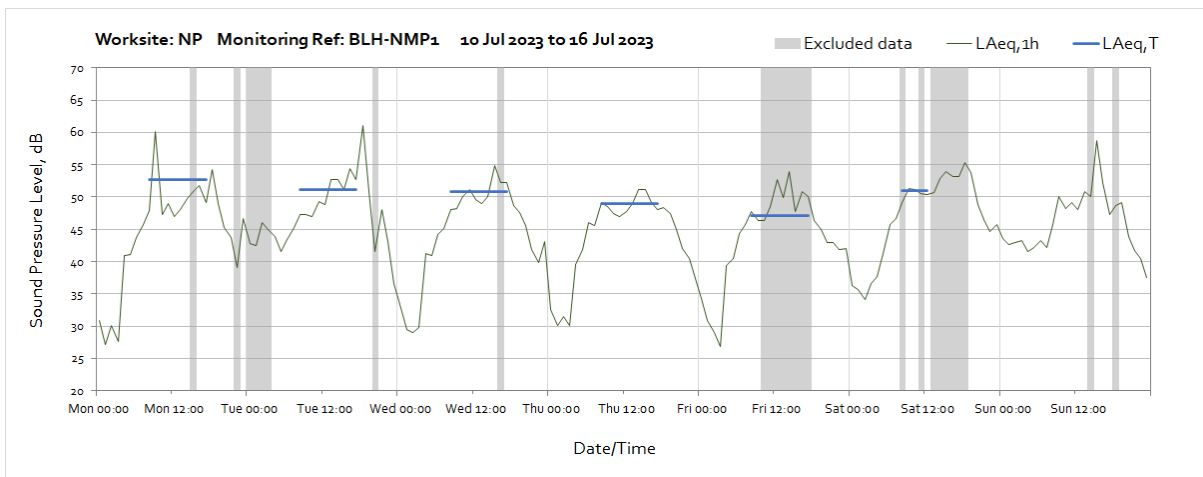
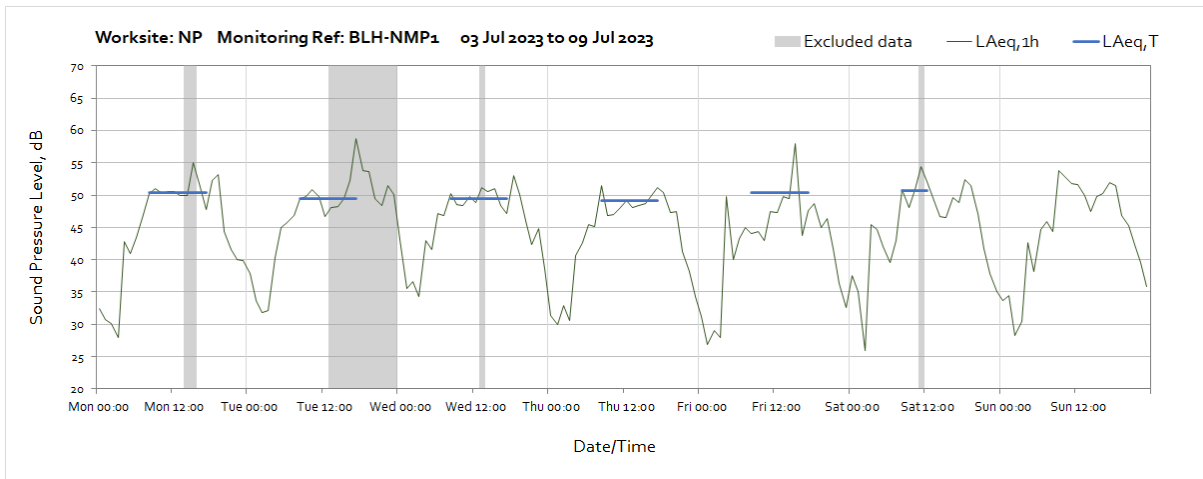
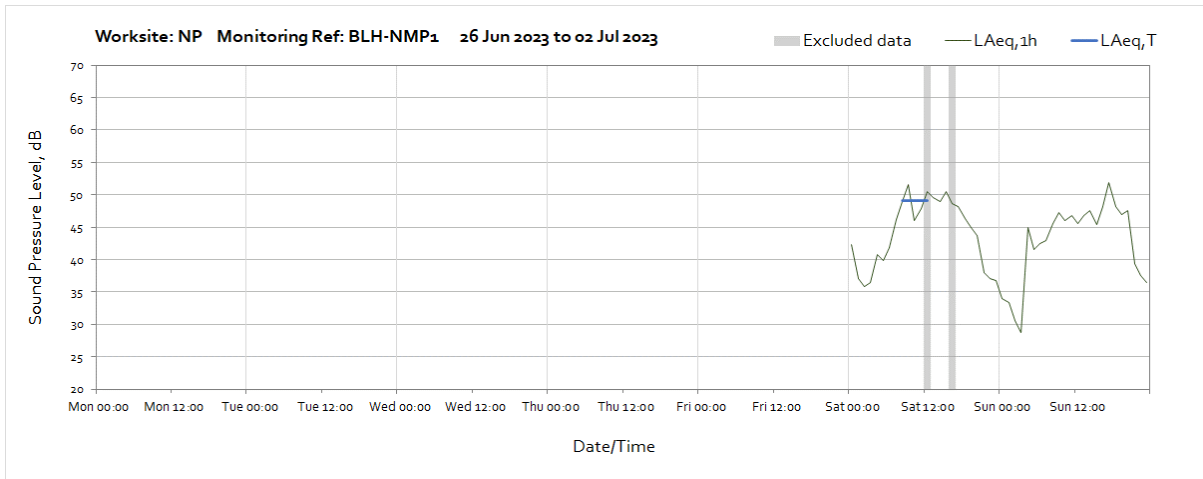
Worksite: NP – Monitoring Ref: ORC-NMP1

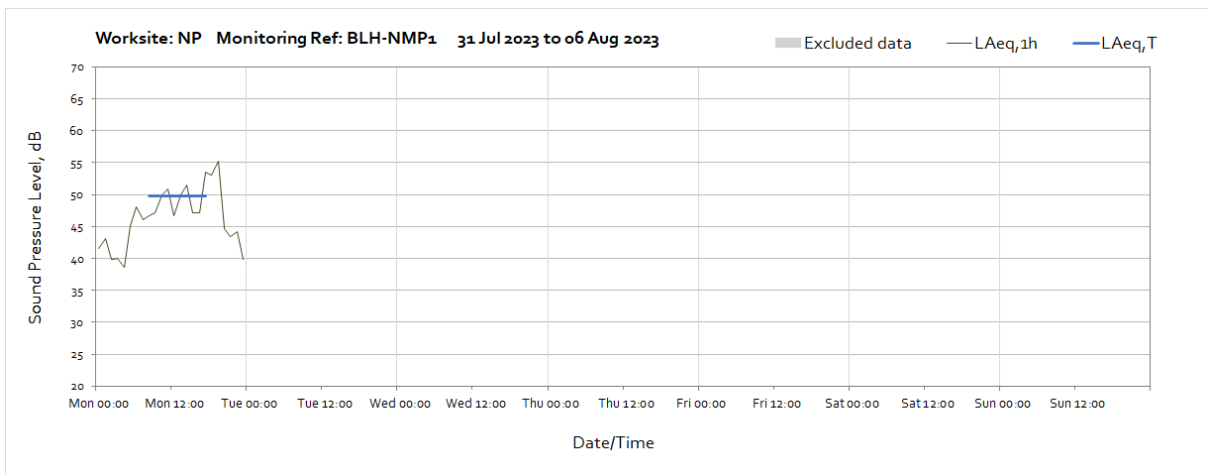
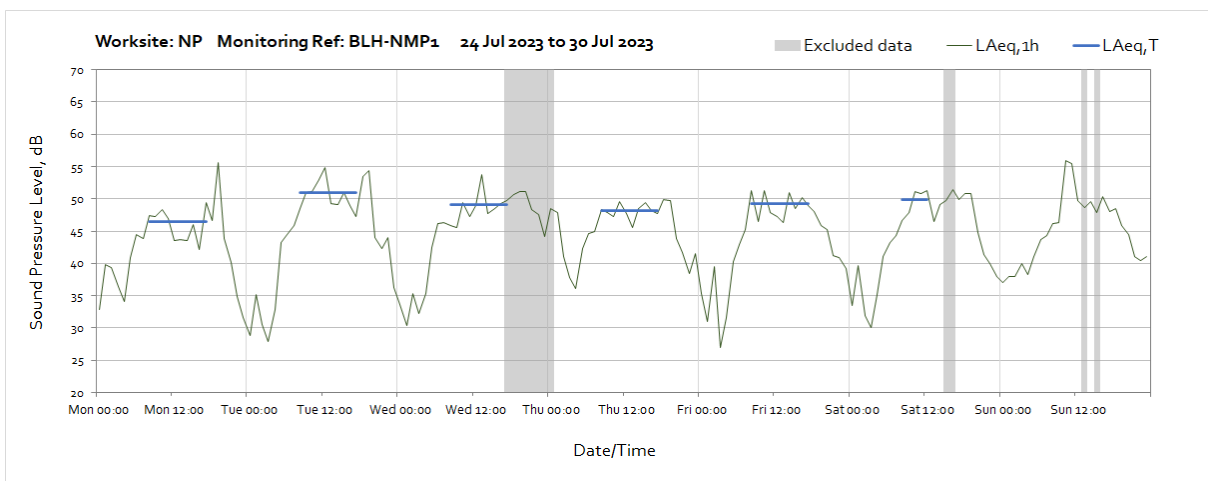
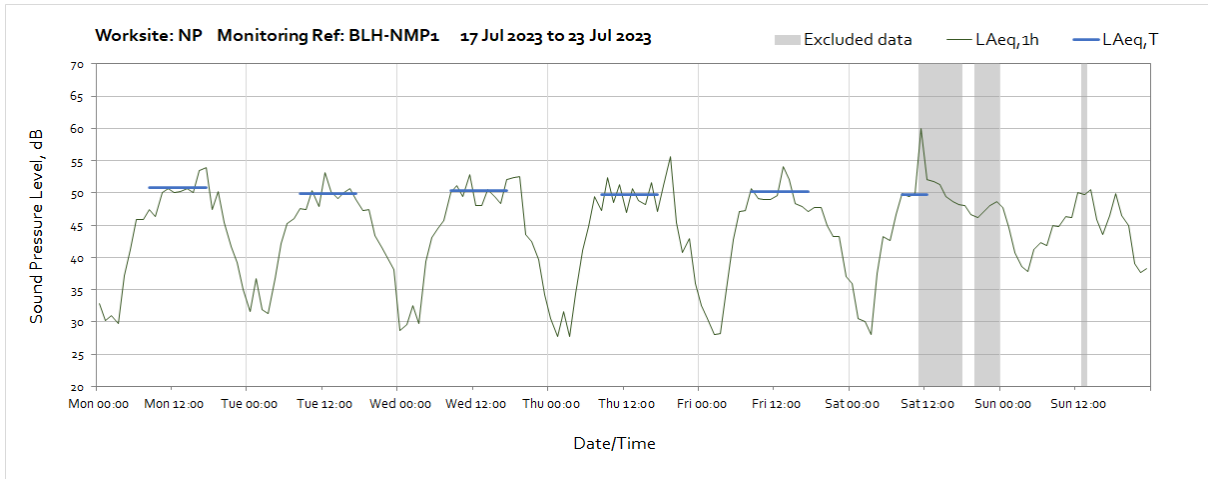


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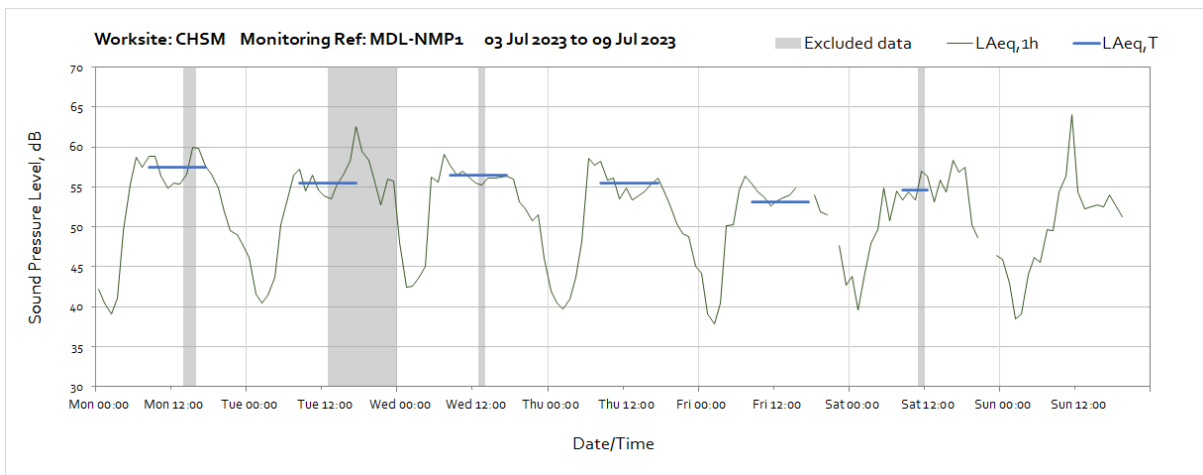
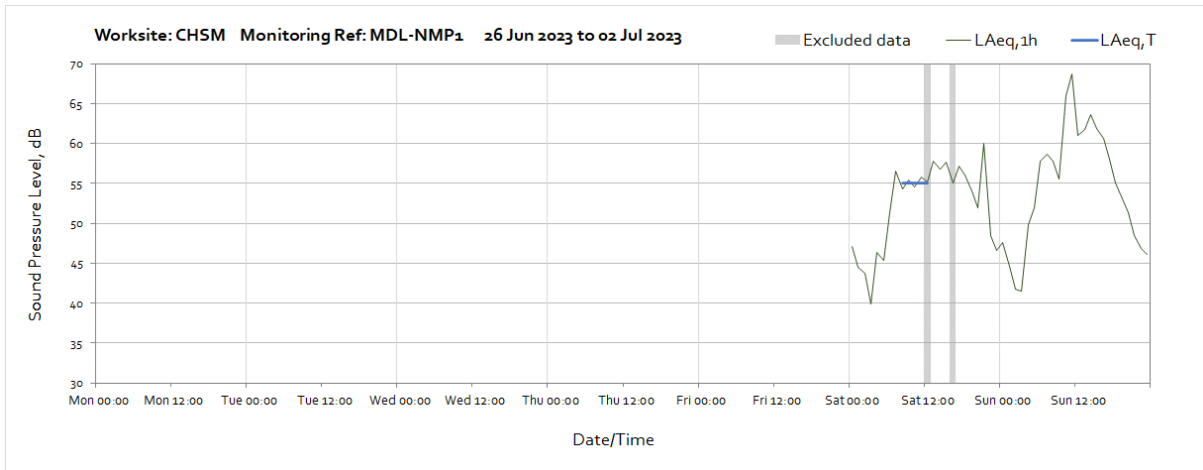


Worksite: NP – Monitoring Ref: BLH-NMP1

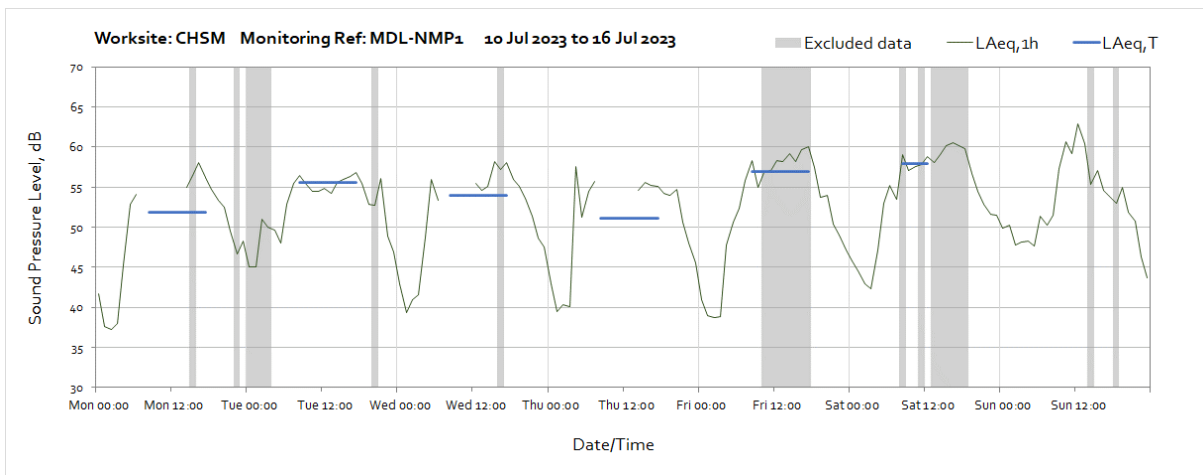




Worksite: CHSM – Monitoring Ref: MDL-NMP1

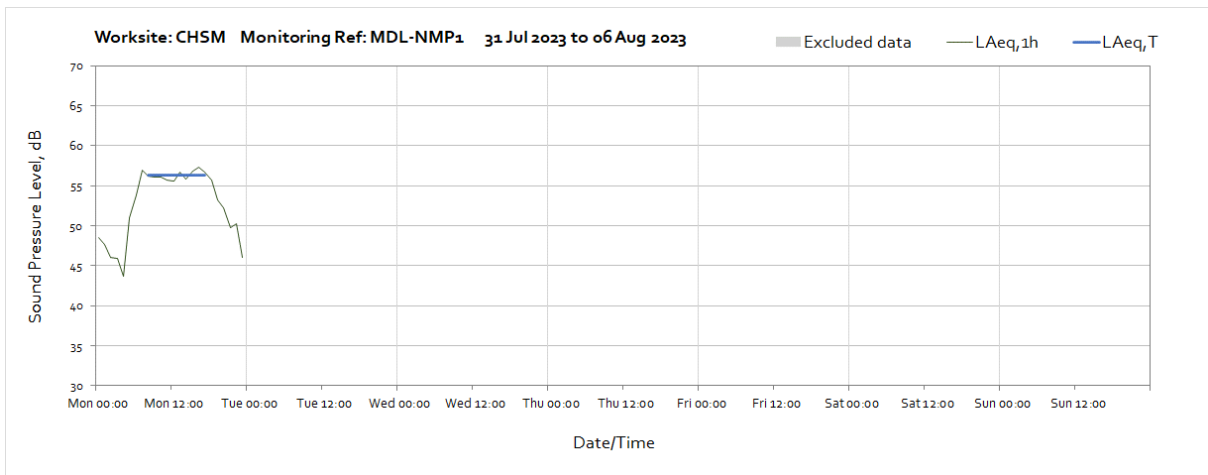
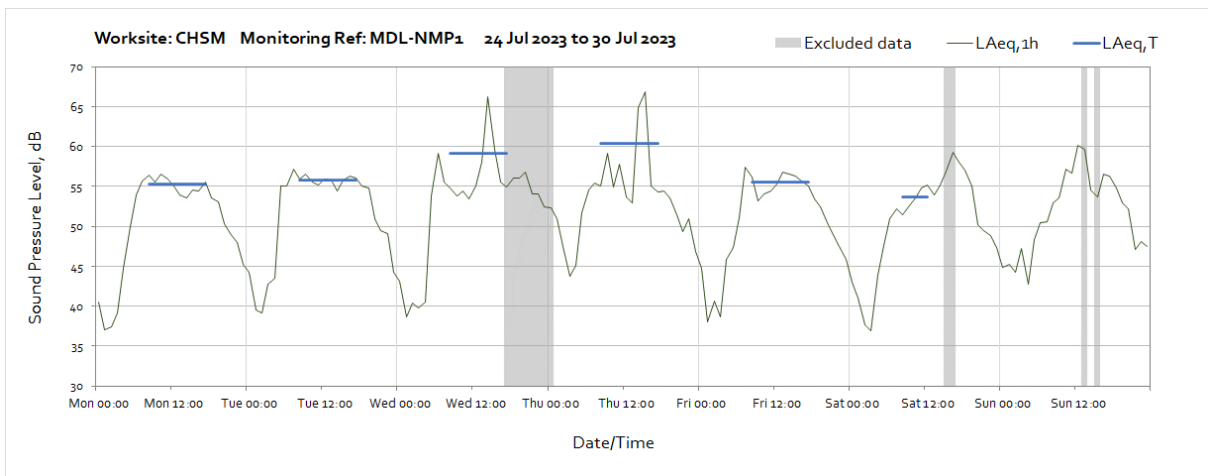
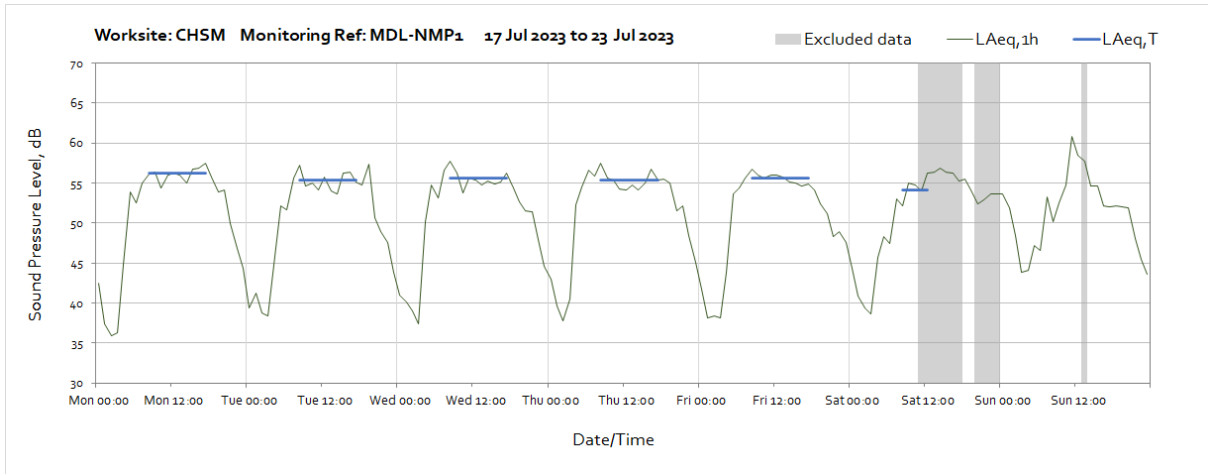


Note: Missing data throughout the week was due to a monitor remote networking issue.

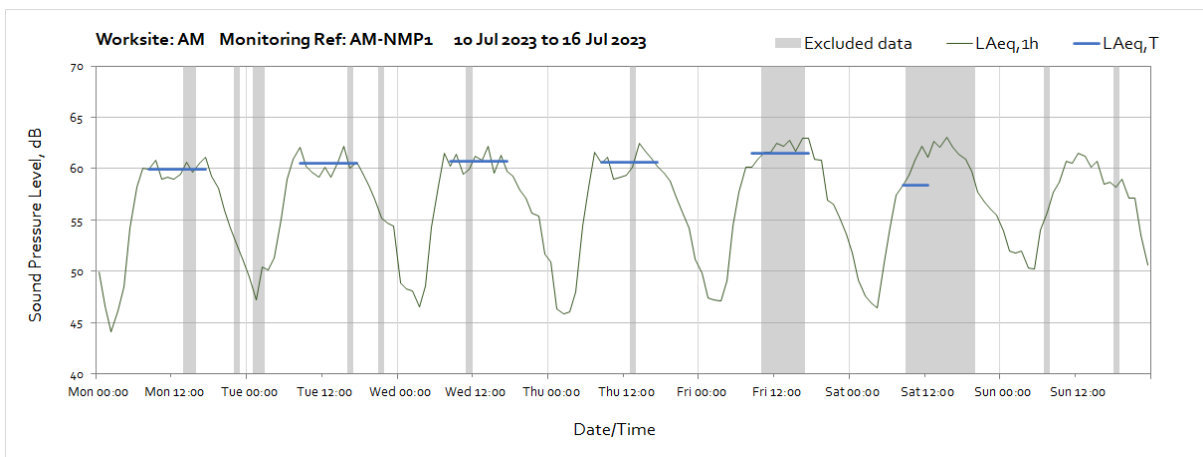
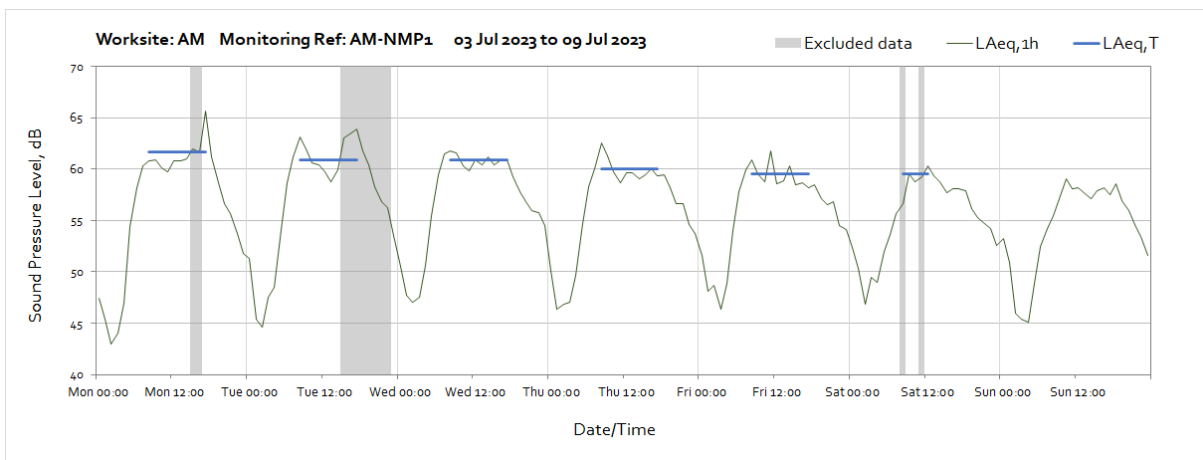
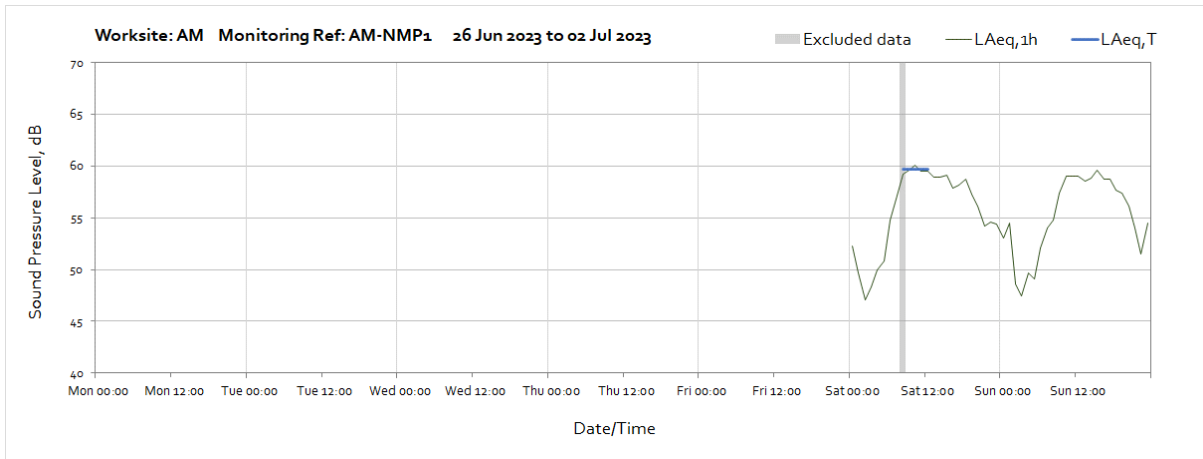


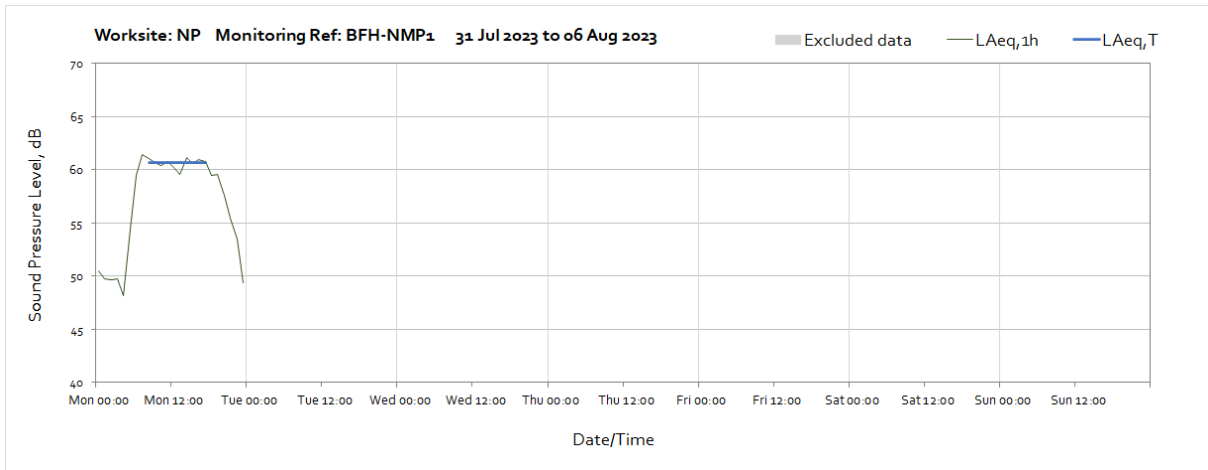
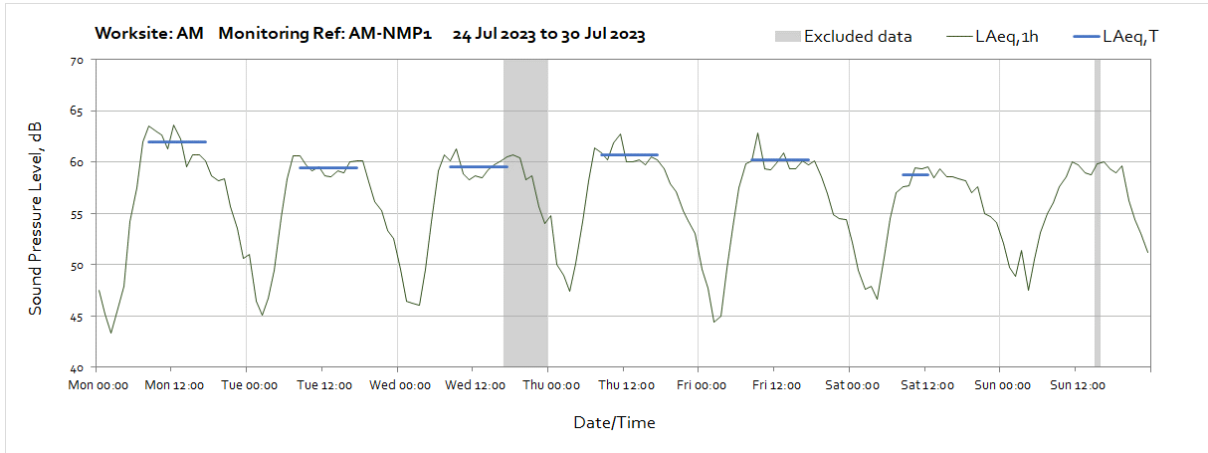
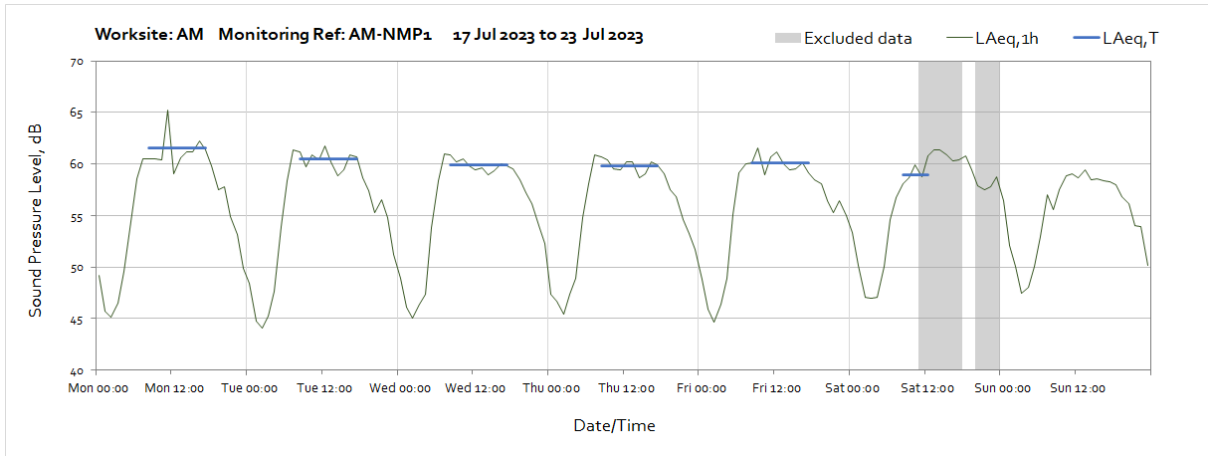
Note: Missing data throughout the week was due to a monitor remote networking issue. The monitor has now been replaced.

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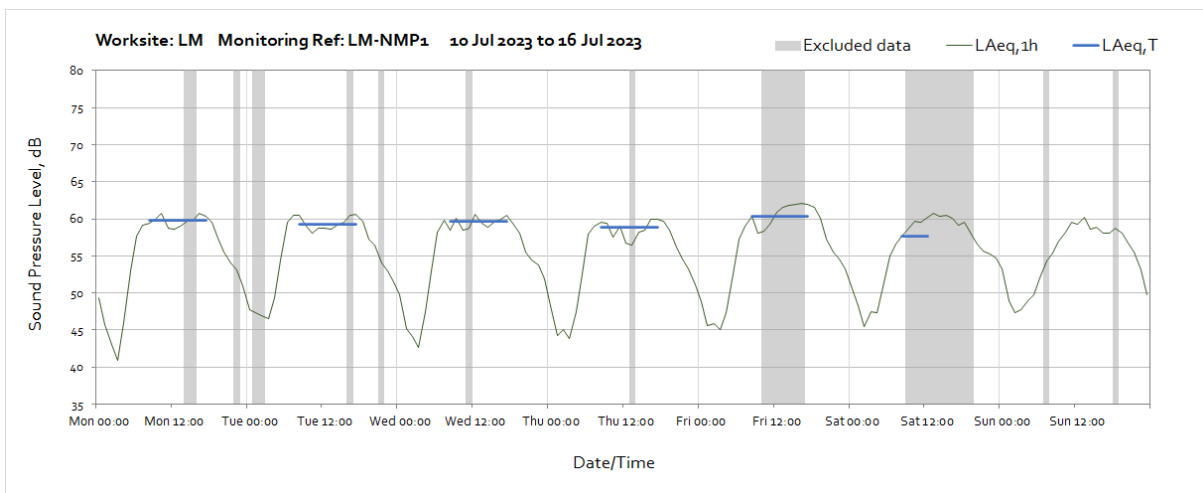
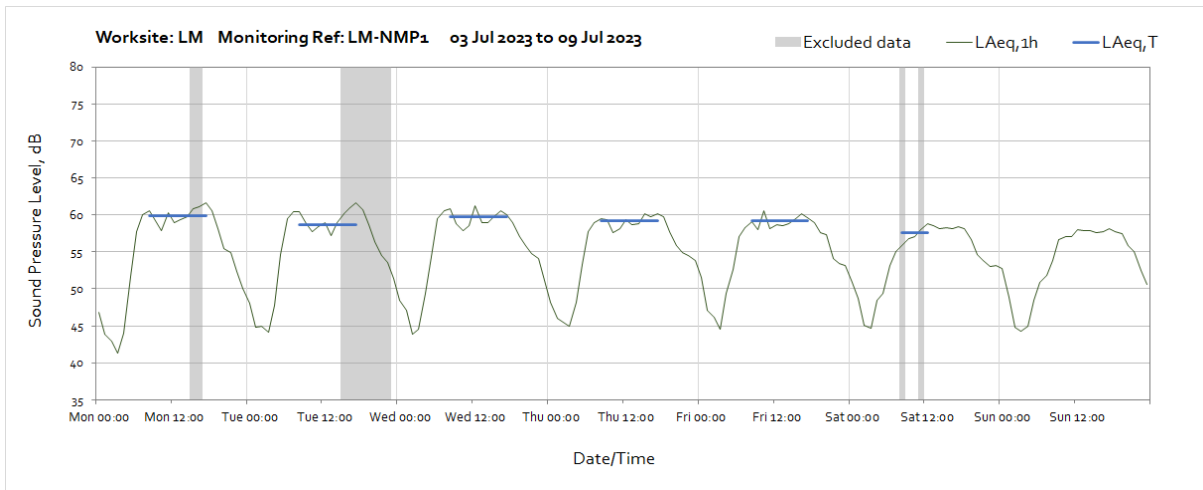
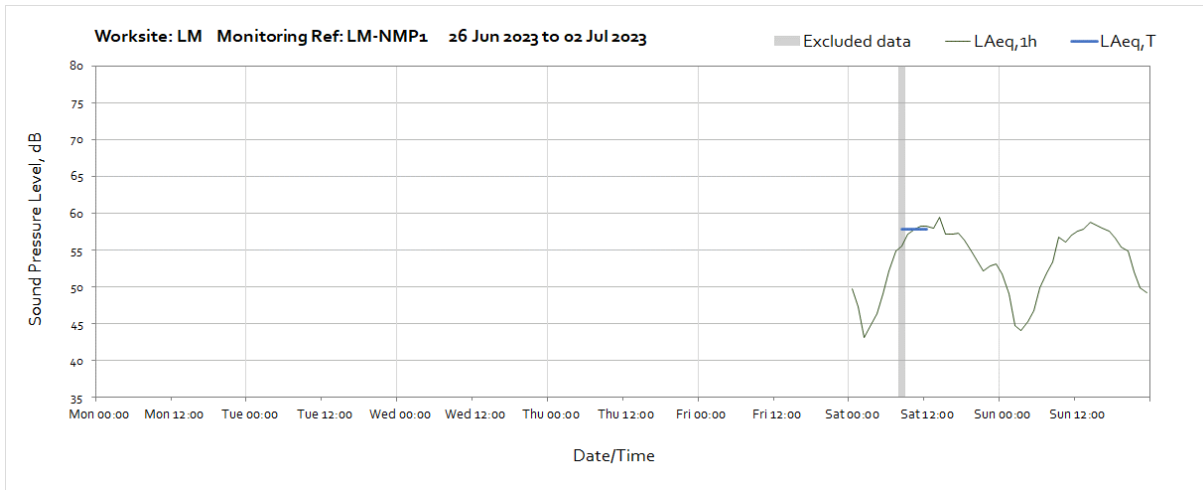


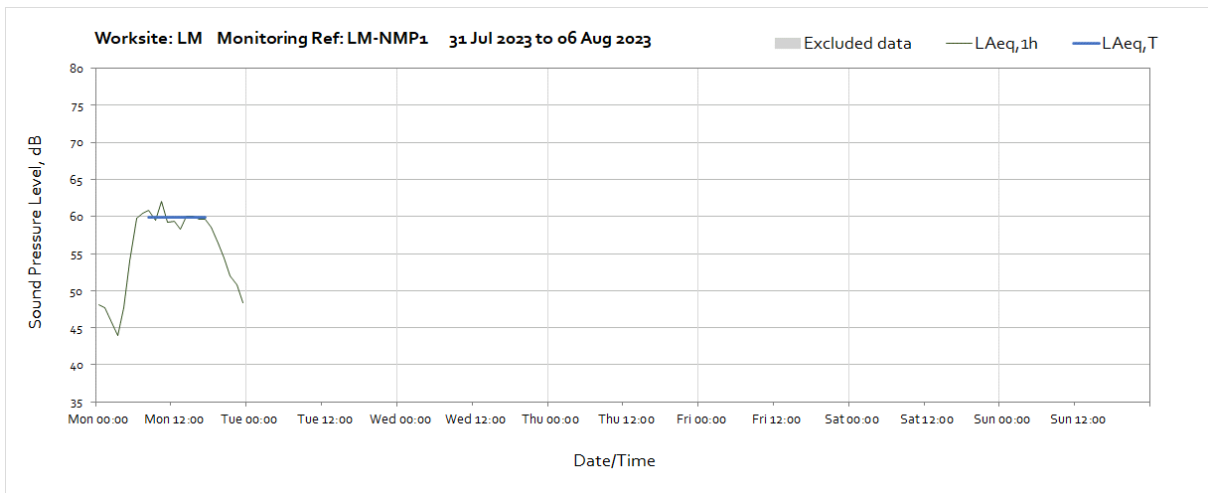
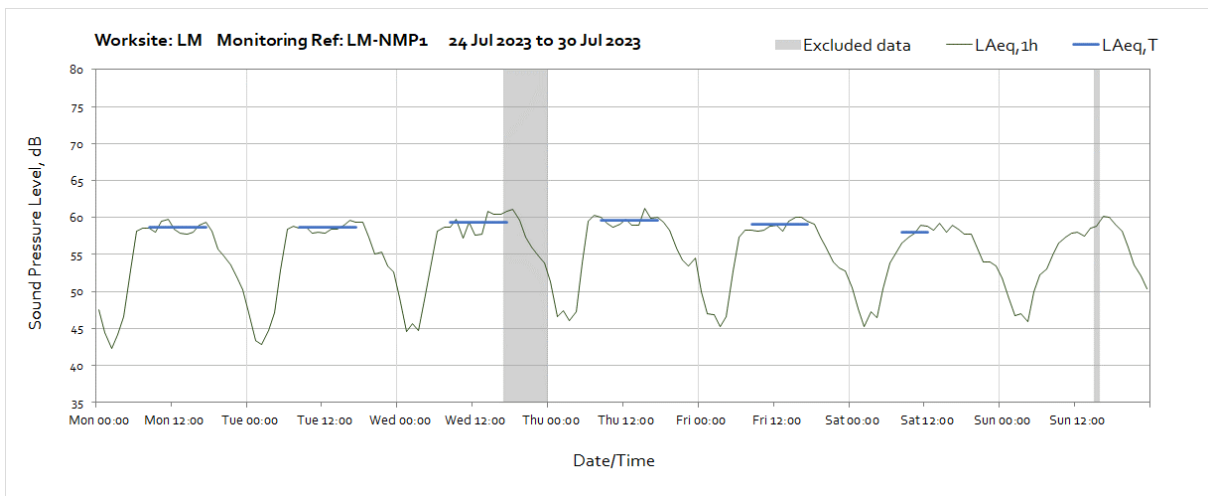
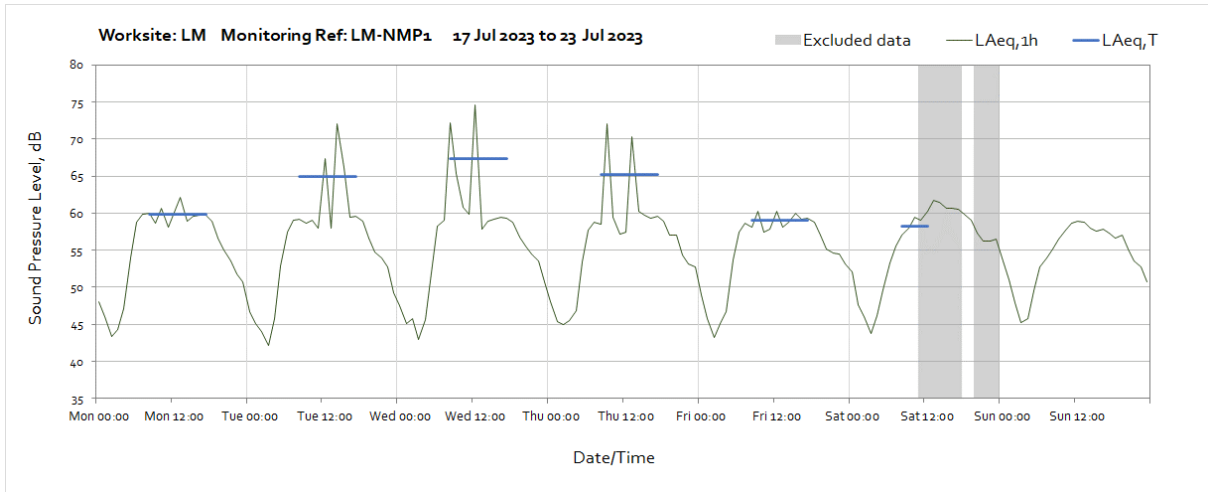
Worksite: AM - Monitoring Ref: AM-NMP1



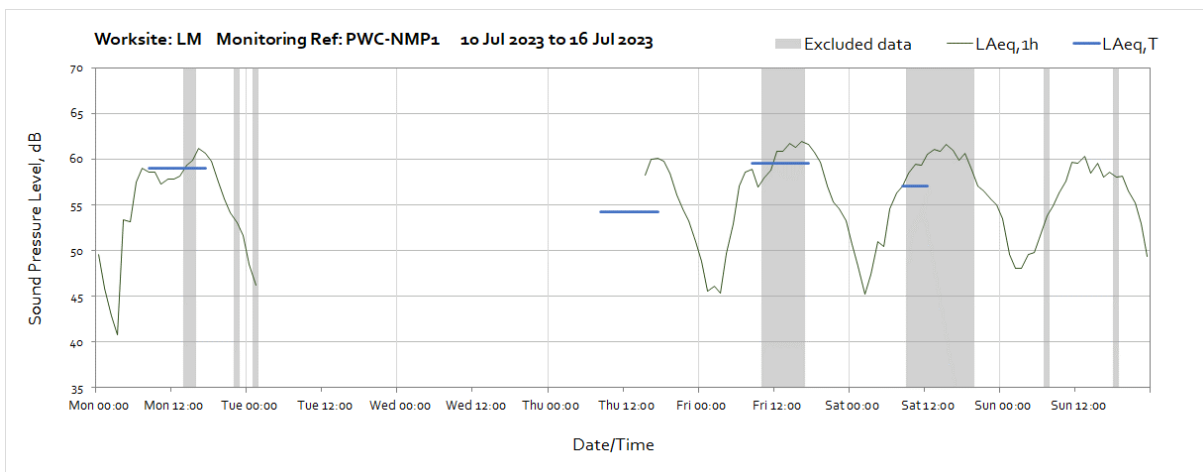
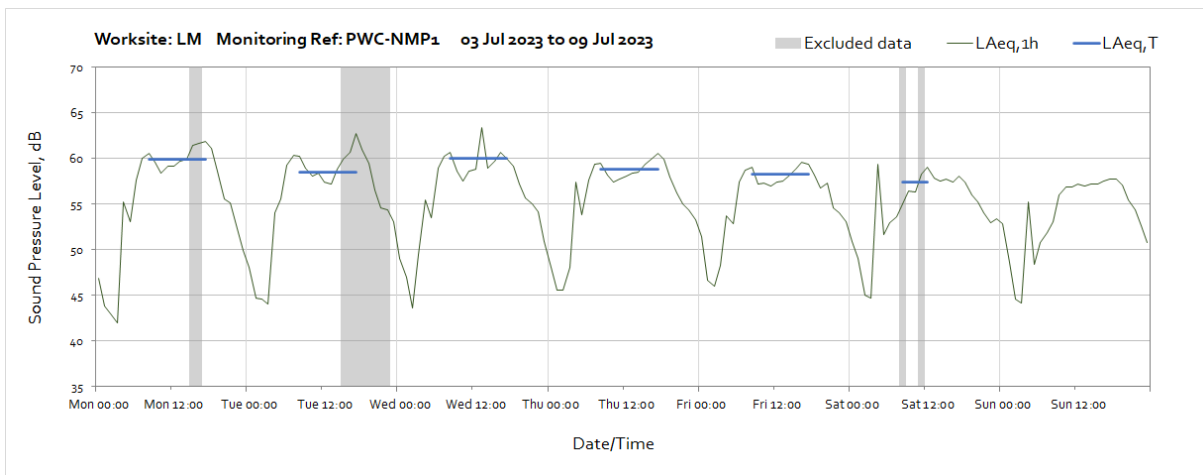
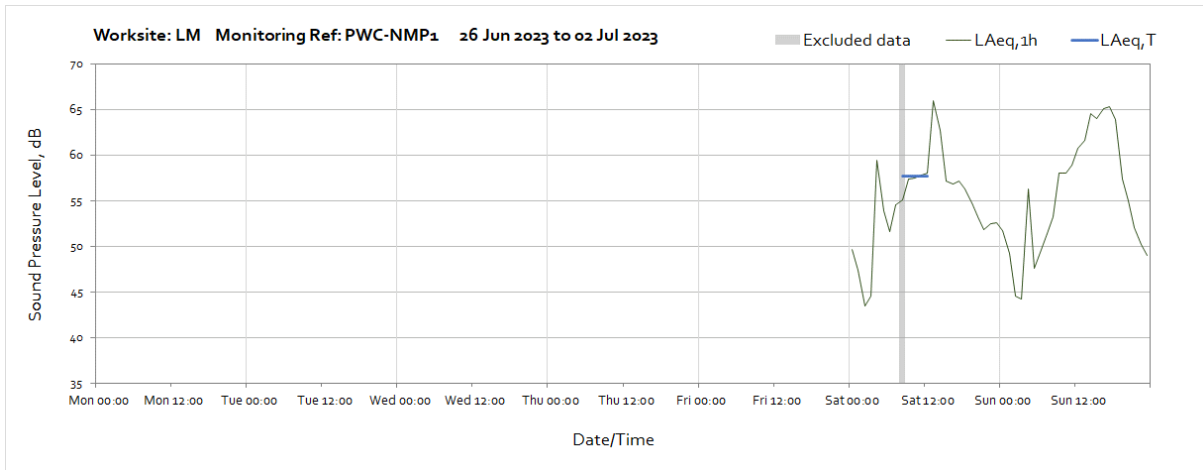


Worksite: LM – Monitoring Ref: LM-NMP1



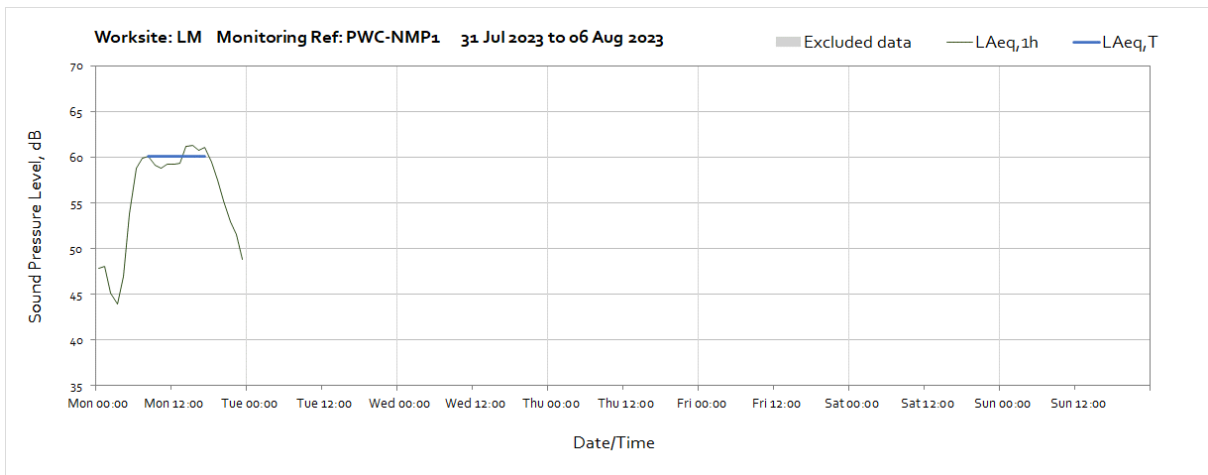
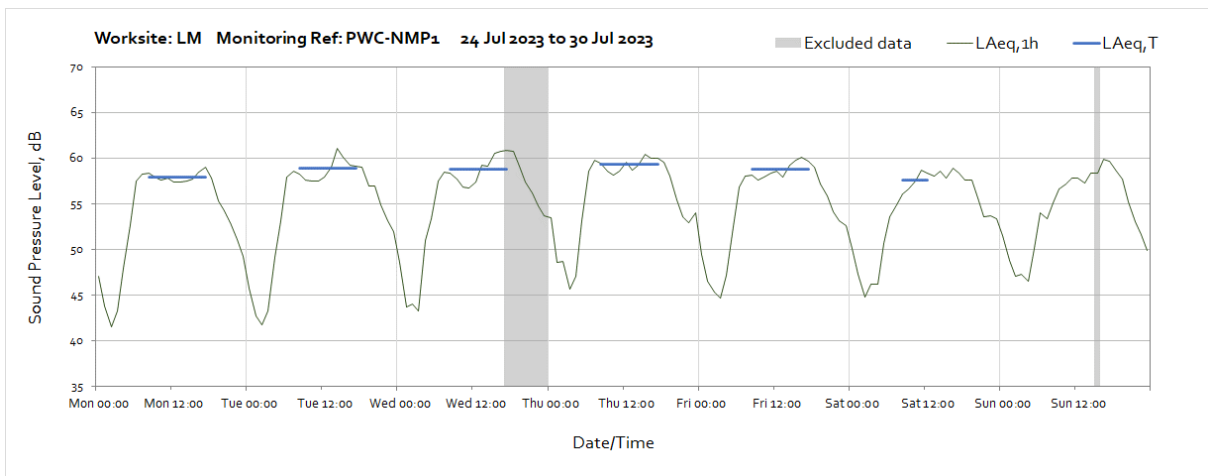
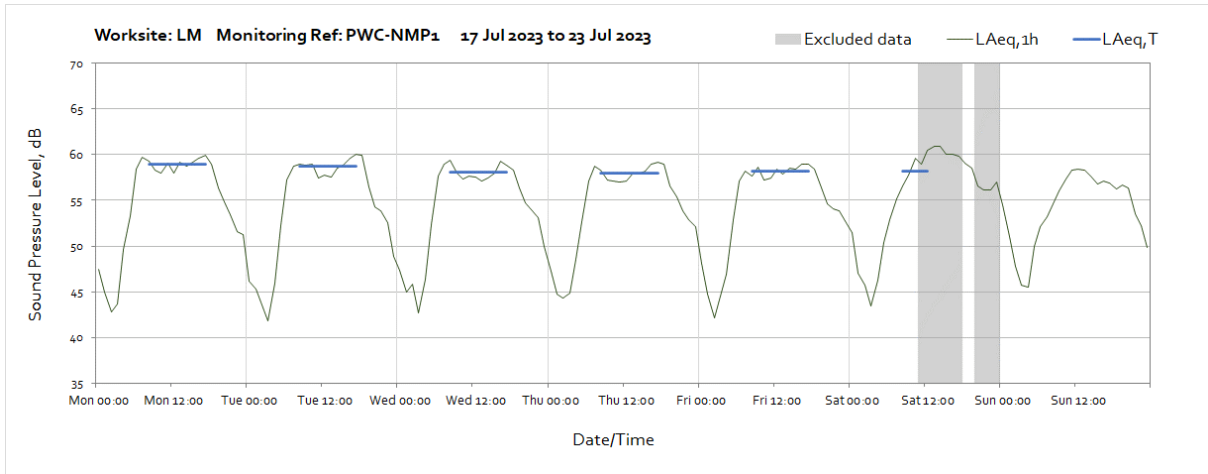


Worksite: LM – Monitoring Ref: PWC-NMP1

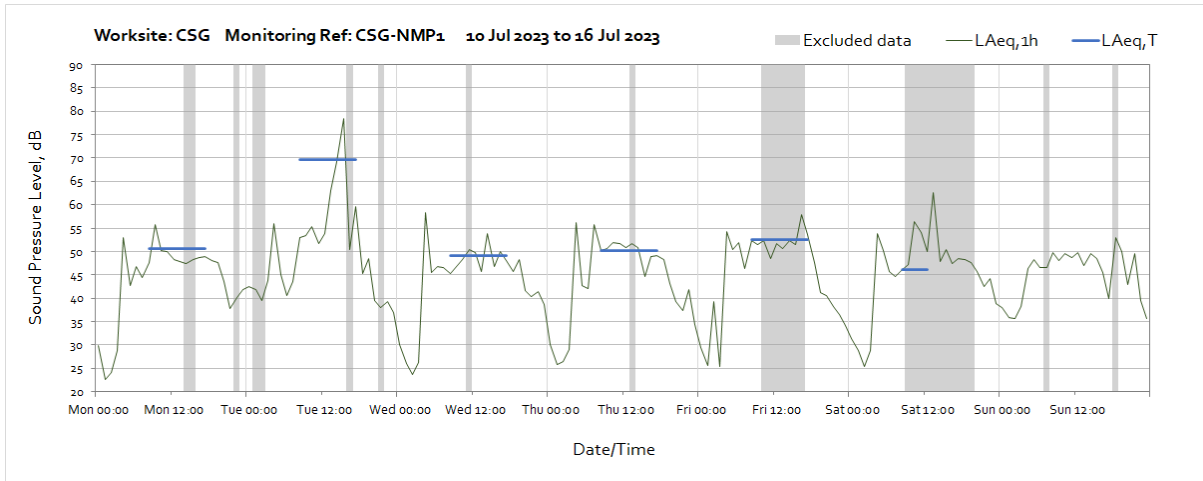
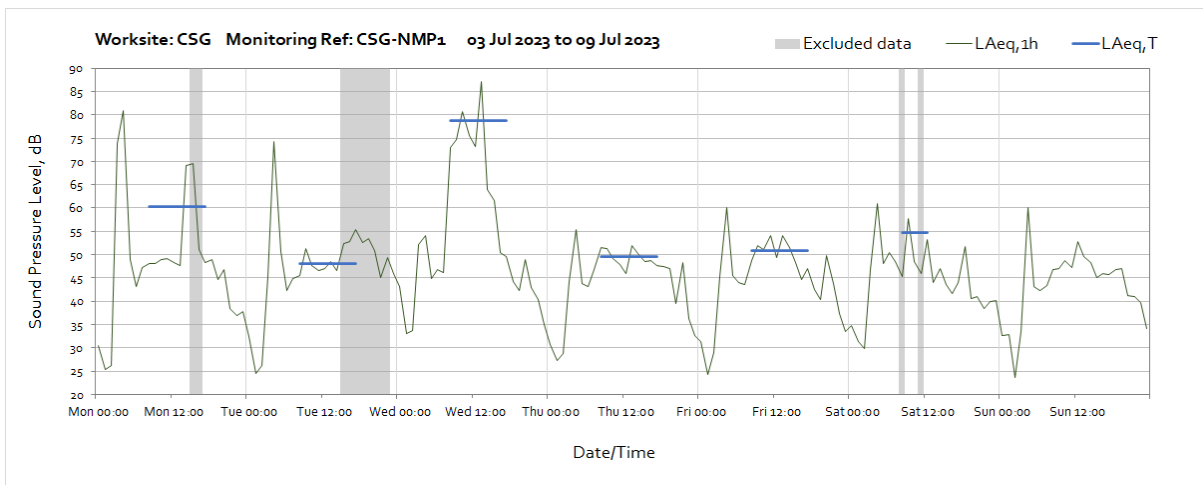
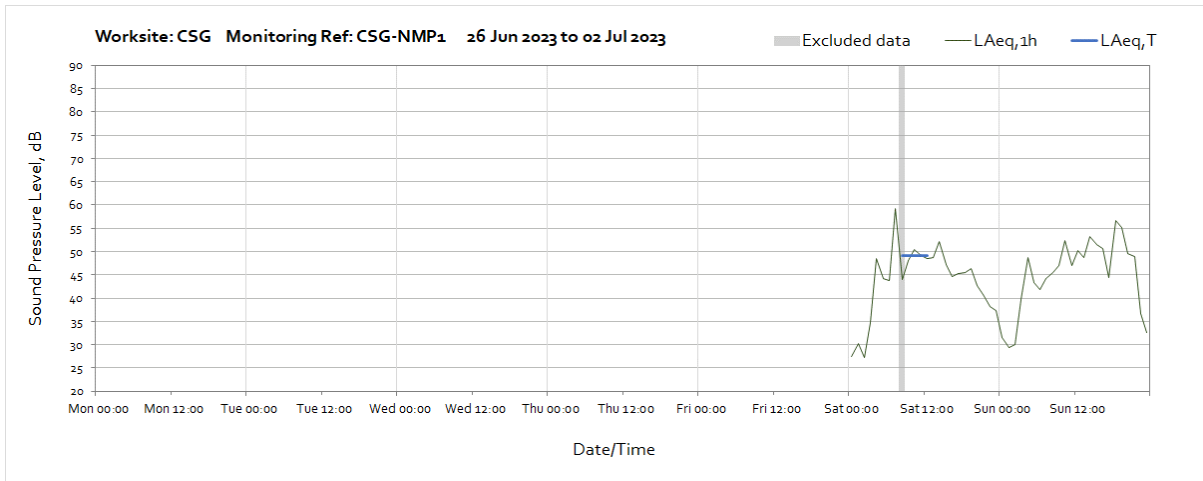


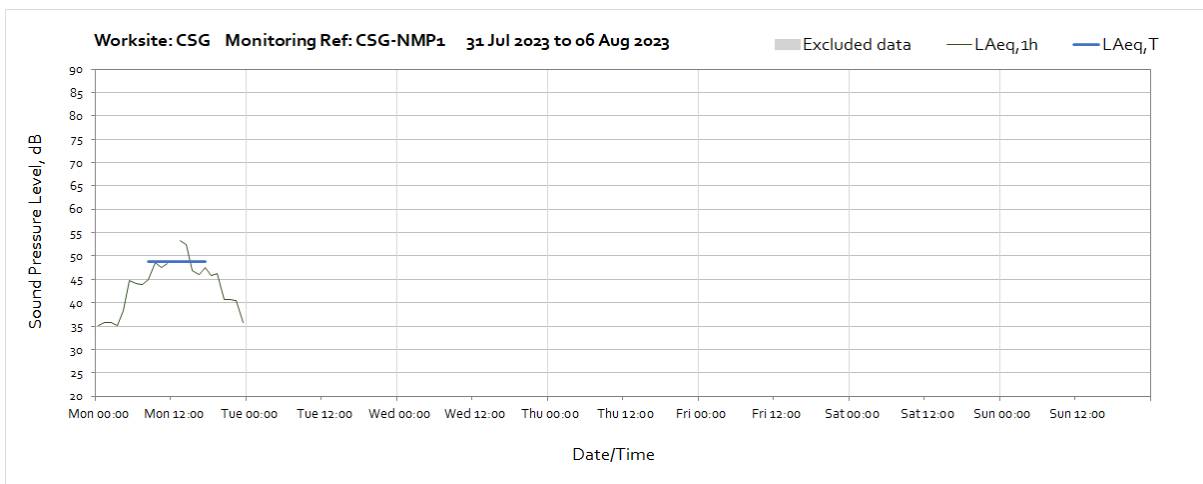
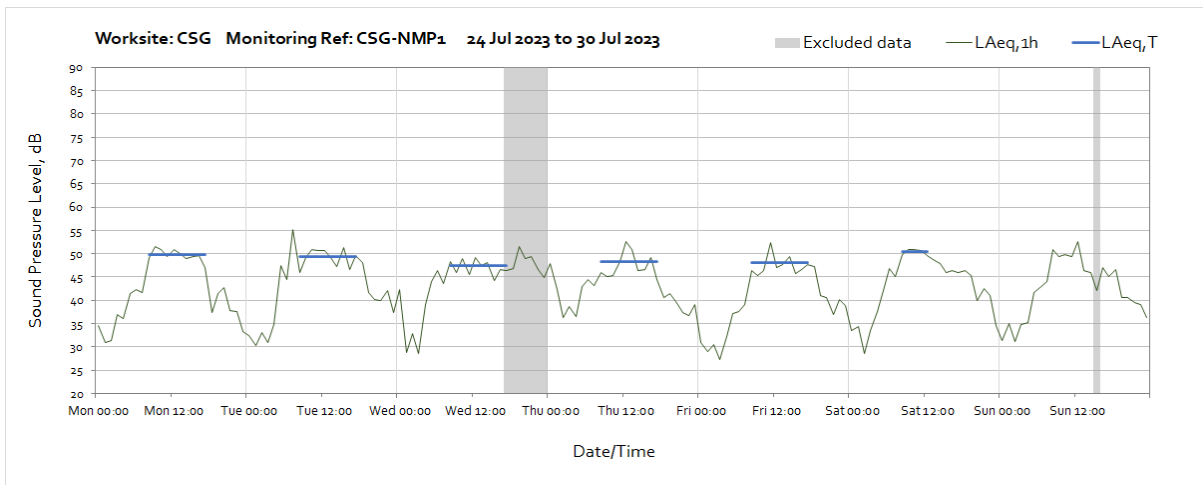
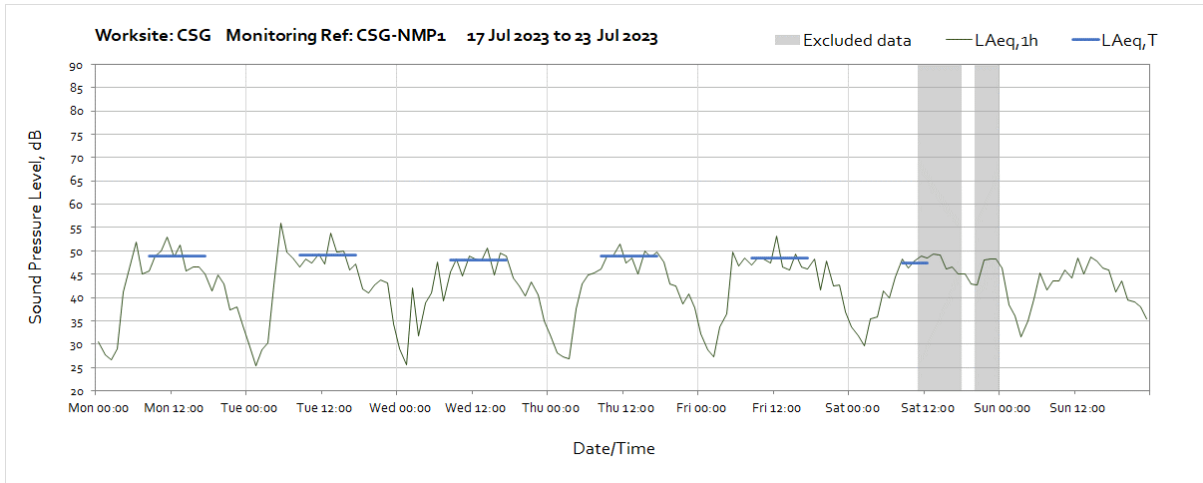
Note: Missing data between 02:00 on Tuesday 11th July and 15:00 on Thursday 13th July was due to a battery power error which has now been replaced.

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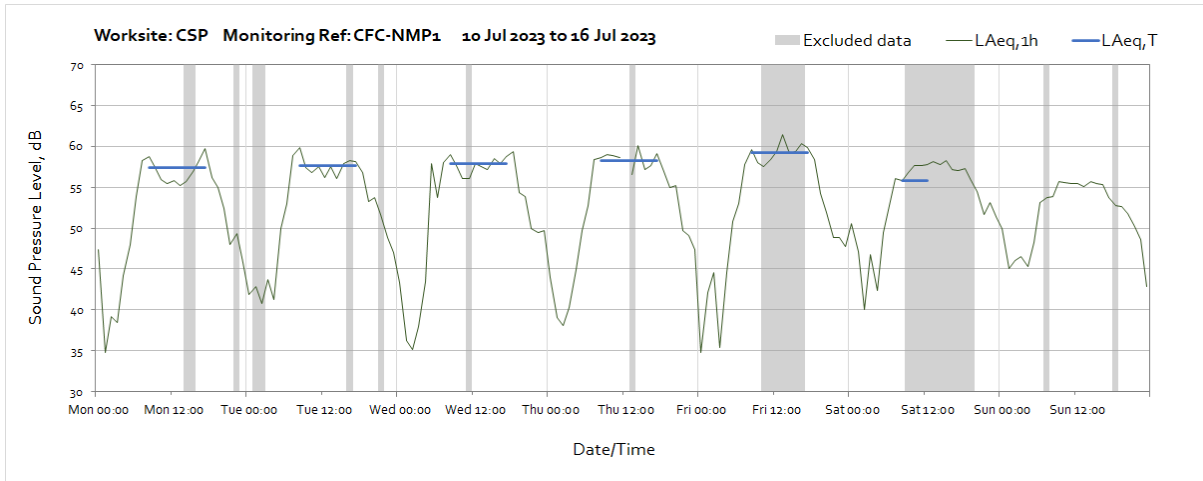
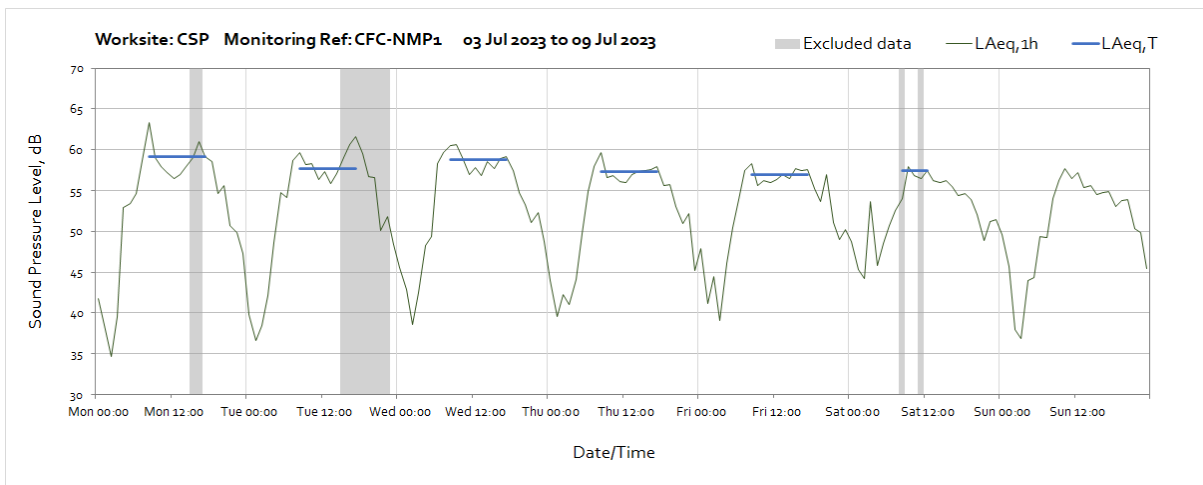
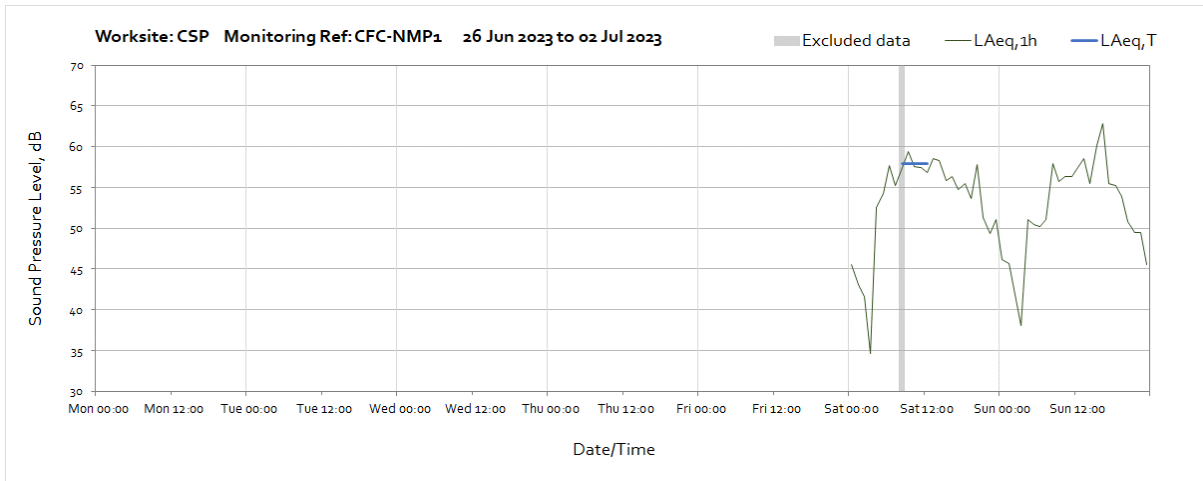
Worksite: CSG – Monitoring Ref: CSG-NMP1



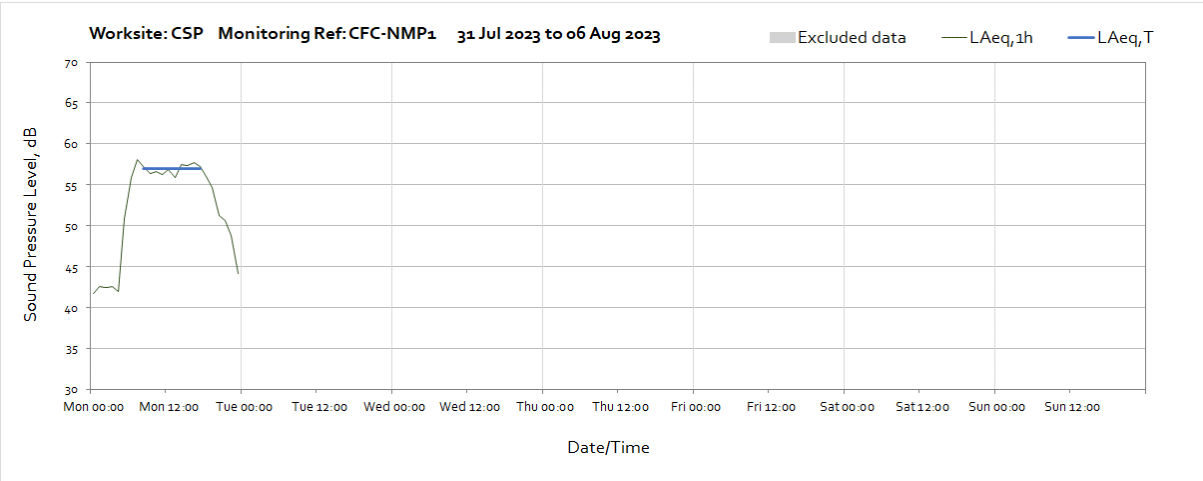
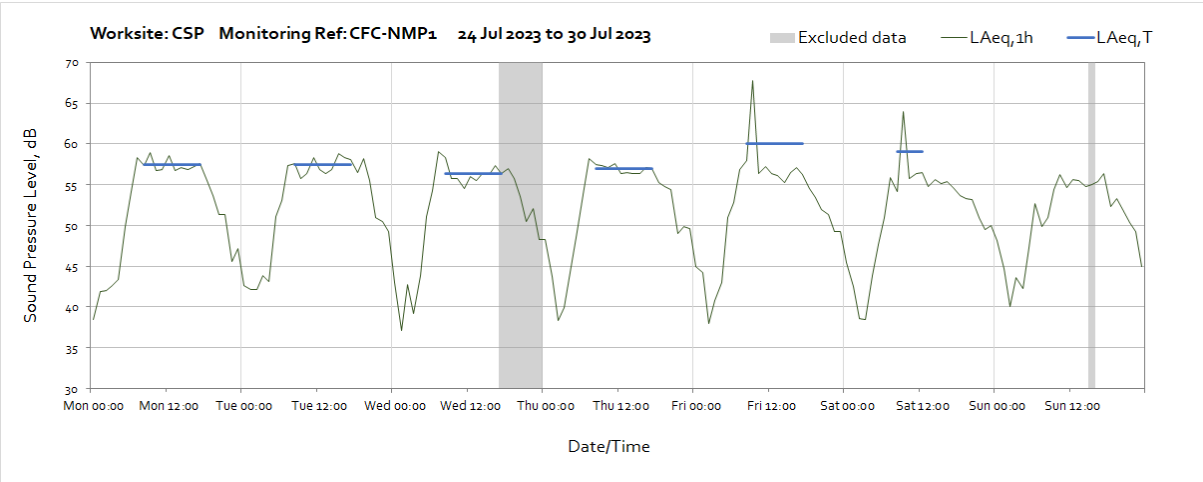
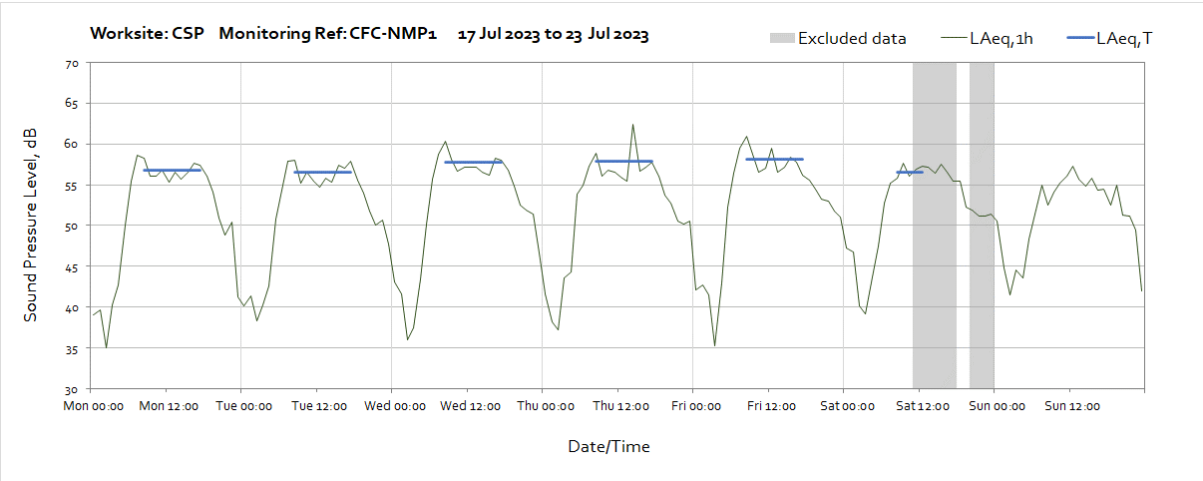


Note: Missing data between 12:00 and 13:00 on Monday 31st July was due to a monitor storage database issue.

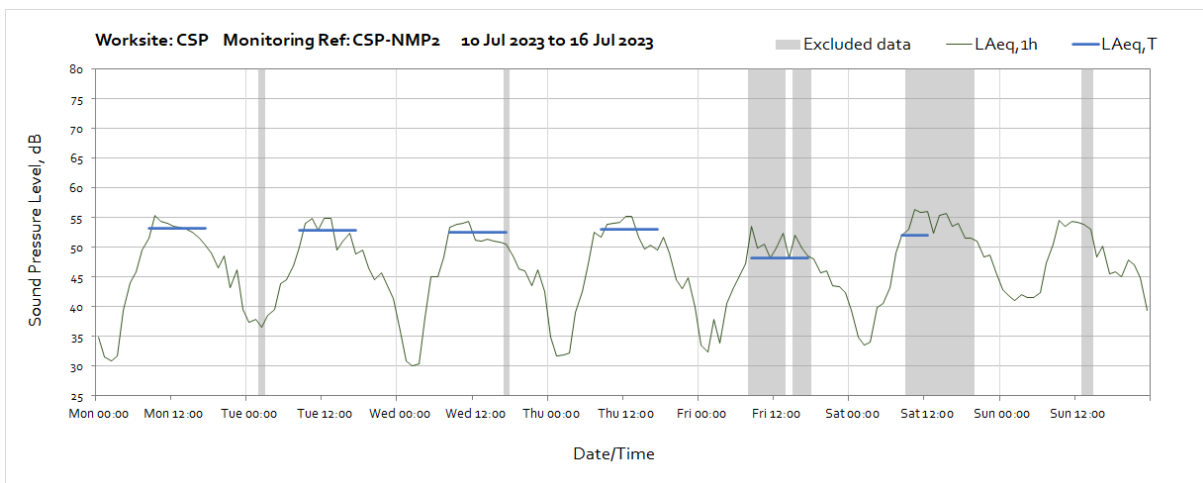
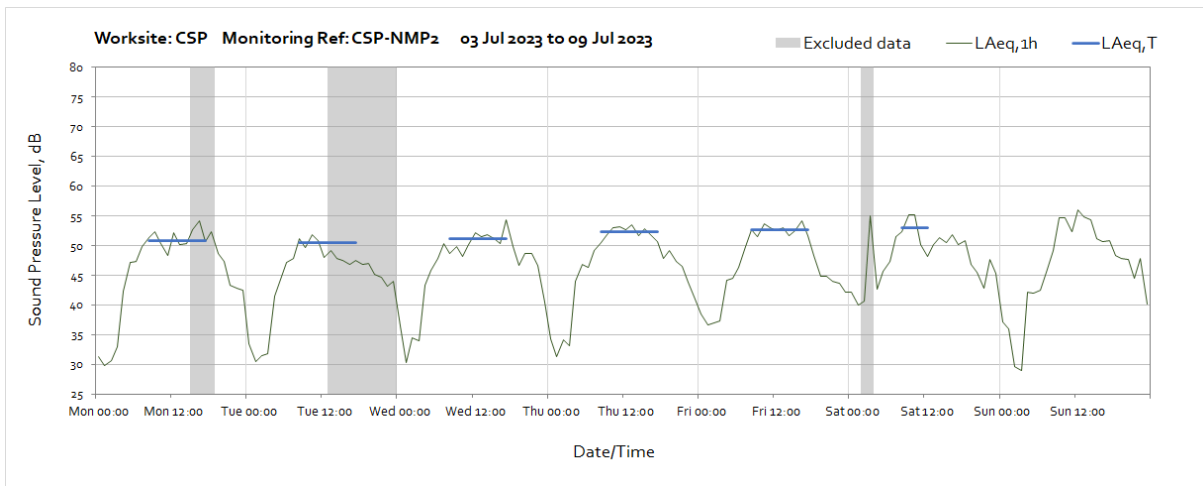
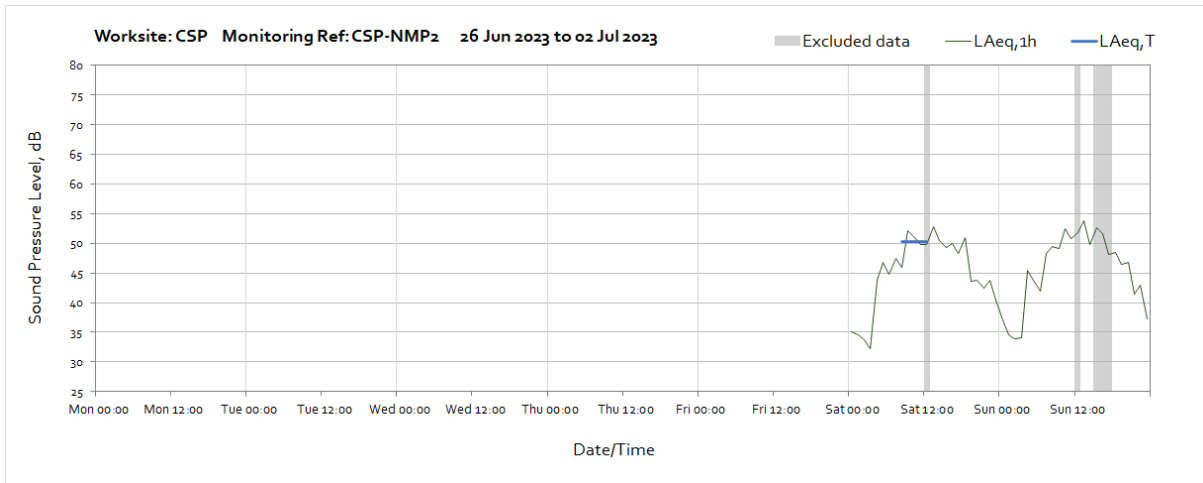
Worksite: CSP – Monitoring Ref: CFC-NMP1

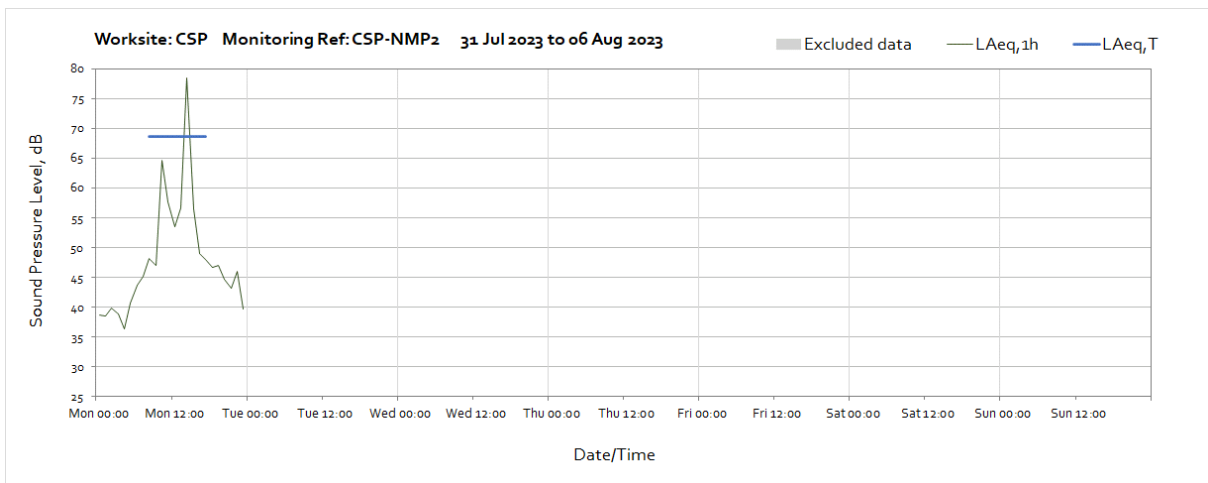
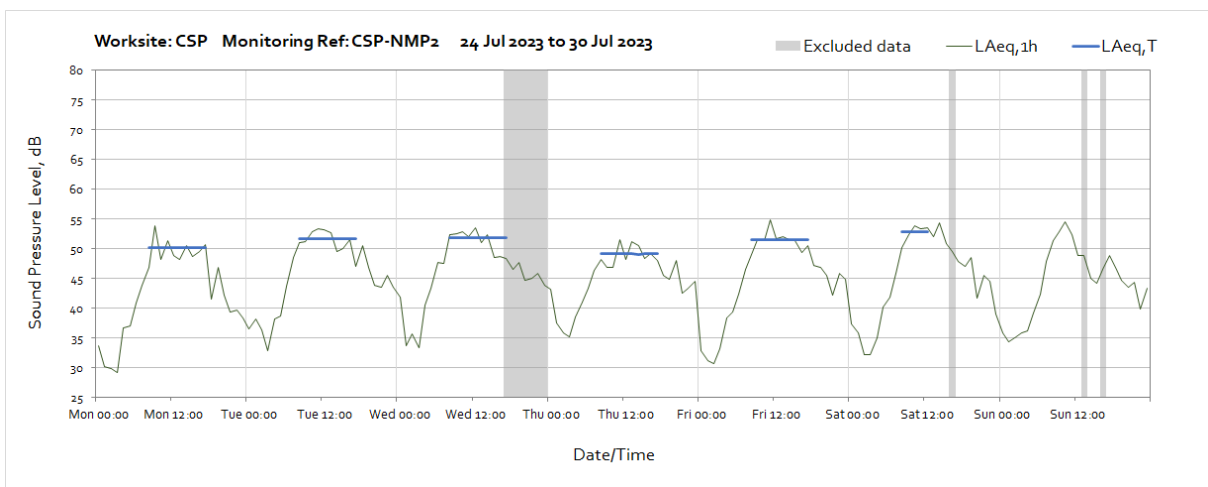
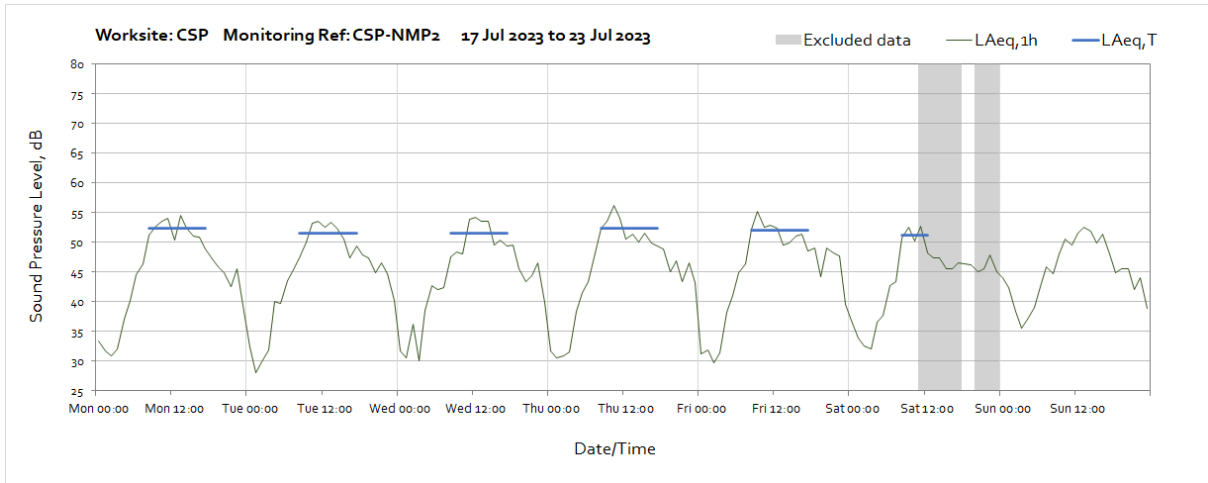


Note: Missing data between 12:00 and 13:00 on Thursday 13th July was due to monitor calibration.

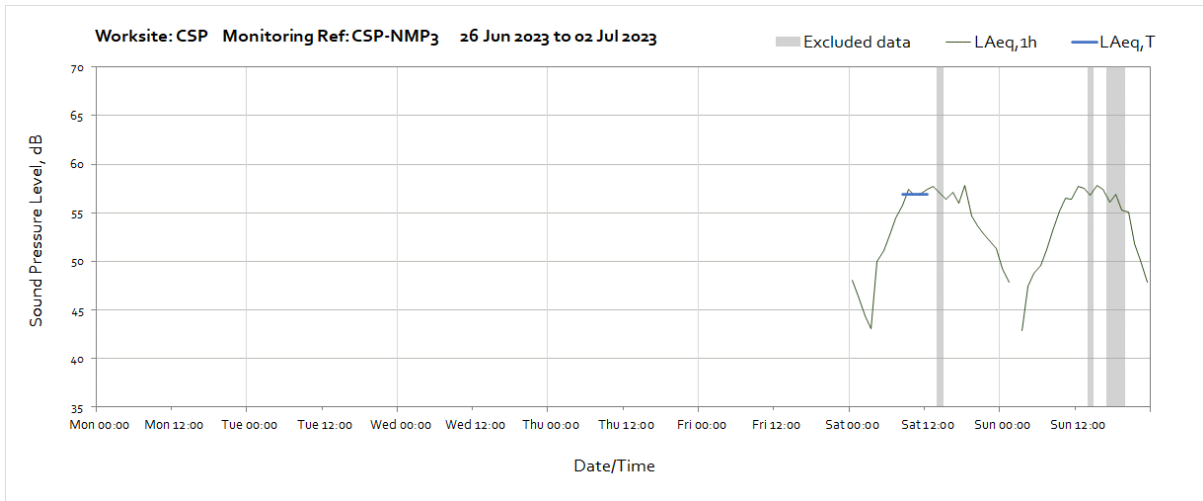


Worksite: CSP – Monitoring Ref: CSP-NMP2

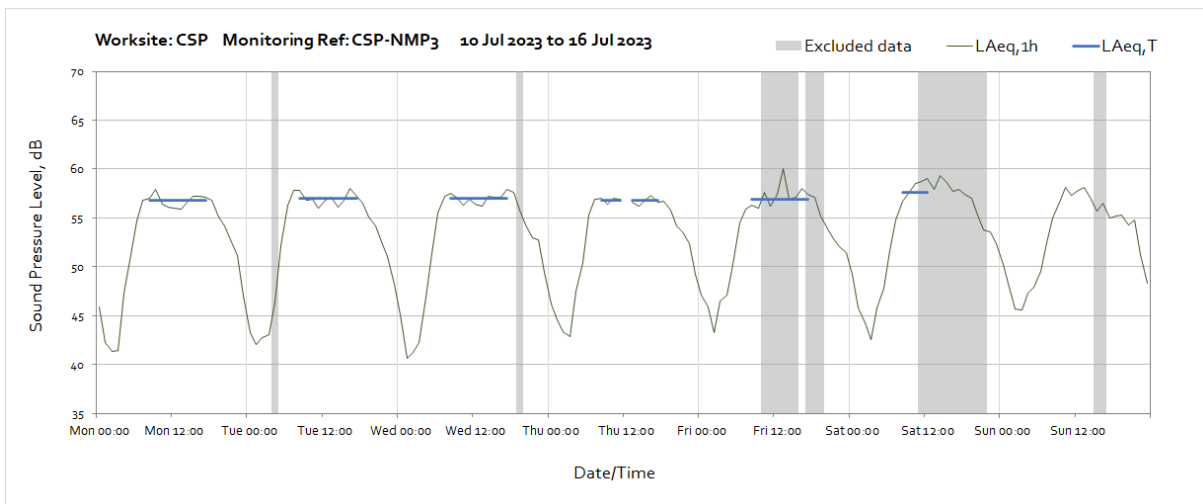
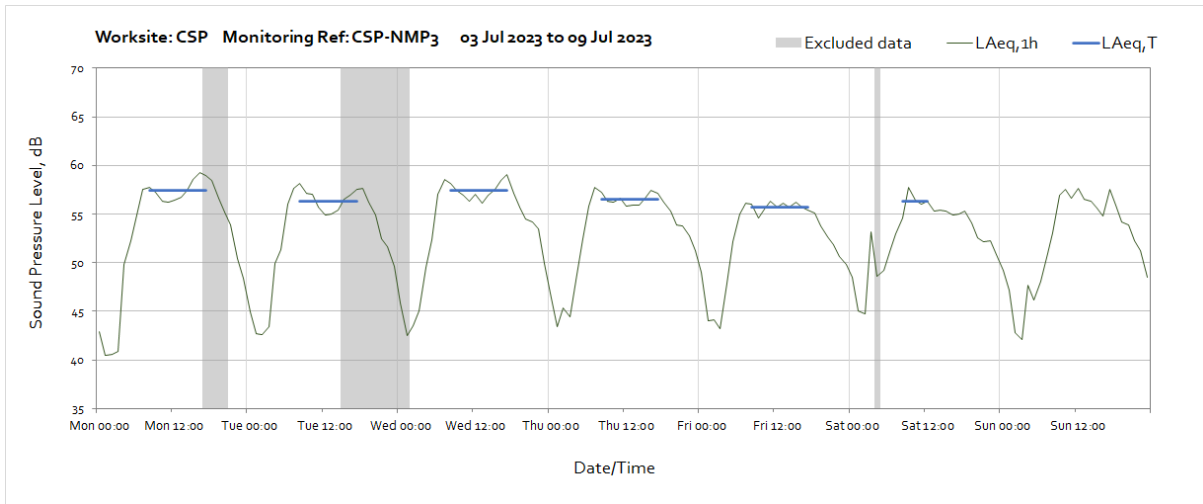




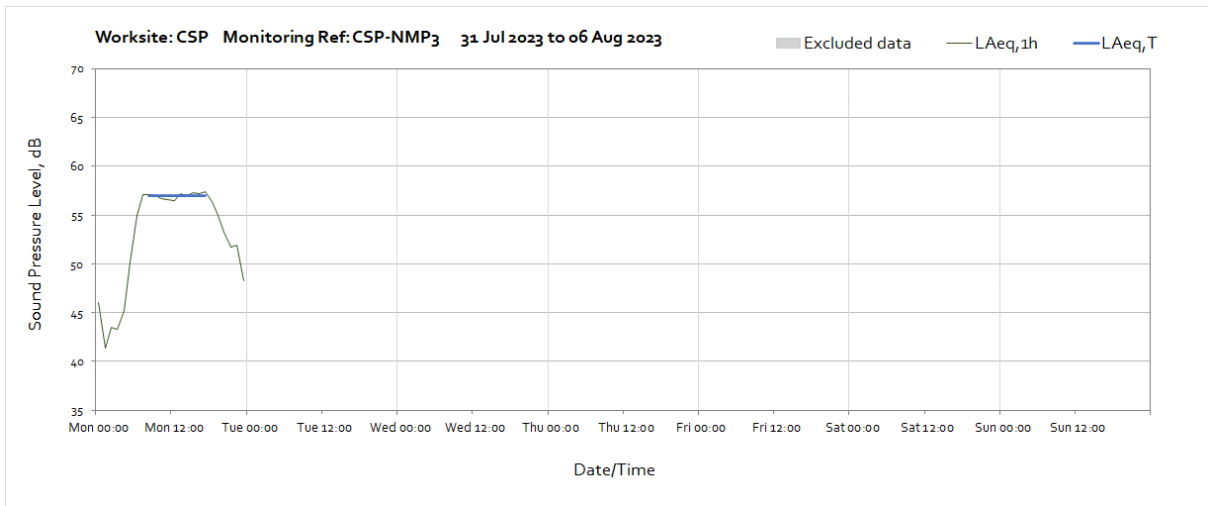
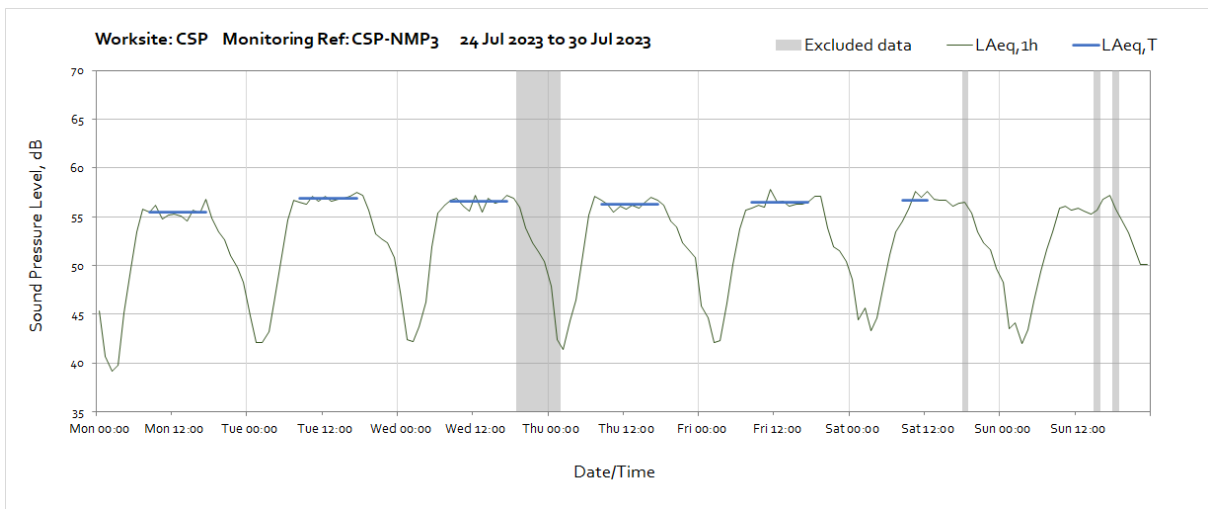
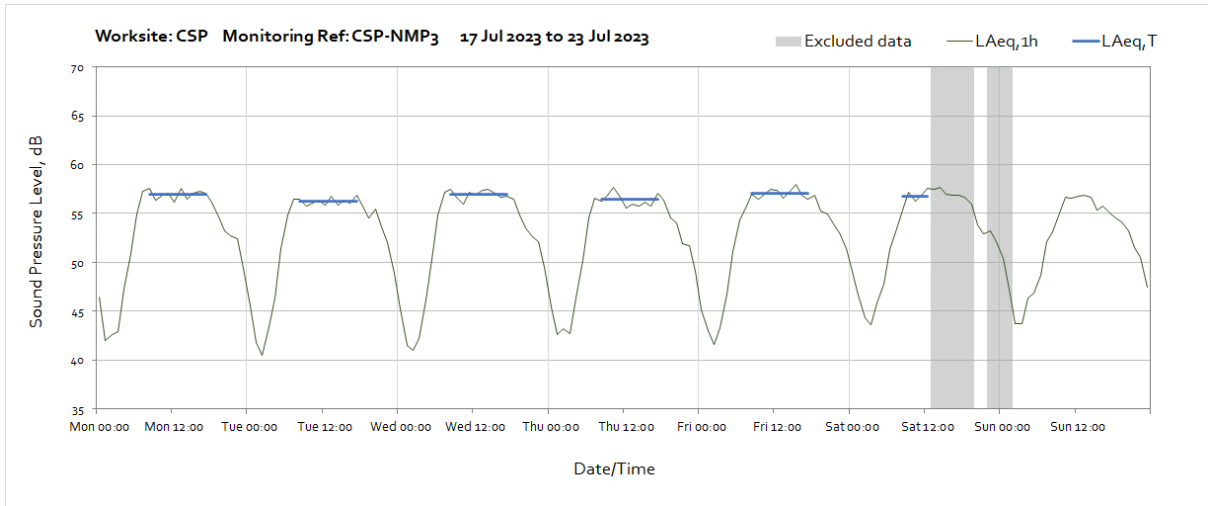
Worksite: CSP – Monitoring Ref: CSP-NMP3



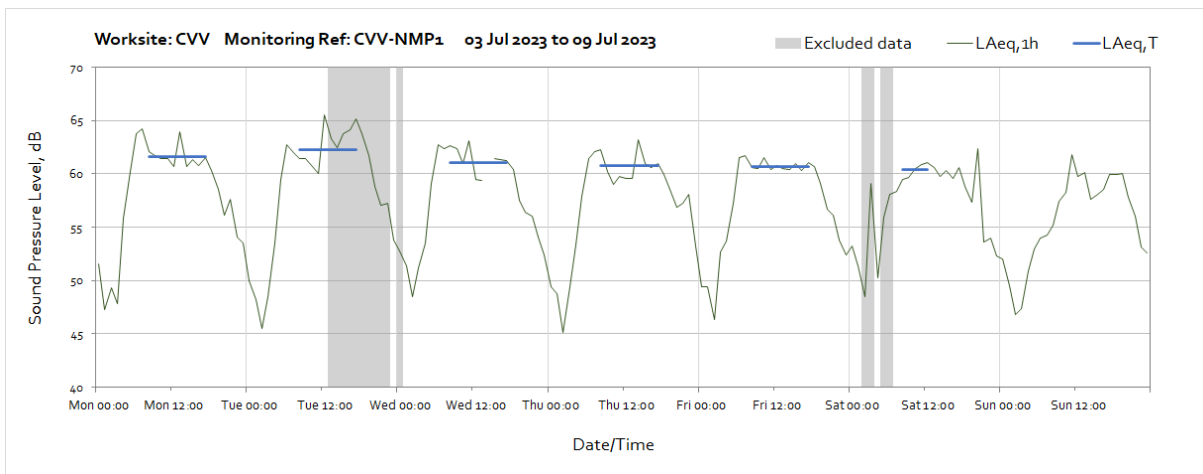
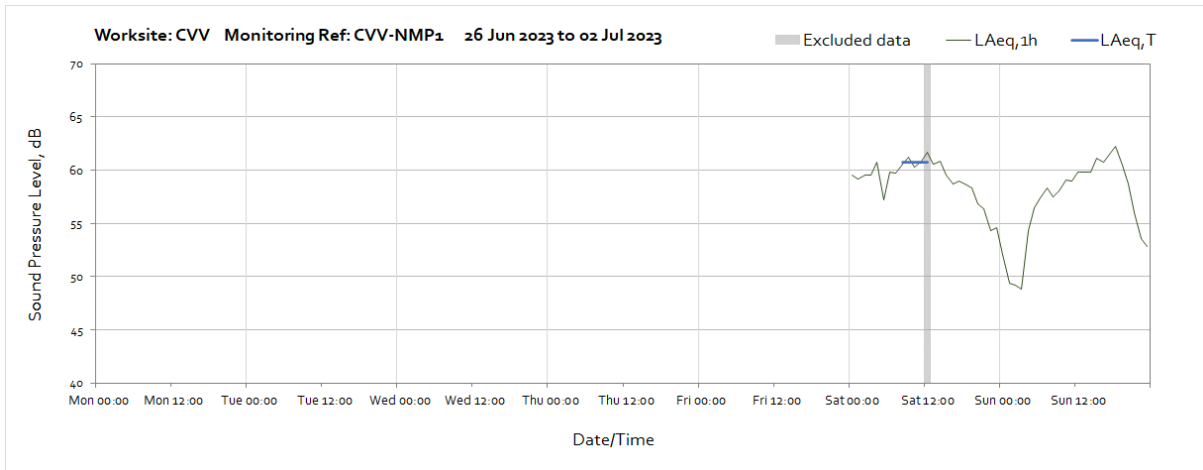
Note: Missing data between 02:00 and 03:00 on Sunday 2nd July was due to a communication error between the monitor and the server.



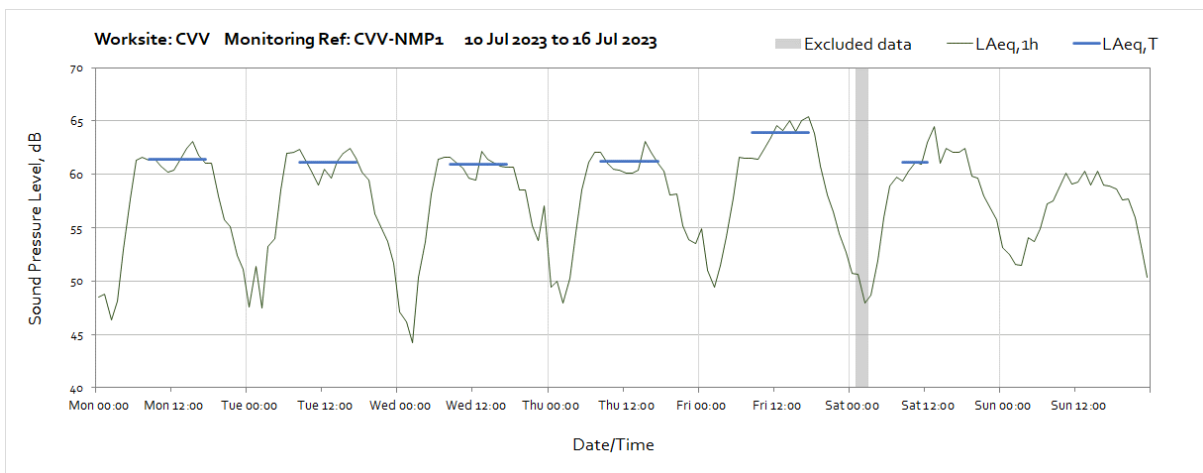
Note: Missing data between 12:00 and 13:00 on Thursday 13th July was due to monitor calibration.

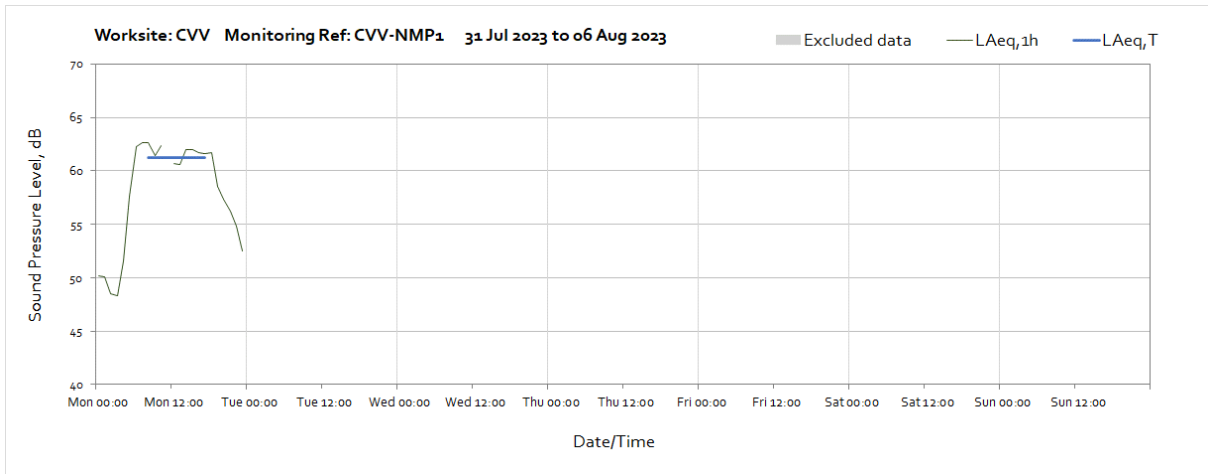
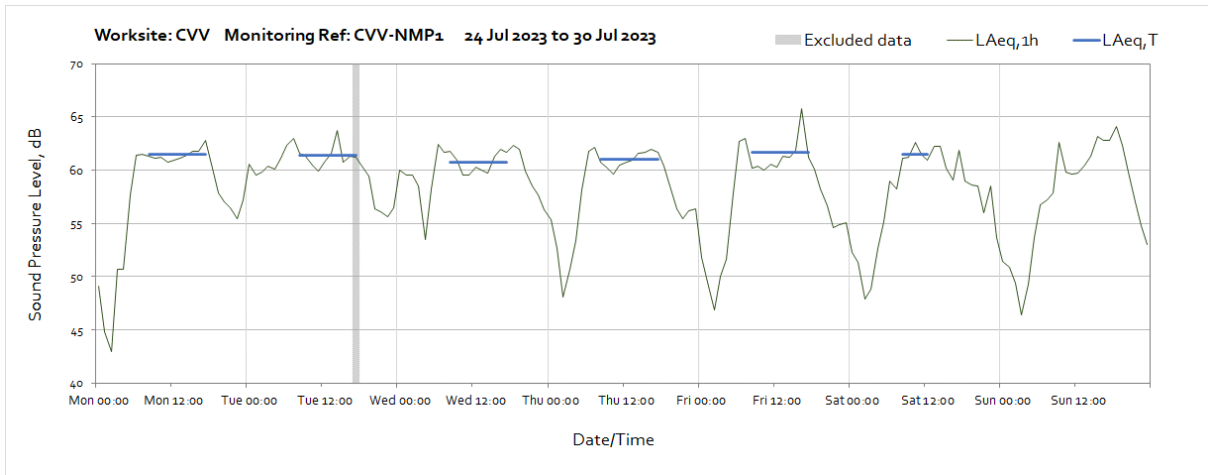
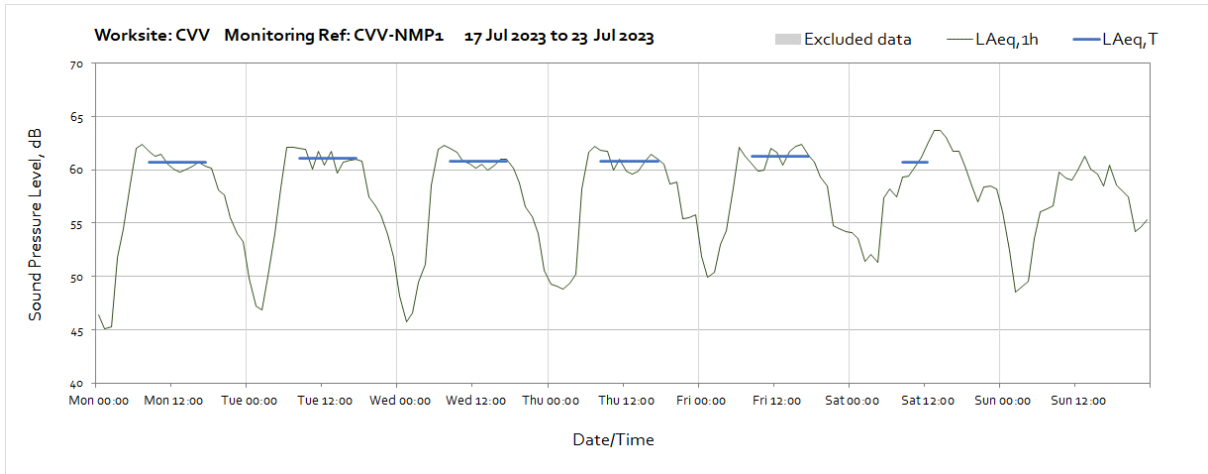


Worksite: CVV- Monitoring Ref: CVV-NMP1



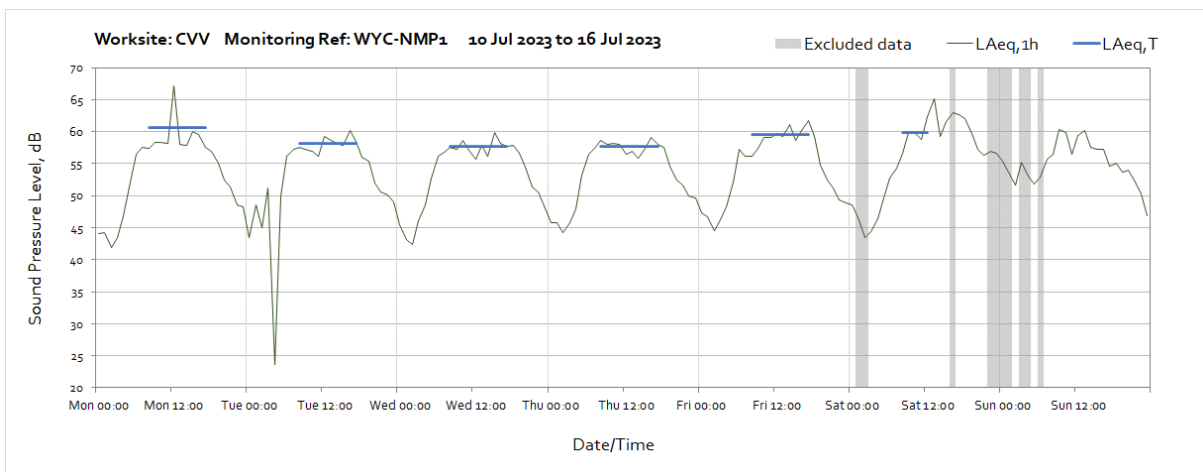
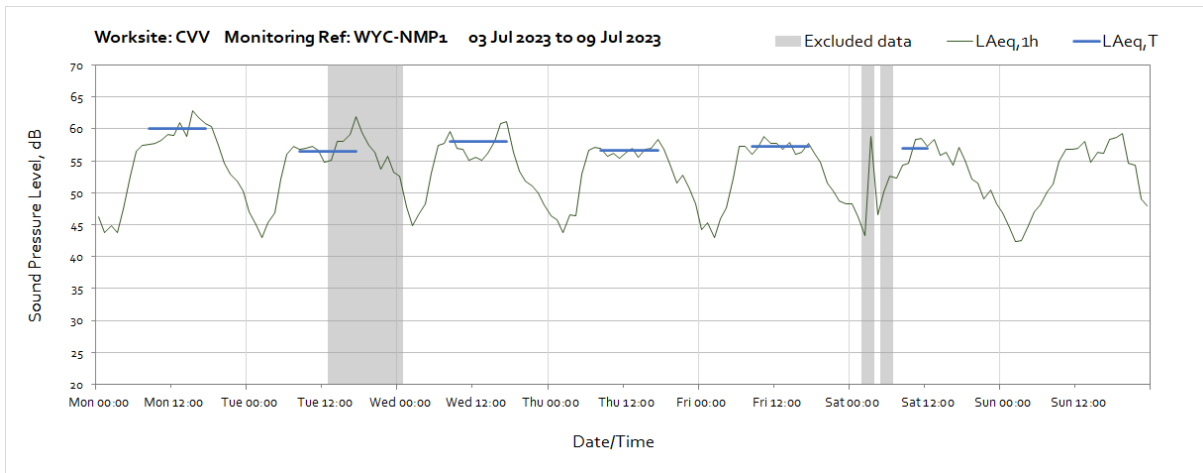
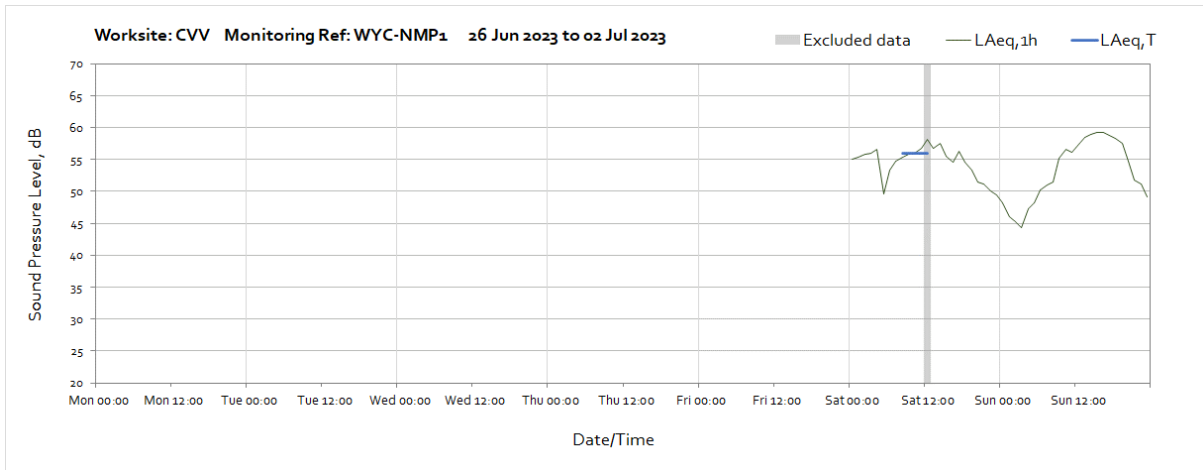
Note: Missing data between 14:00 and 15:00 on Wednesday 5th July was due to a communication error between the monitor and the server.

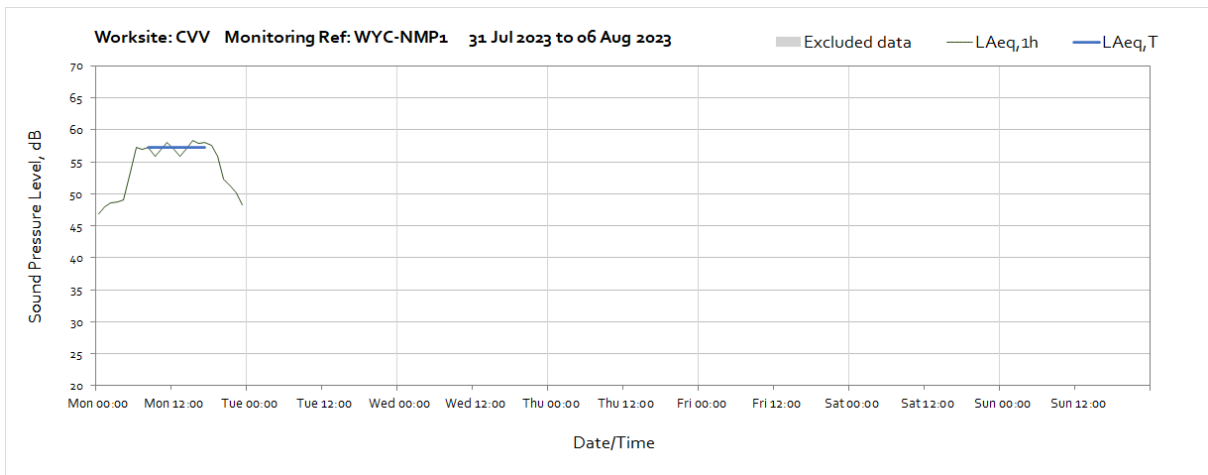
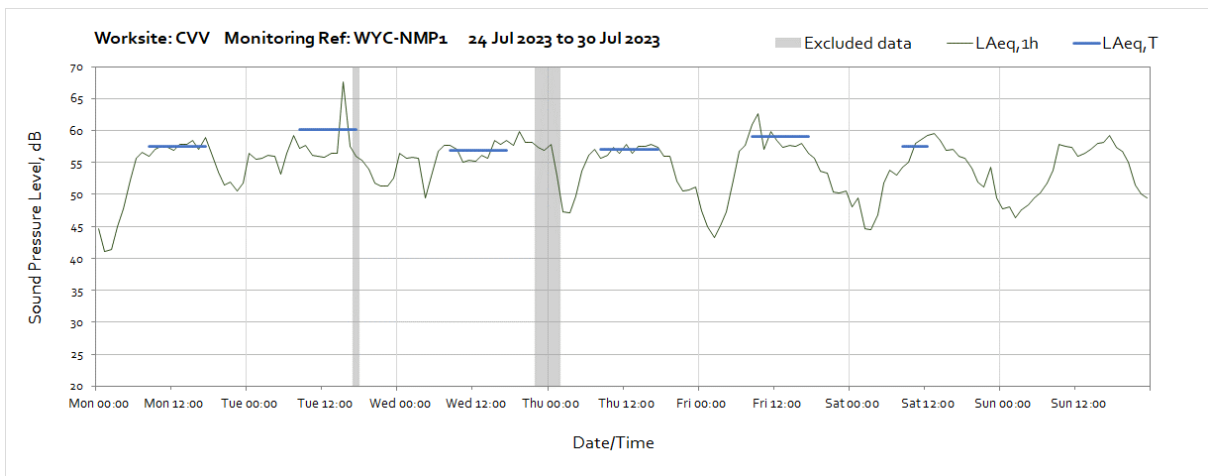
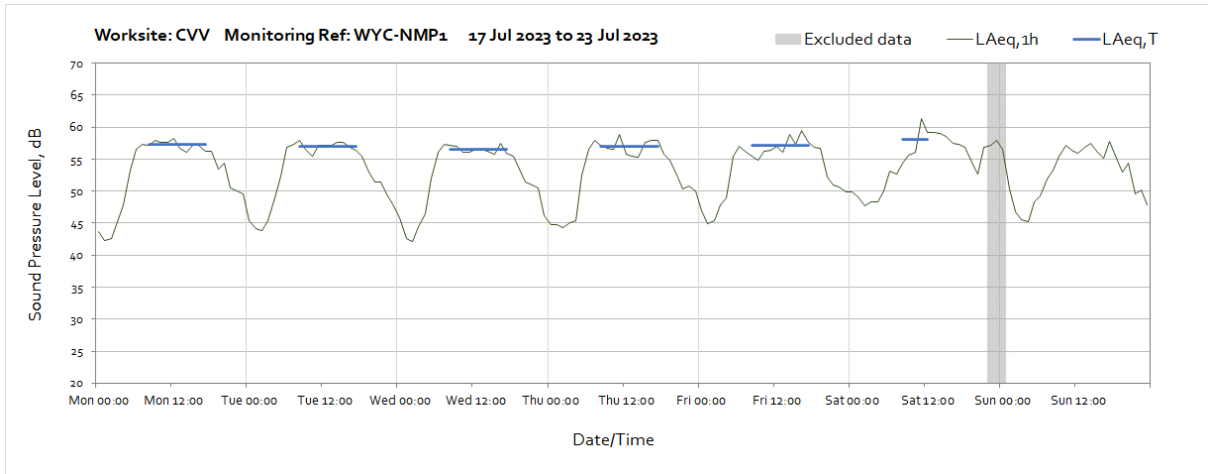




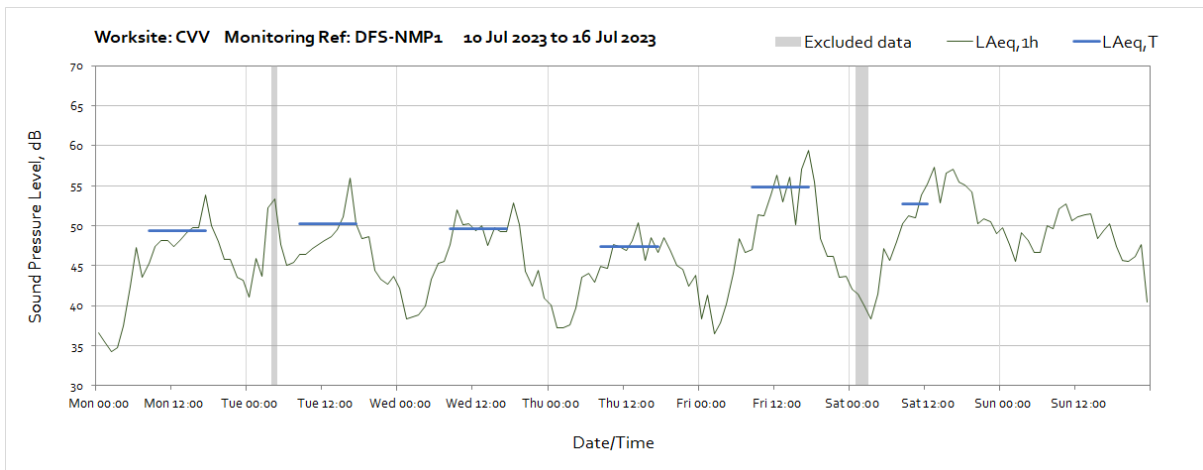
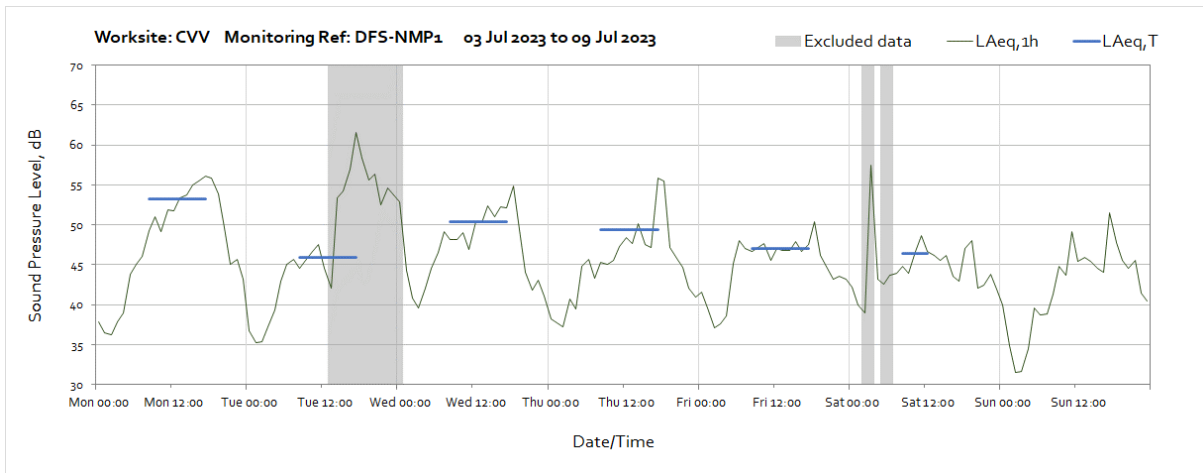
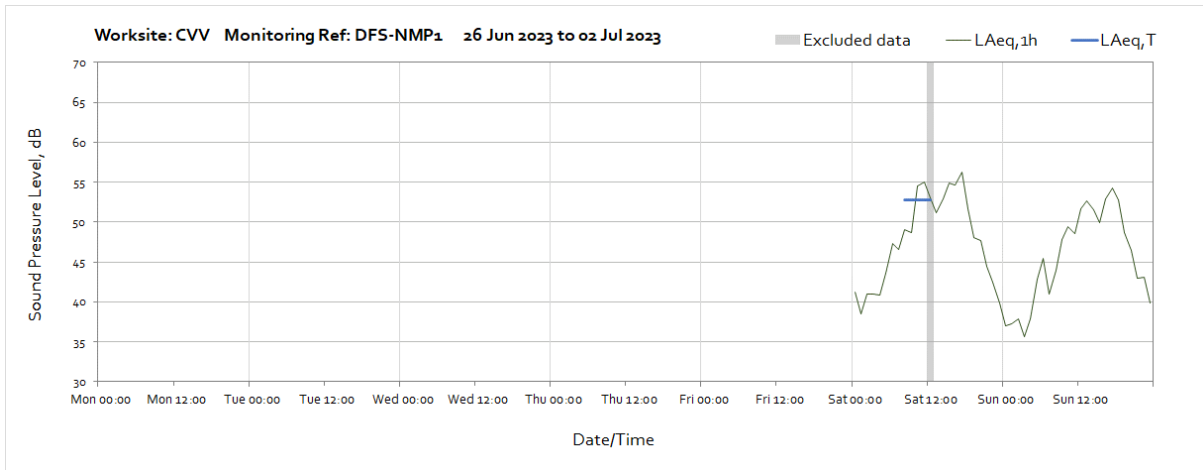
Note: Missing data between 11:00 and 12:00 on Monday 31st July was due to a communication error between the monitor and the server.

Worksite: CVV – Monitoring Ref: WYC-NMP1

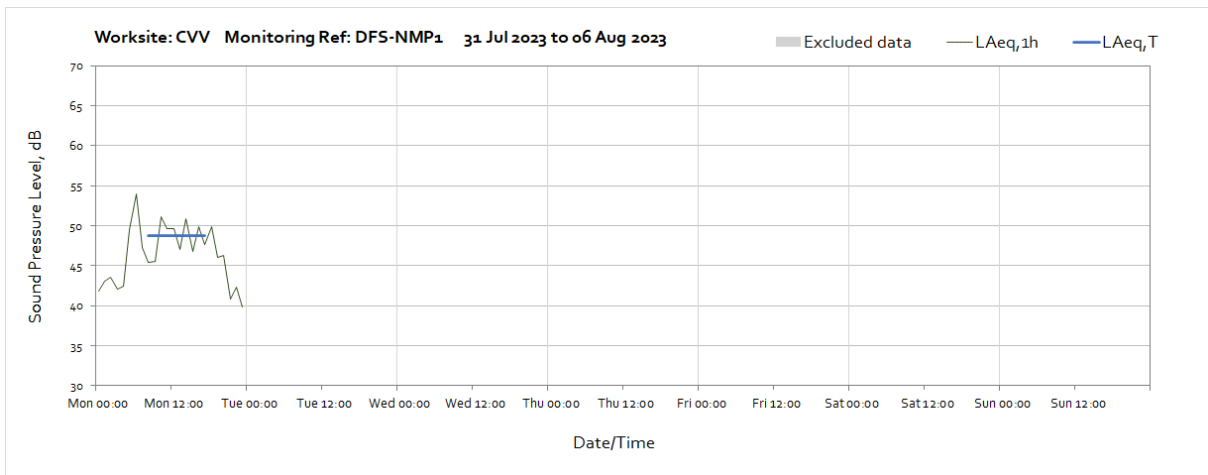
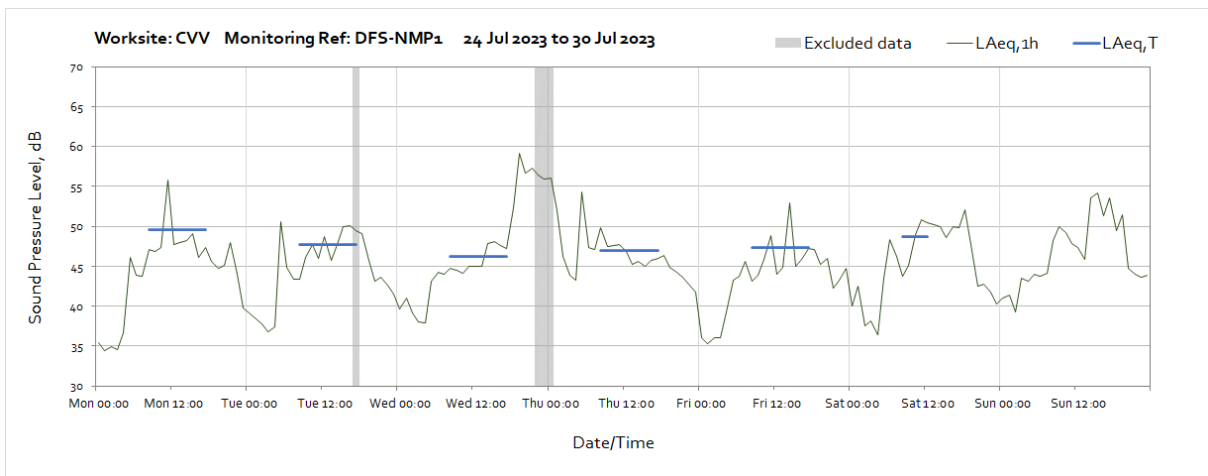
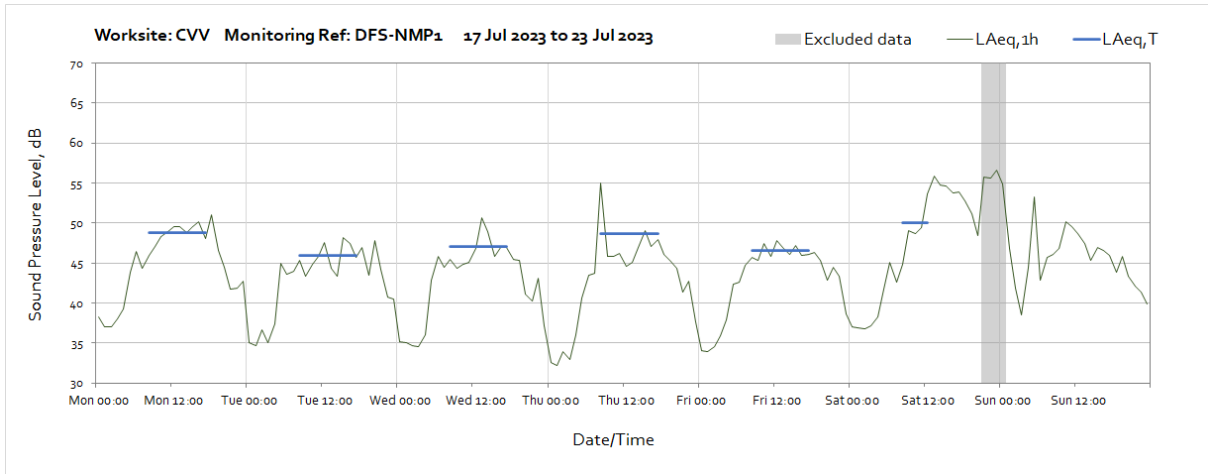




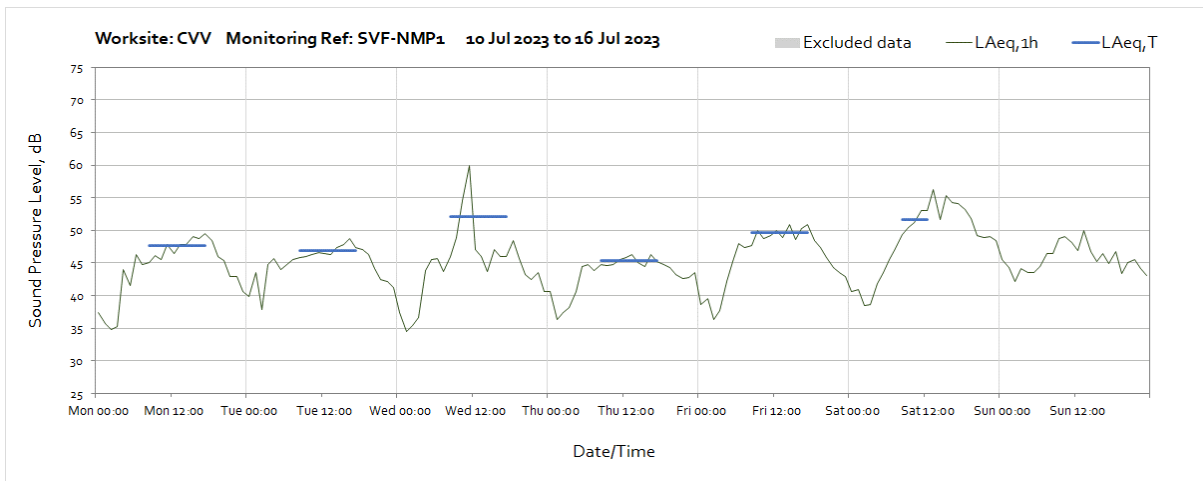
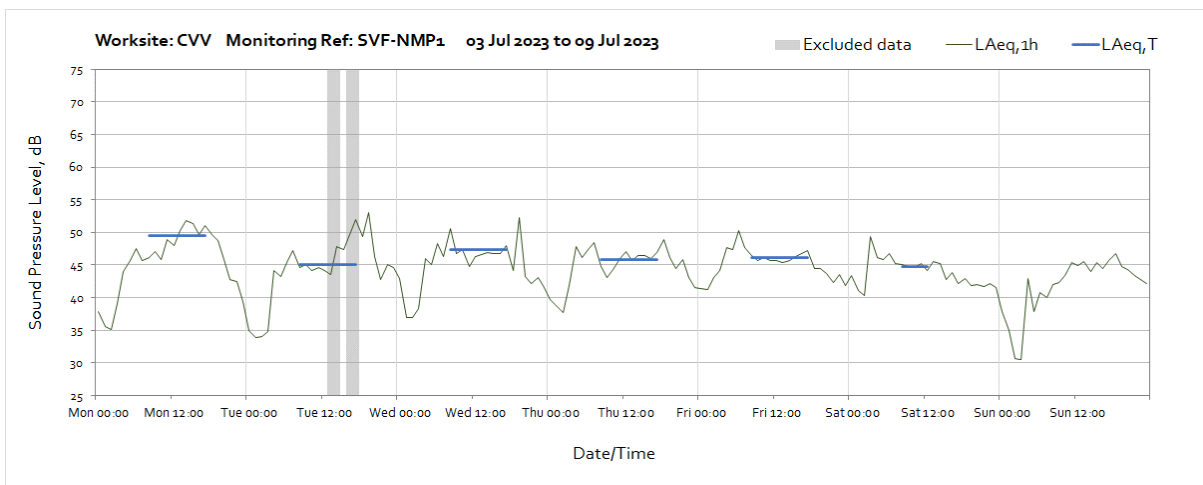
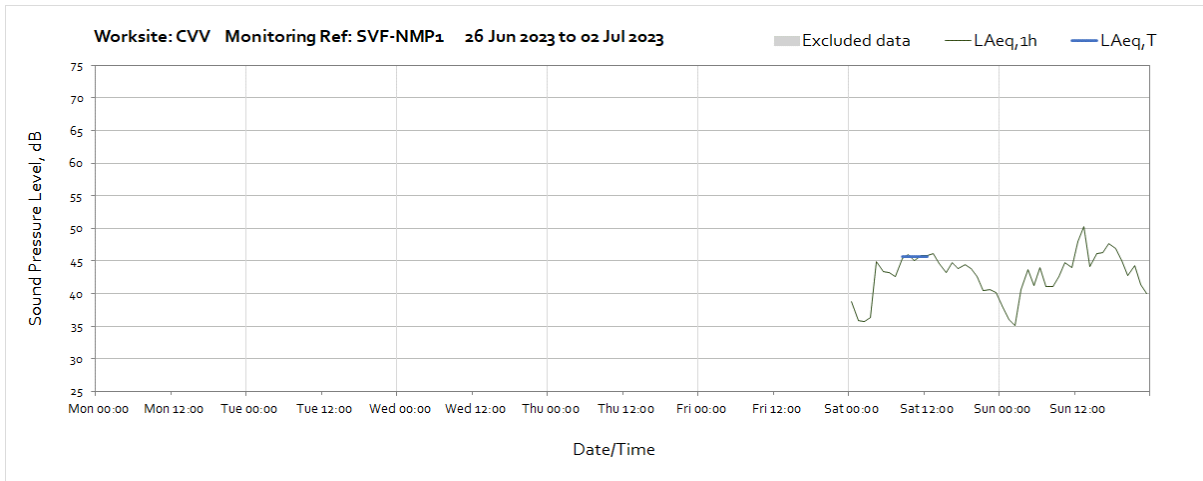
Worksite: CVV – Monitoring Ref: DFS-NMP1

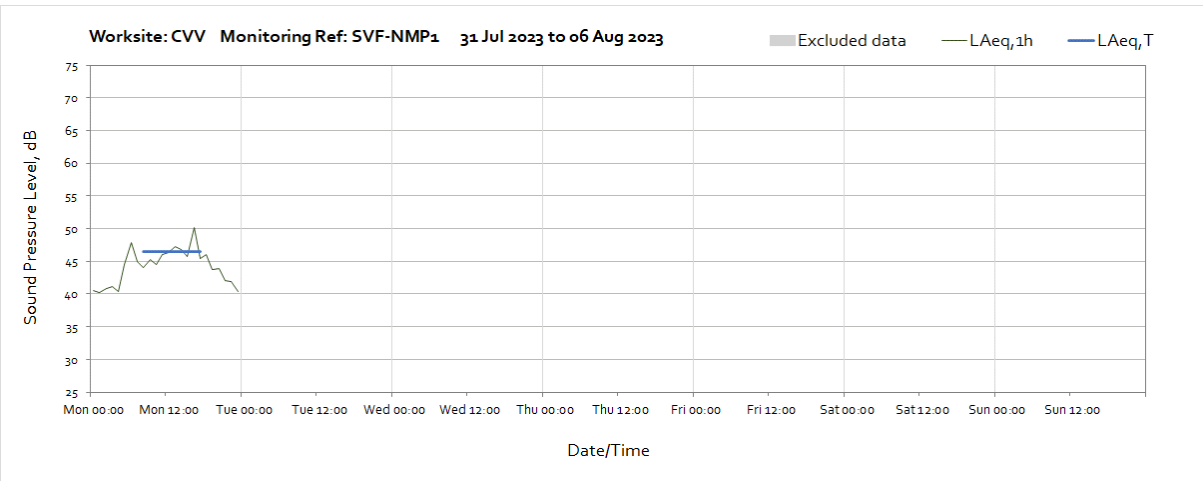
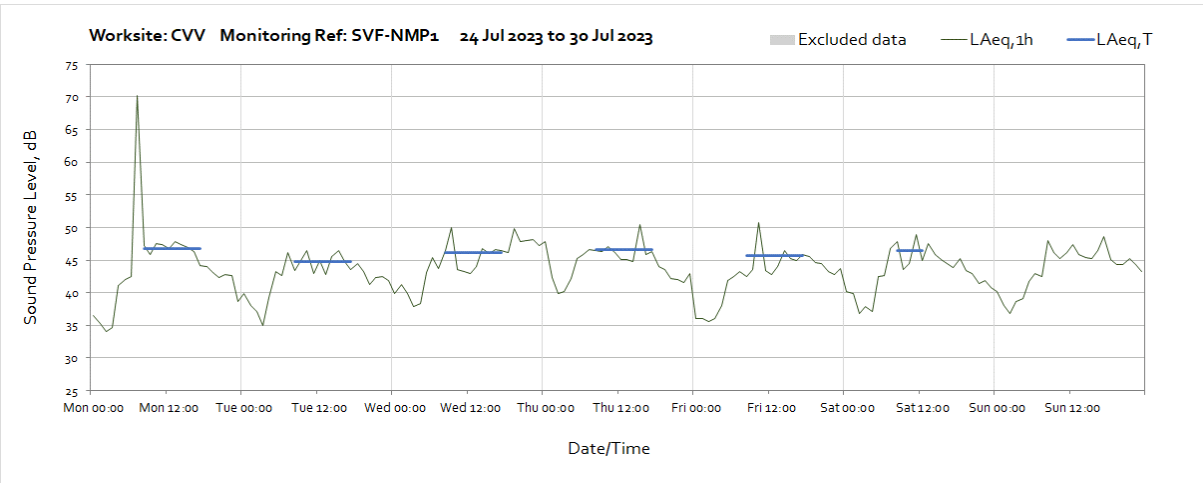
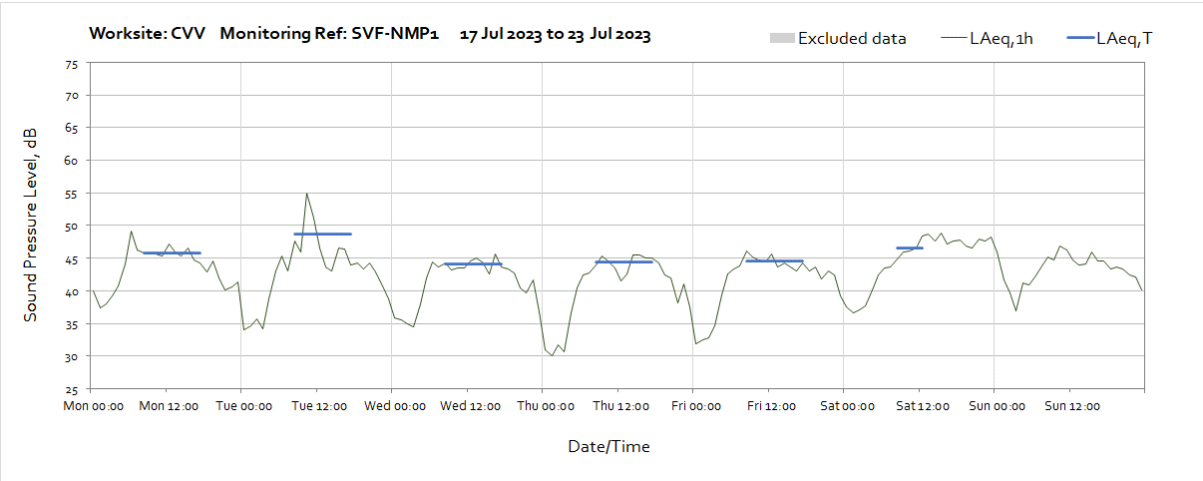


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Worksite: CVV – Monitoring Ref: SVF-NMP1

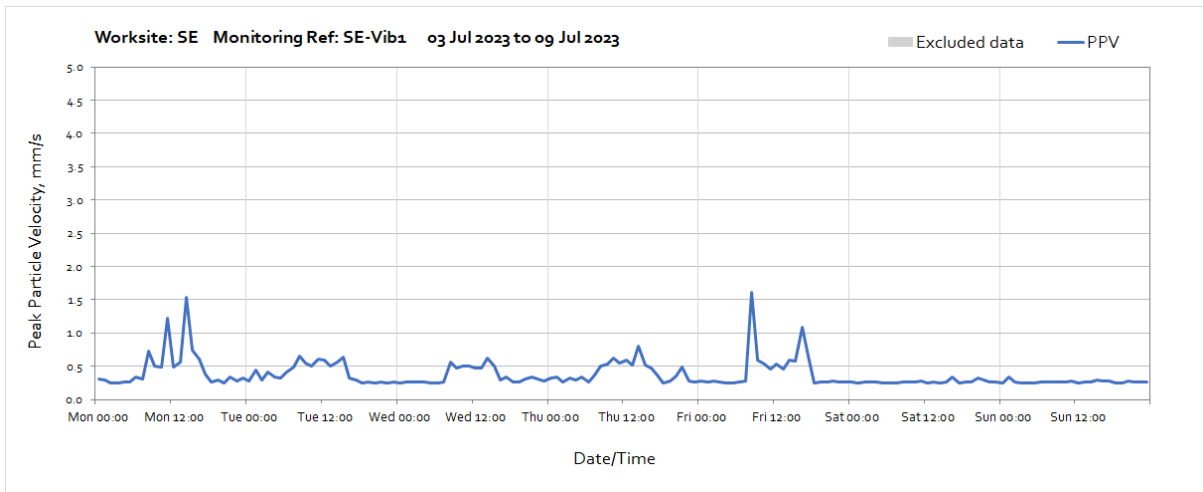
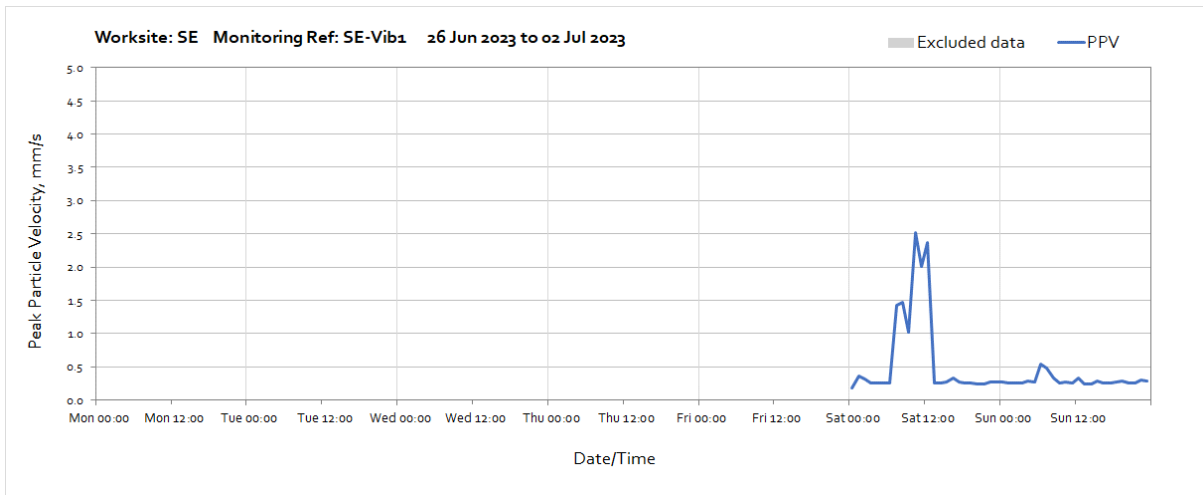


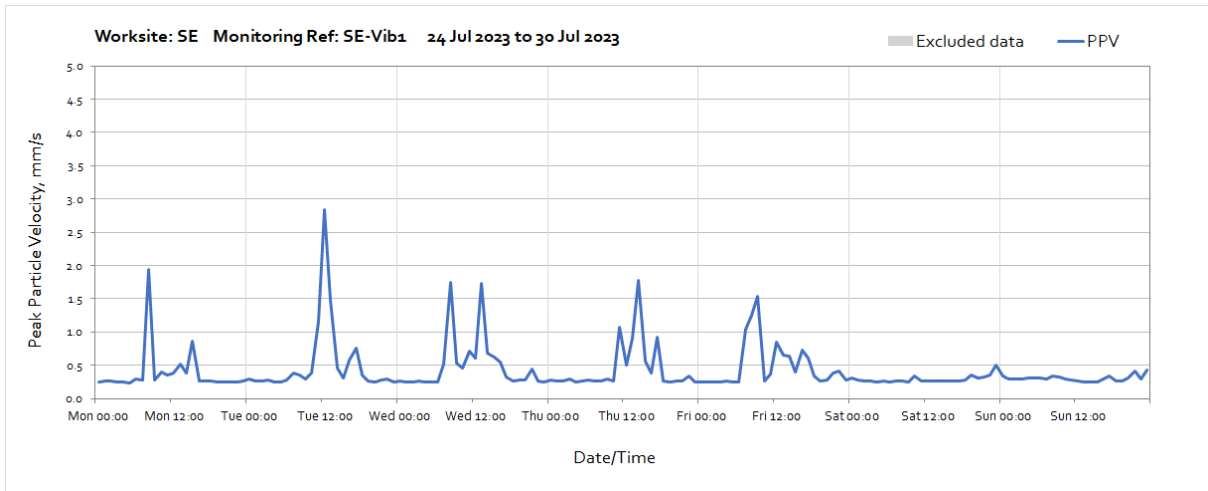
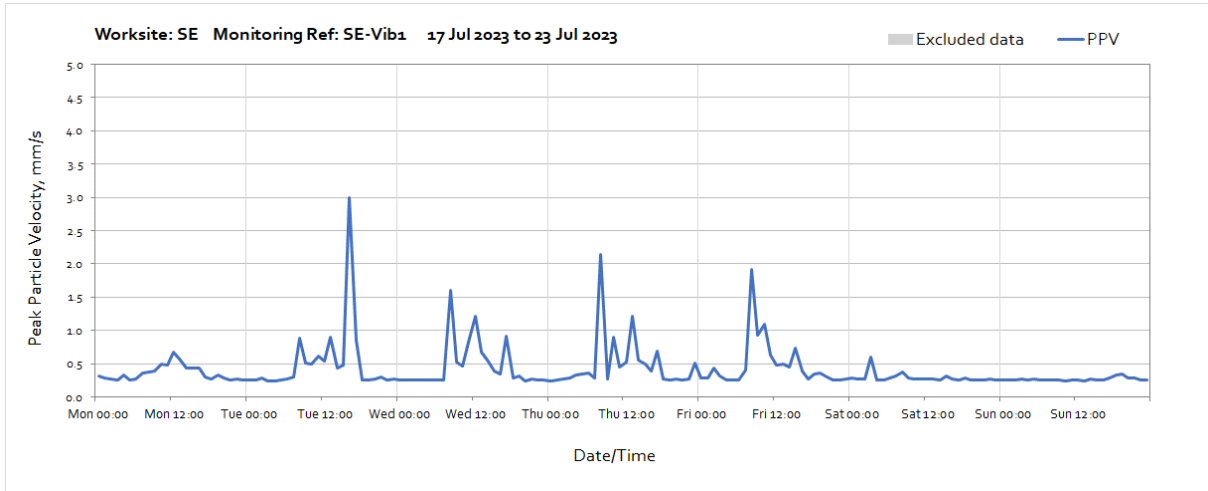
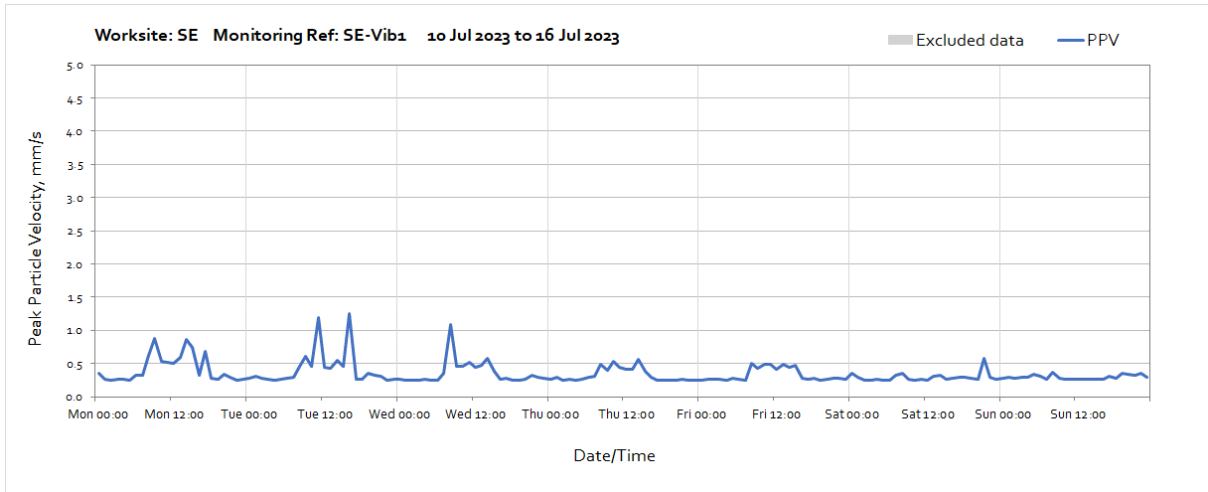


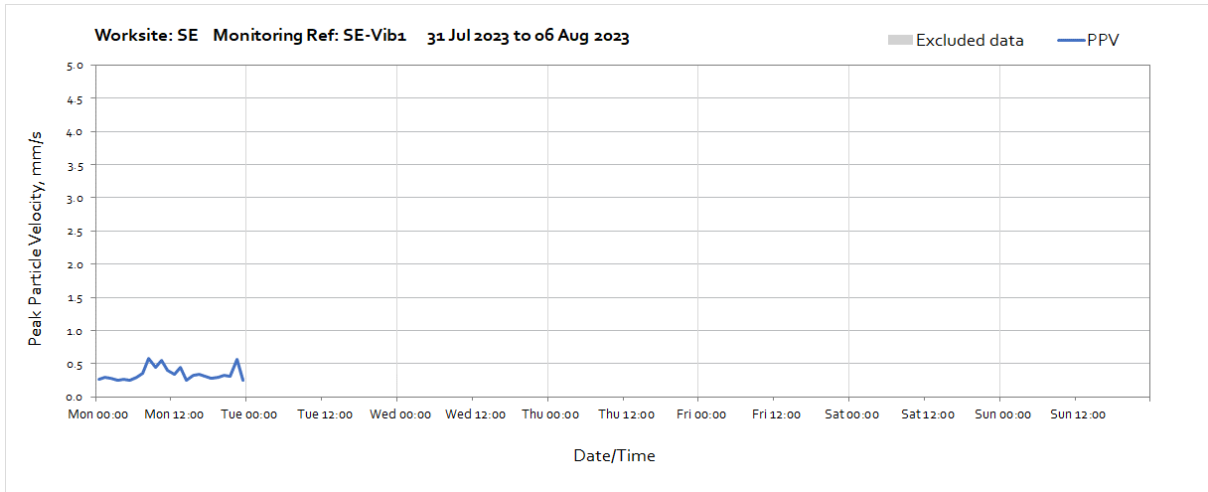
Vibration

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.

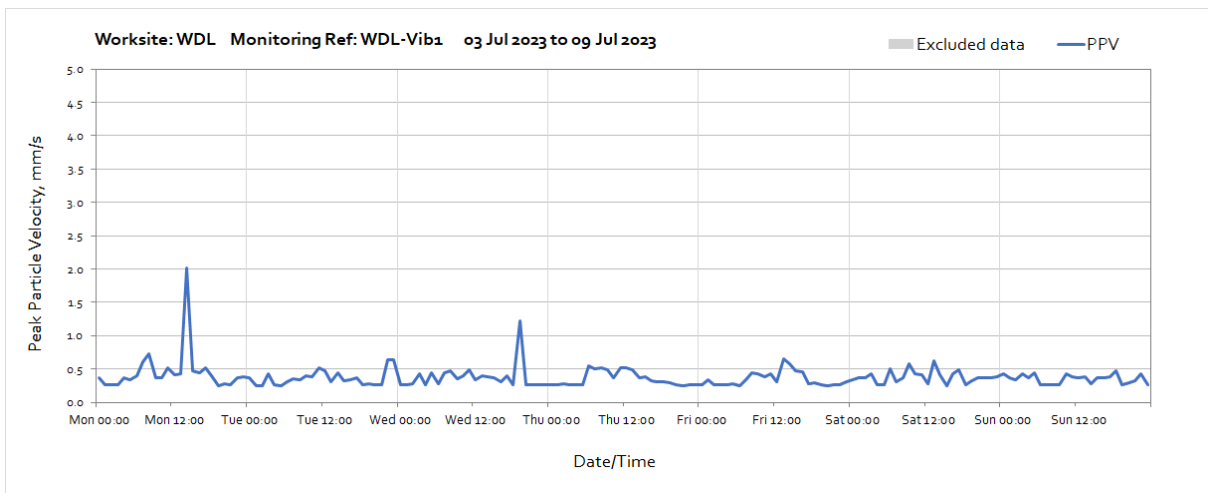
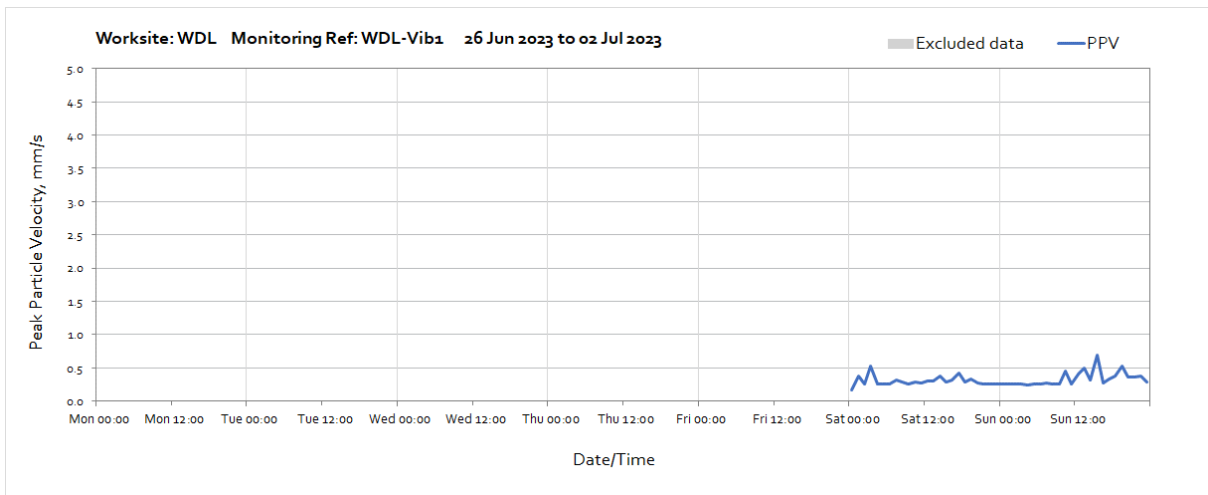
Worksite: SE – Monitoring Ref: SE-Vib 1

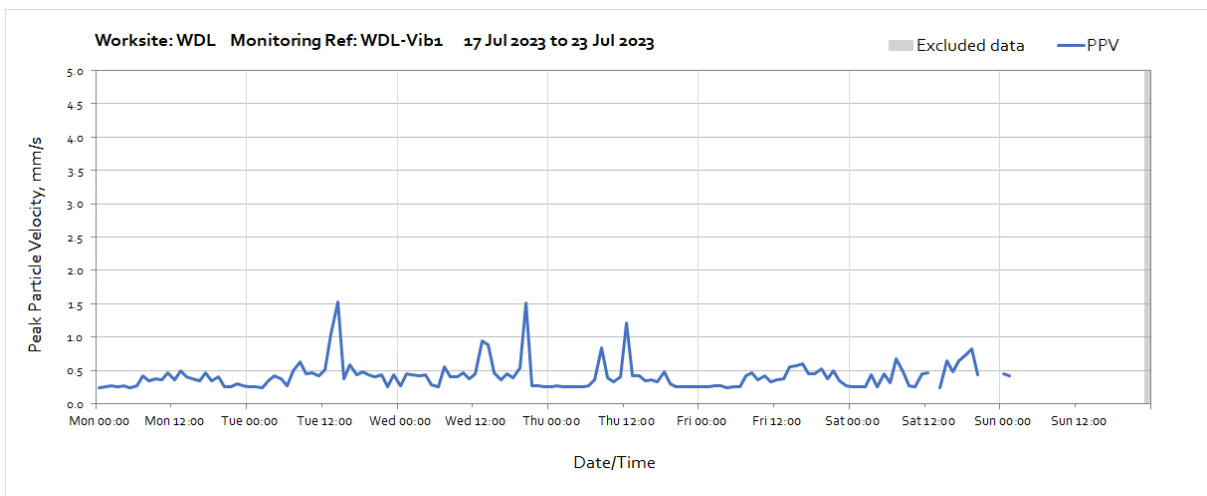
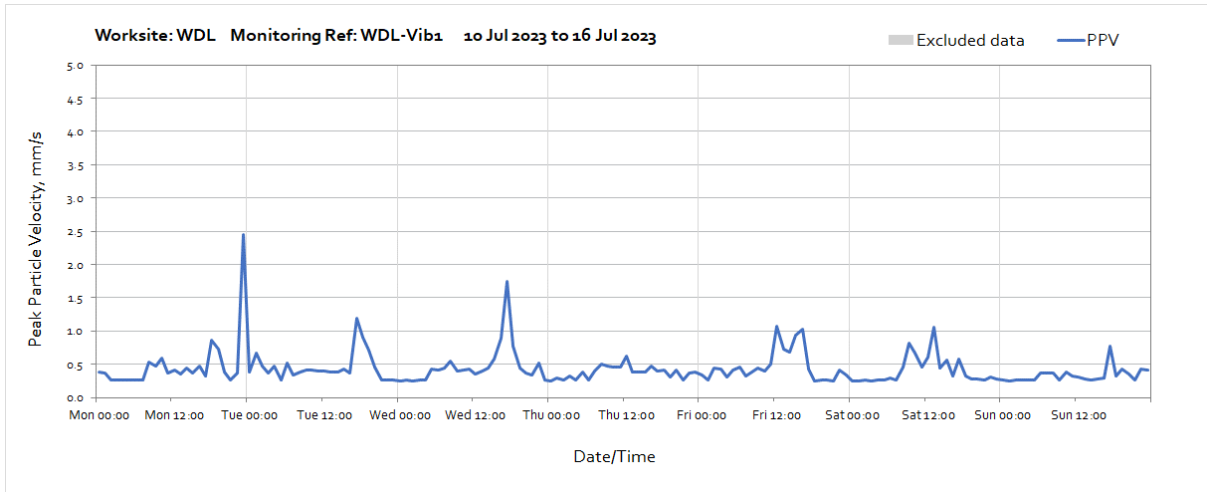






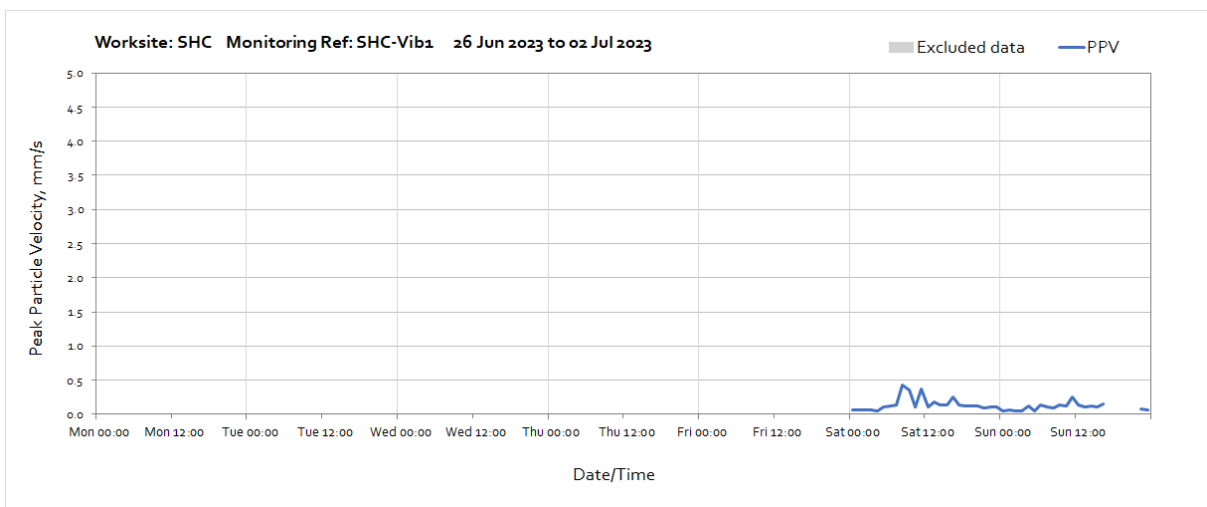
Worksite: WDL - Monitoring Ref: WDL-Vib 1





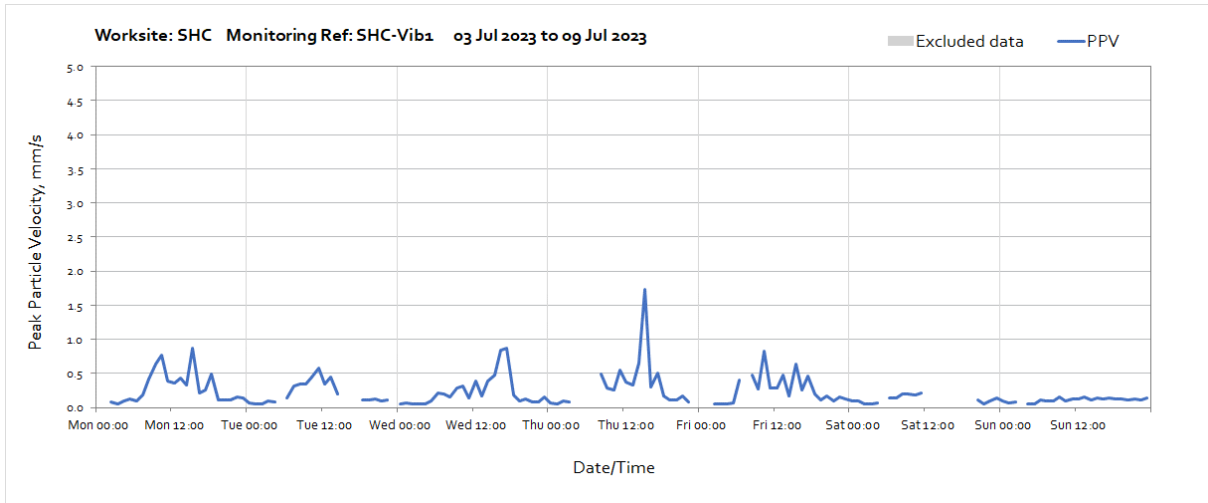
Note: Missing data throughout the week to the end of the month was due to depleted monitor battery.

Worksite: SHC – Monitoring Ref: SHC-Vib1

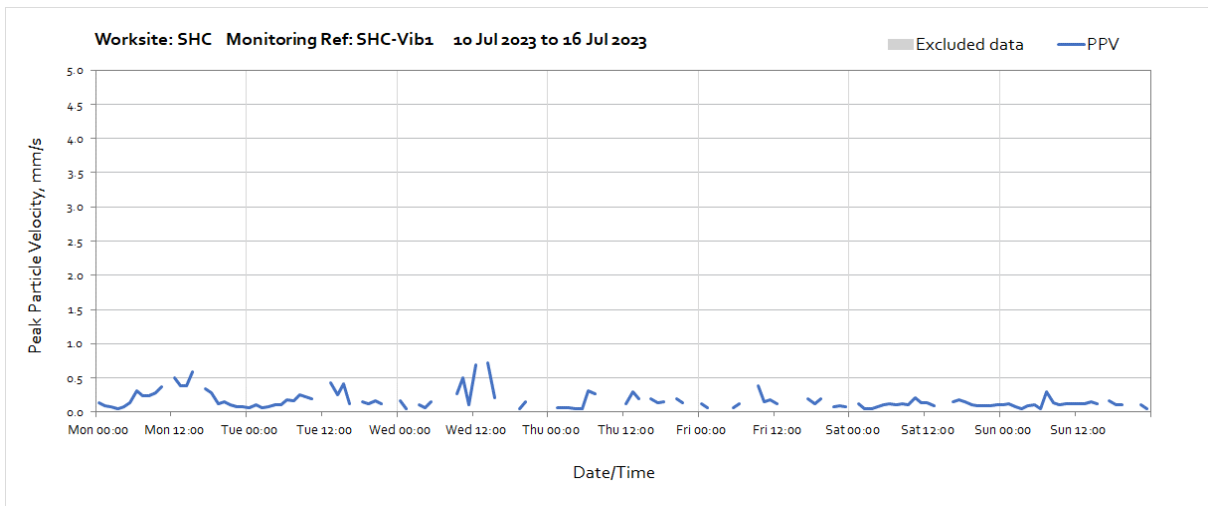


Note: Missing data between 17:00 and 22:00 on Saturday 2nd July was due to connection issues at the monitoring station, the monitor will be replaced shortly.

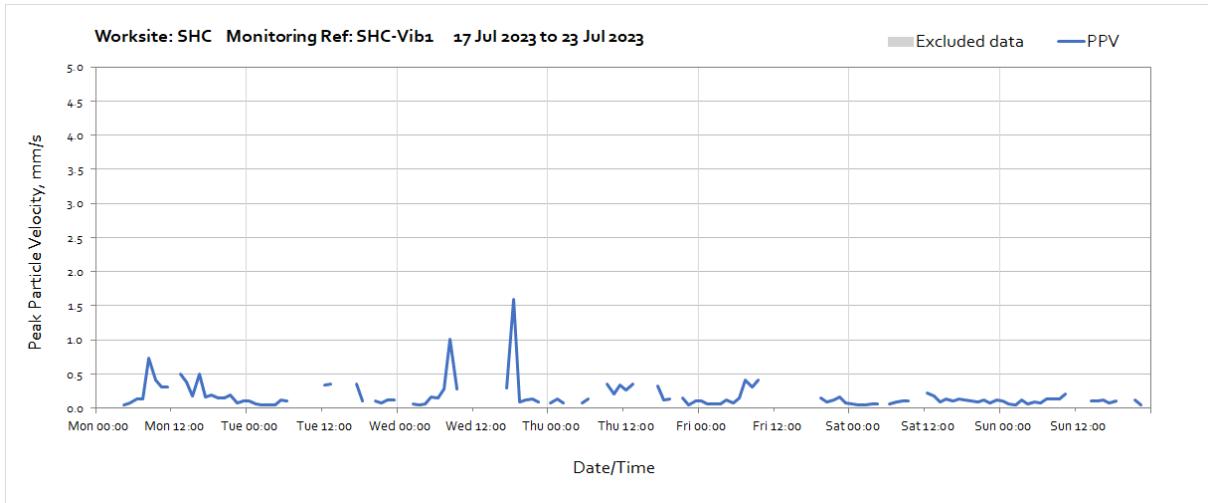
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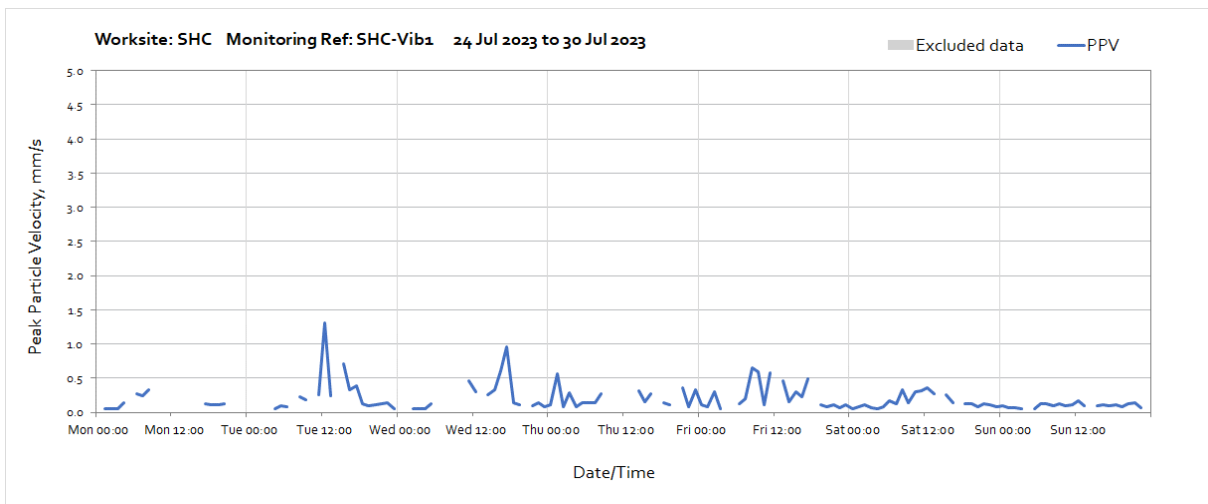
Note: Missing data throughout the week was due to connection issues at the monitoring station, the monitor will be replaced shortly.



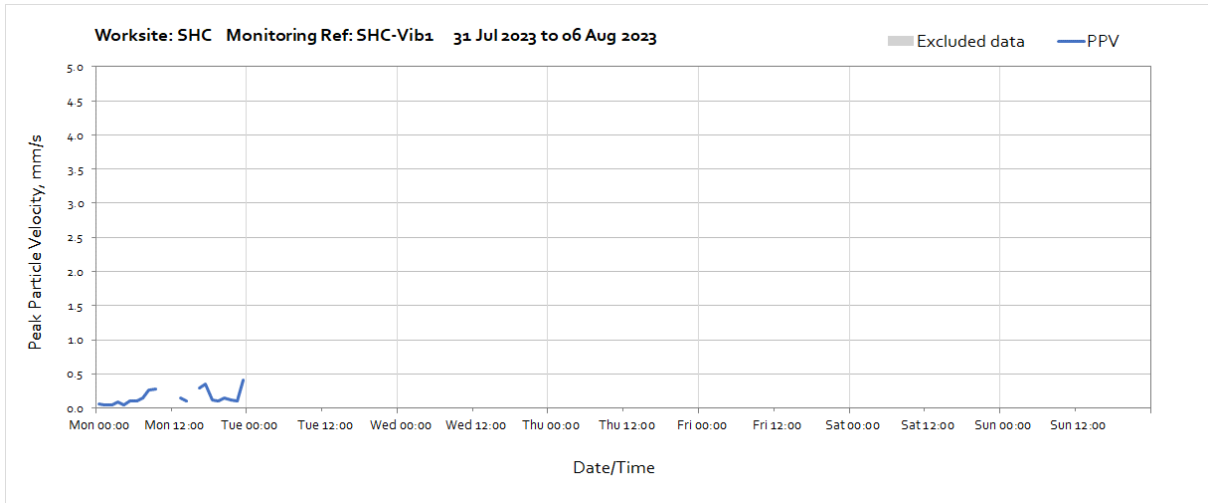
Note: Missing data throughout the week was due to connection issues at the monitoring station, the monitor will be replaced shortly.



Note: Missing data throughout the week was due to connection issues at the monitoring station, the monitor will be replaced shortly.

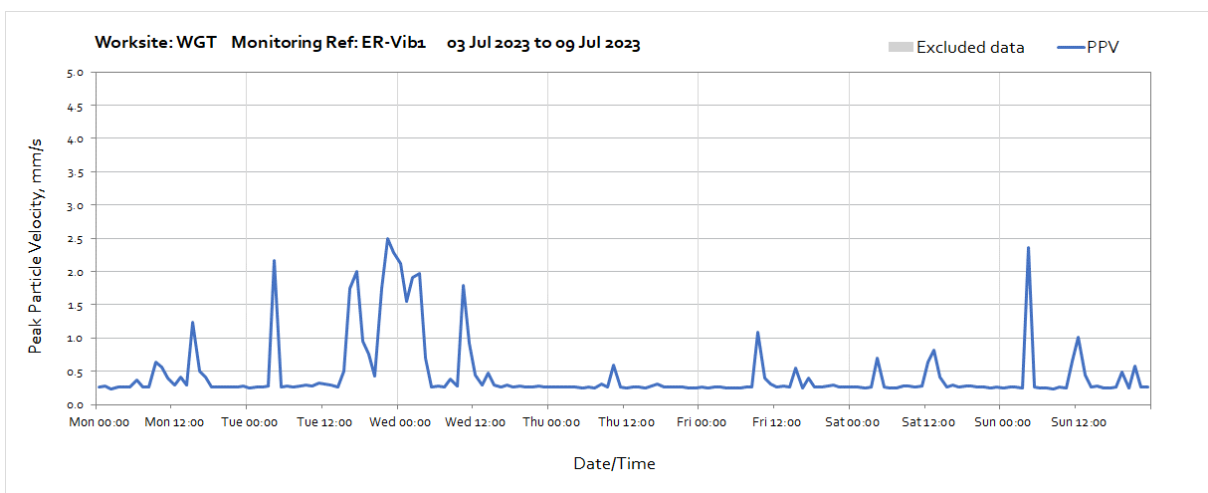
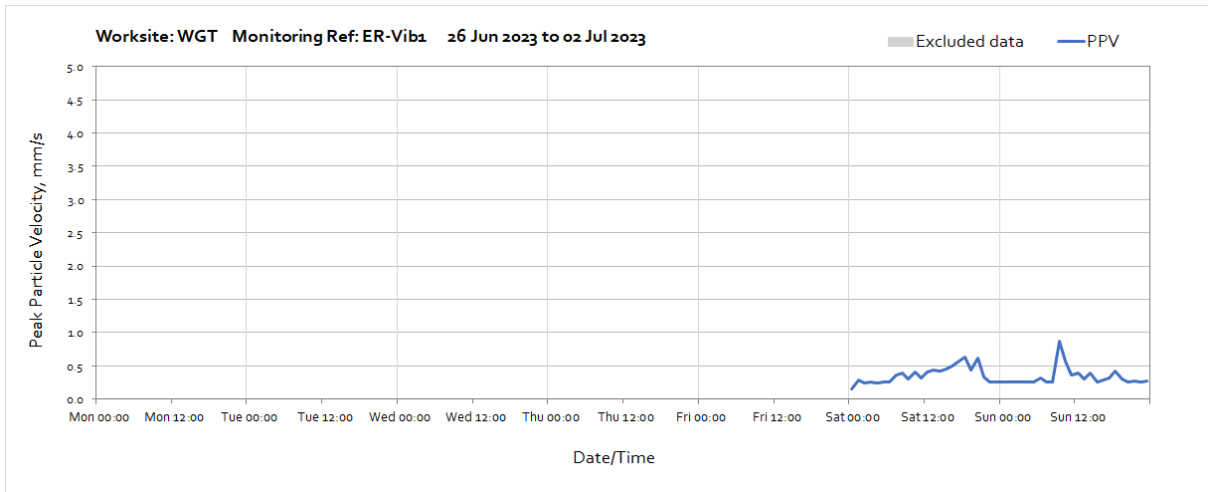


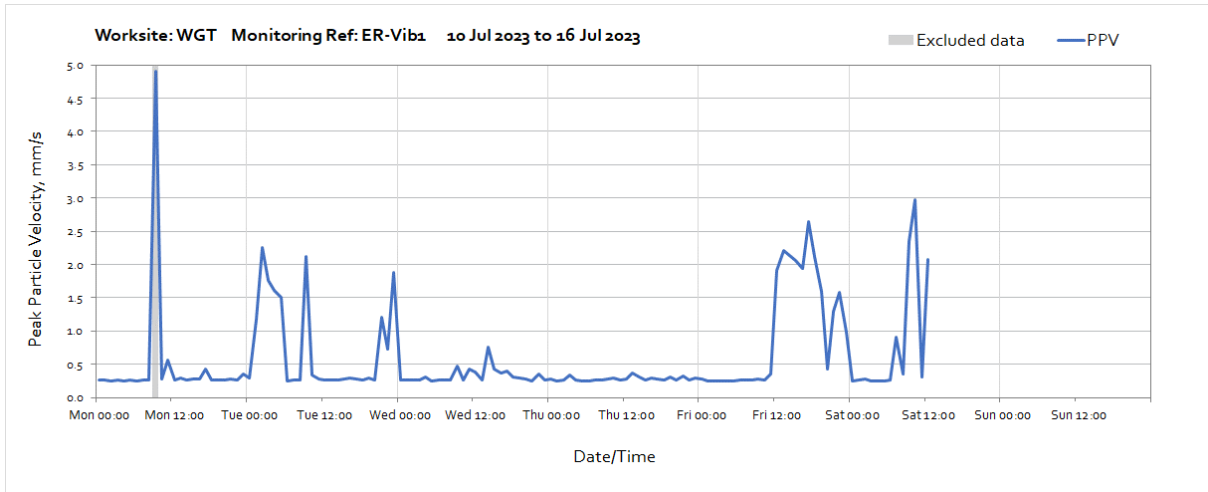
Note: Missing data throughout the week was due to depleted monitor battery, the monitor will be replaced shortly.



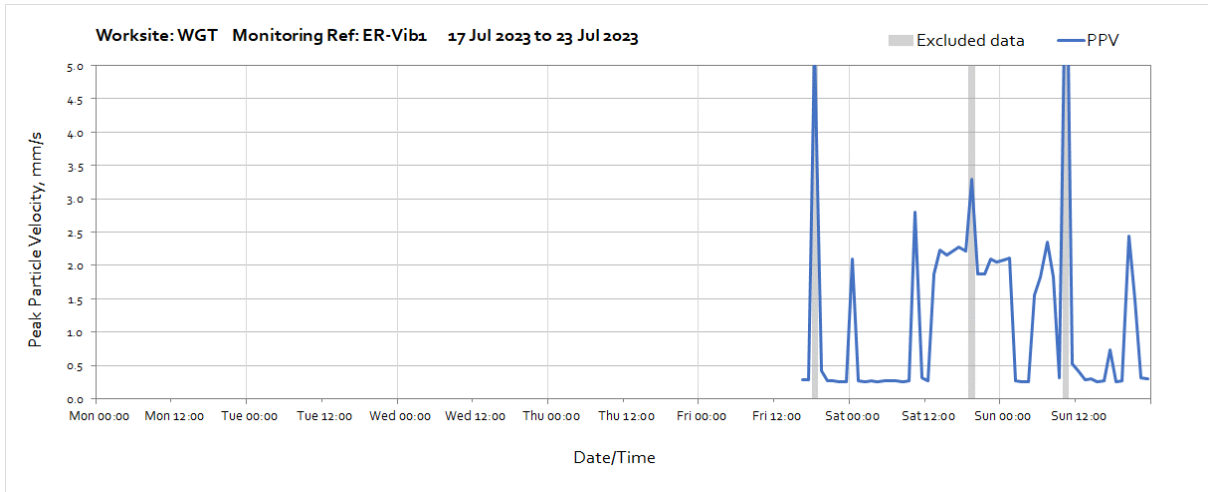
Note: Missing data to the end of the month was due to depleted monitor battery, the monitor is planned to be swapped with a new one.

Worksite: WGT - Monitoring Ref: ER-Vib 1

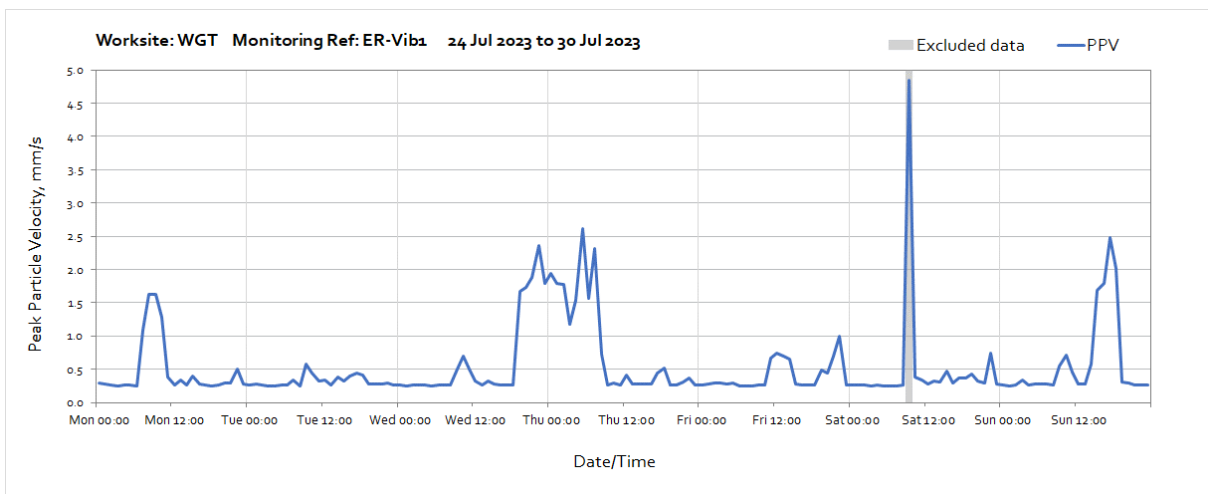


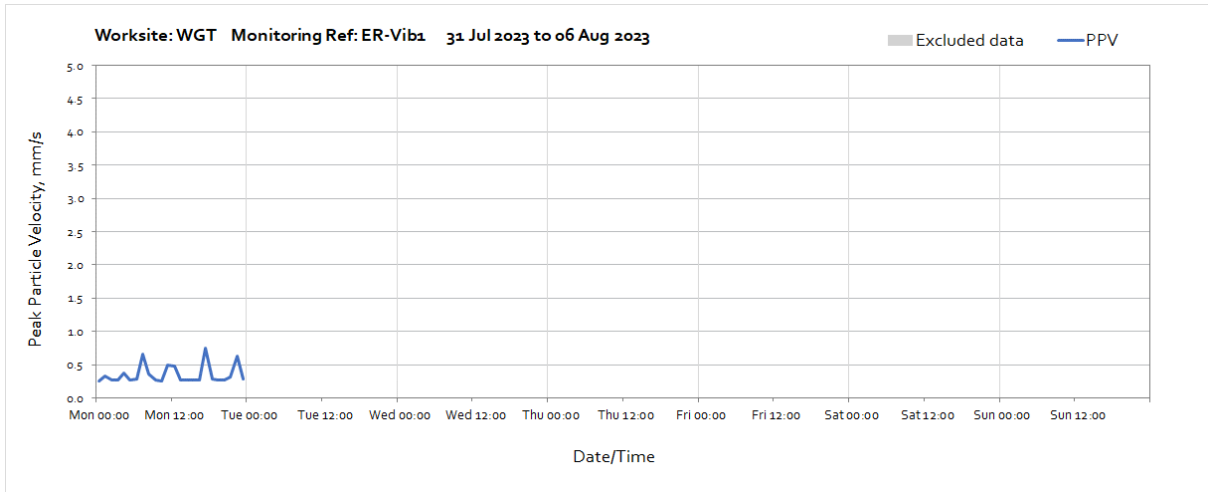


Note: Missing data between 13:00 on Saturday 15th July and 16:00 on Friday 21st July was due to depleted monitor battery.

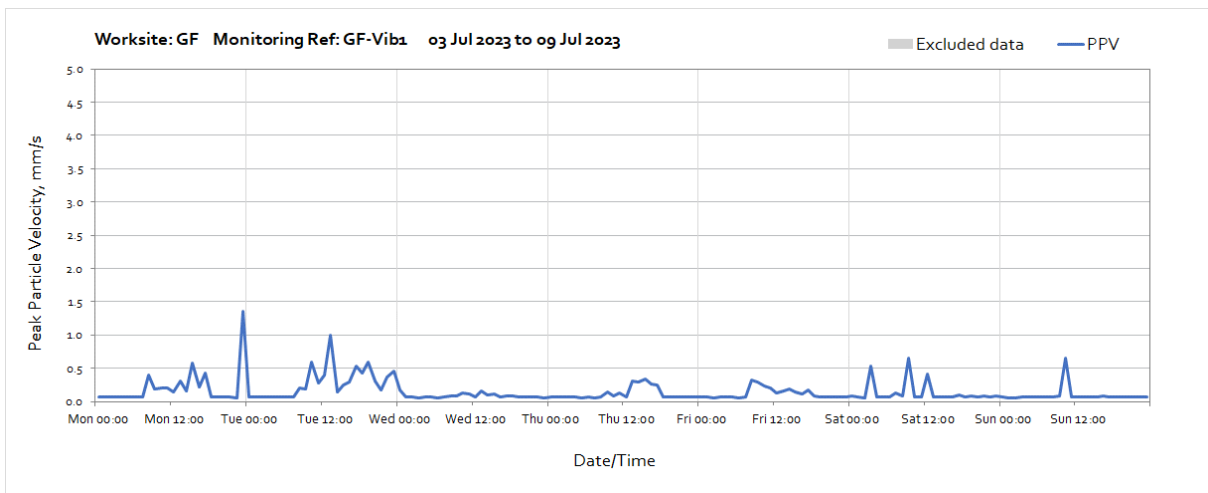
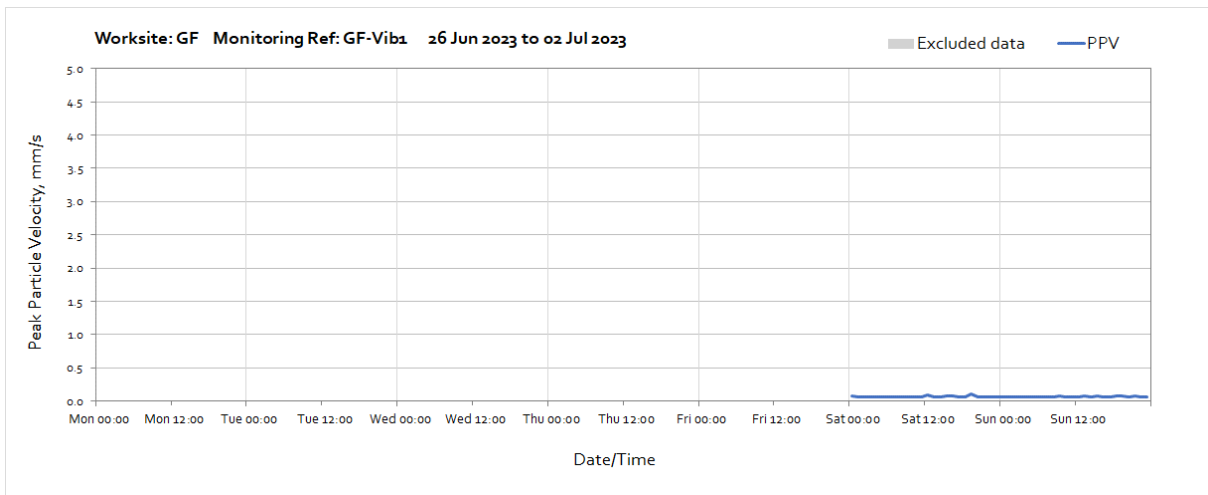


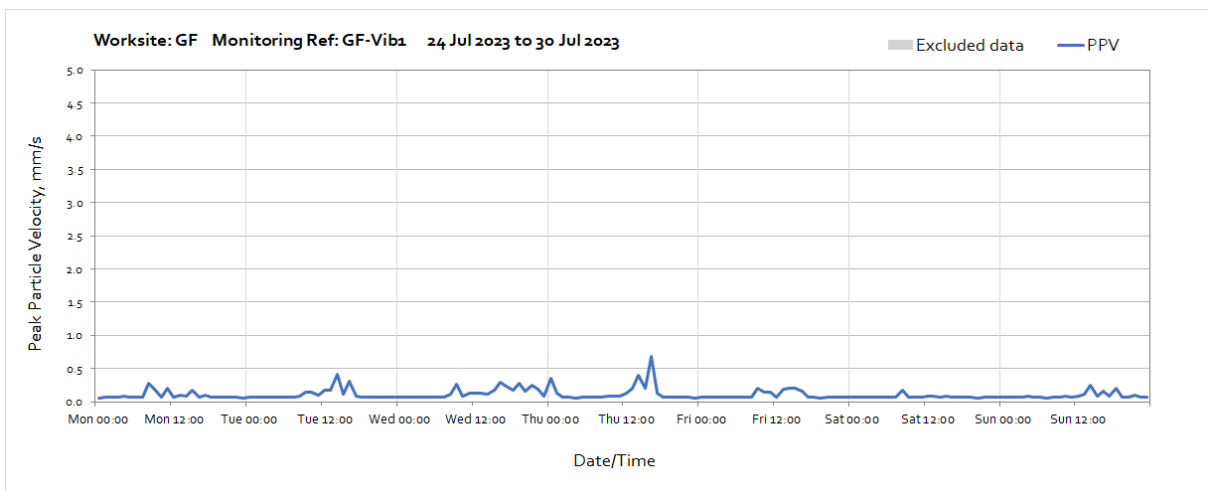
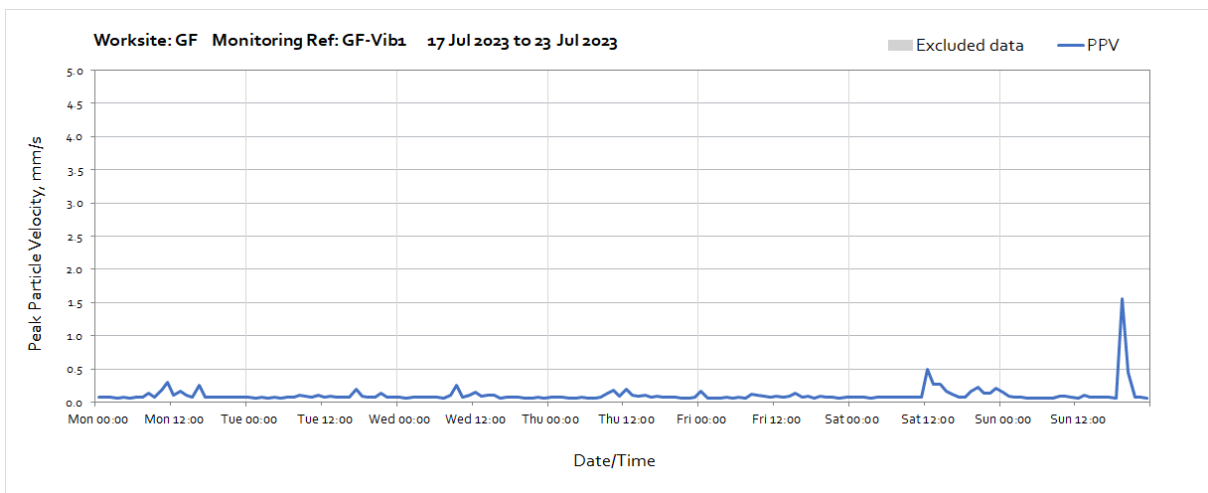
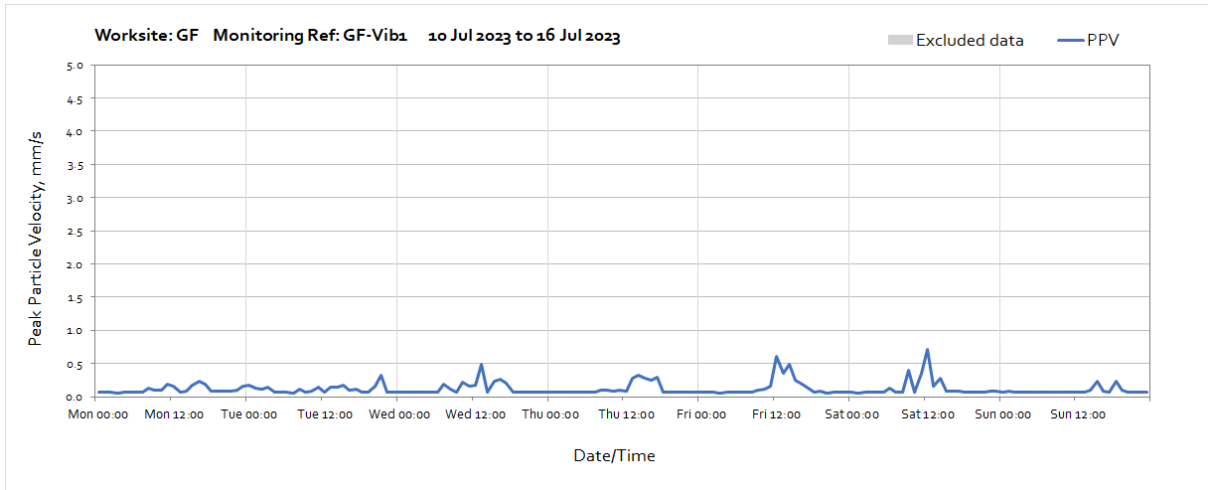
Note: Missing data between 13:00 on Saturday 15th July and 16:00 on Friday 21st July was due to depleted monitor battery.

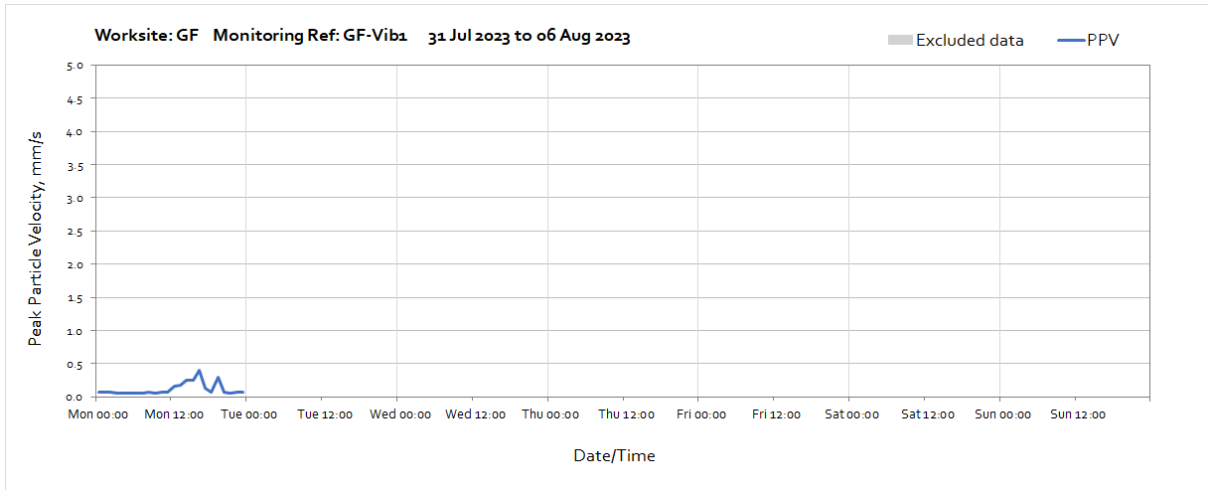




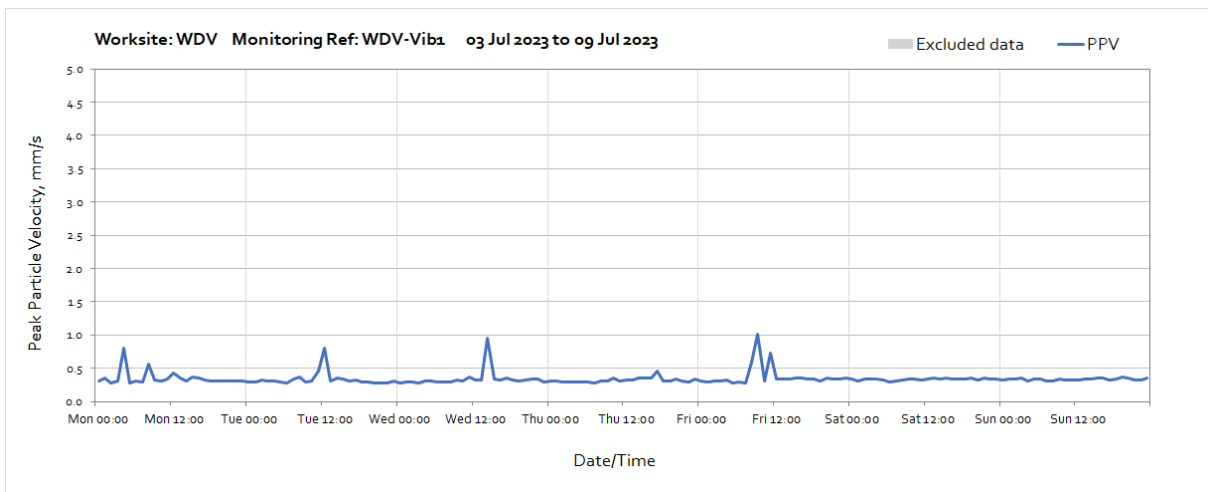
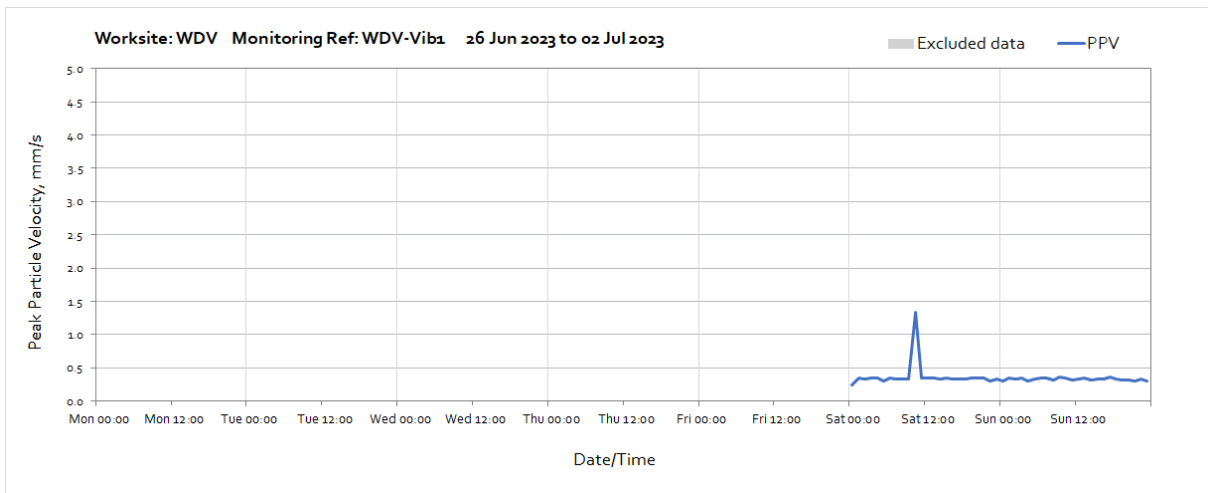
Worksite: GF - Monitoring Ref: GF-Vib1

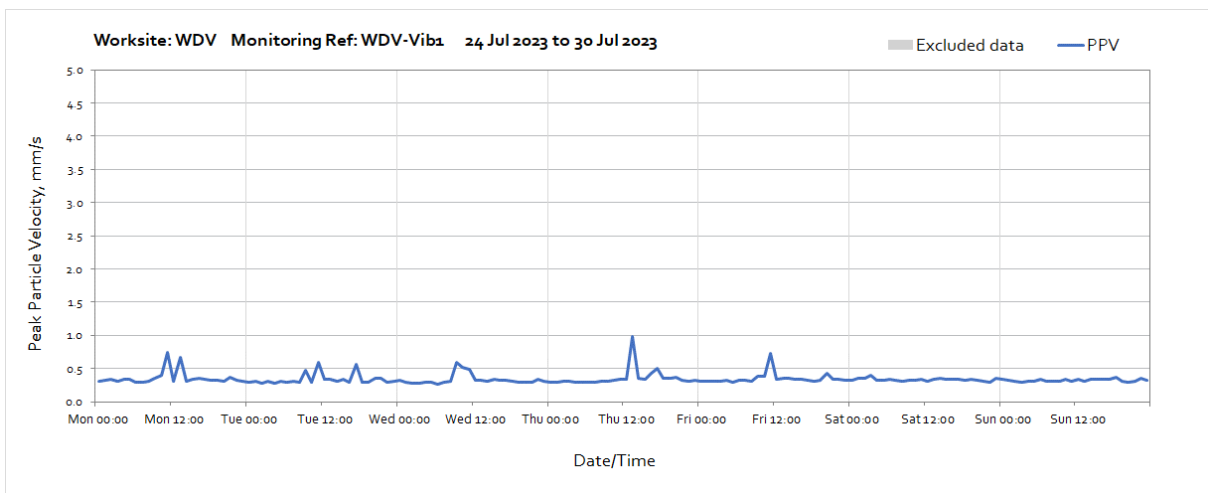
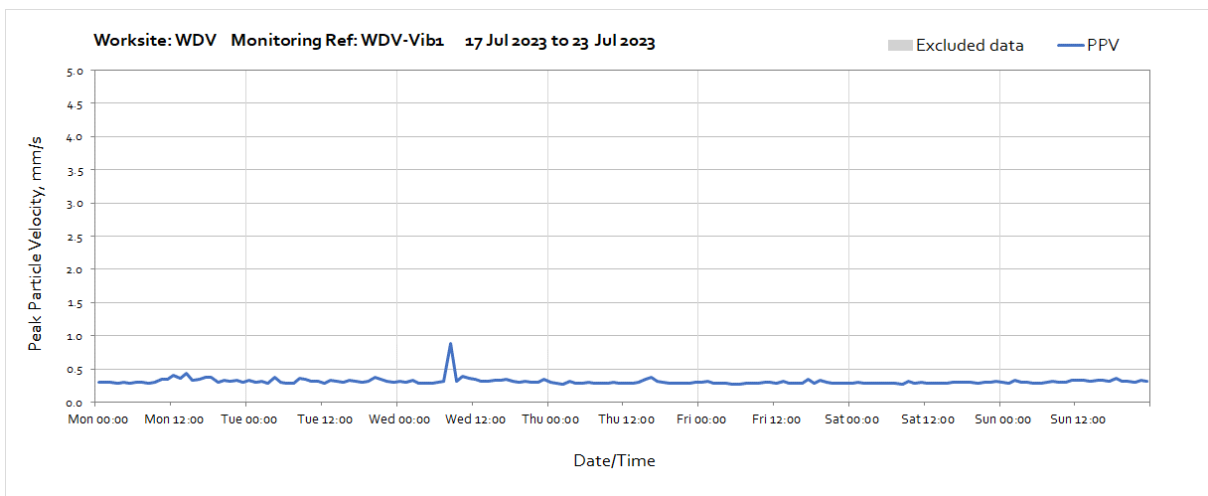
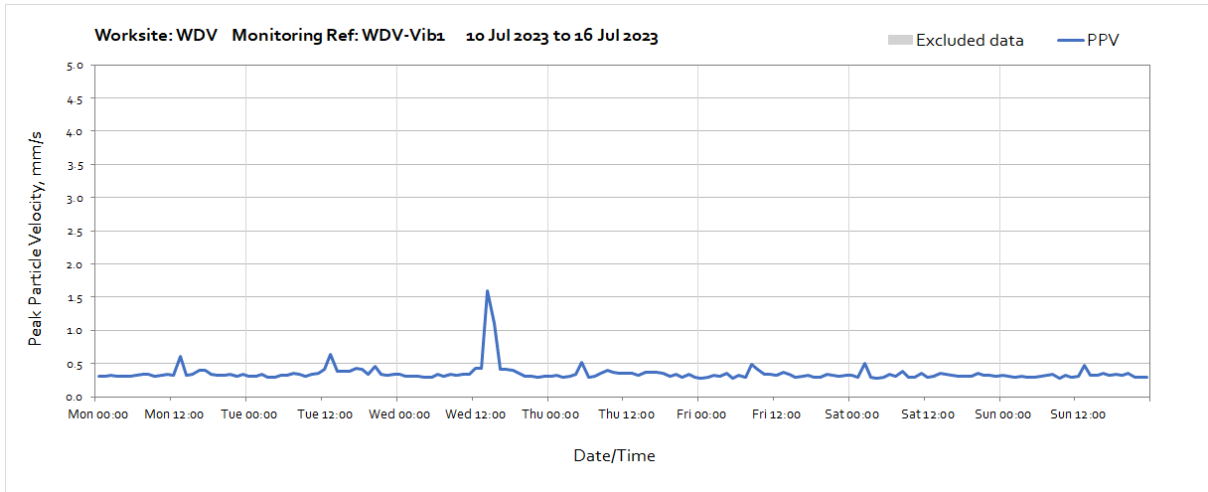


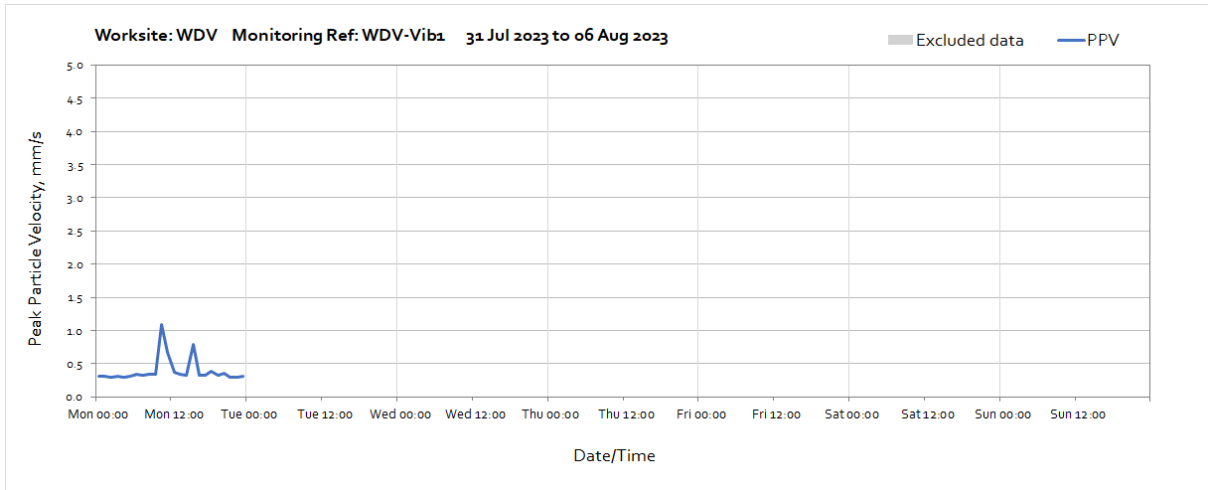




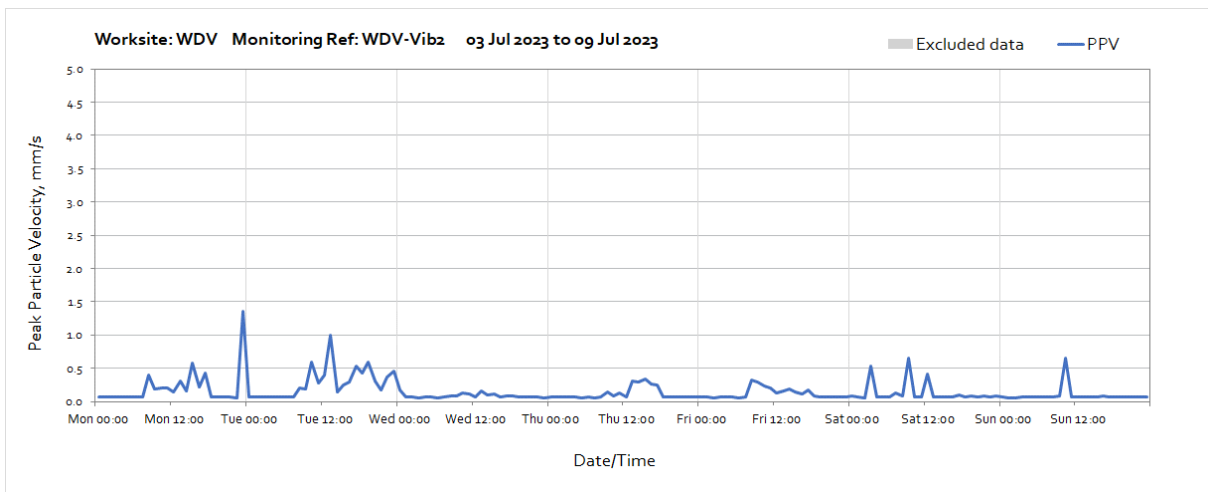
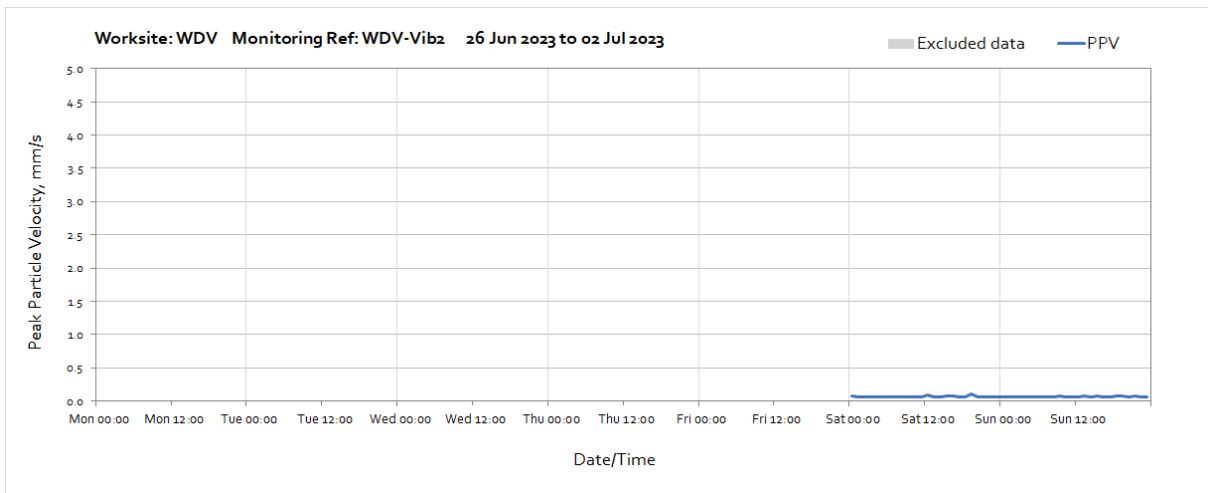
Worksite: WDV – Monitoring Ref: WDV-Vib 1

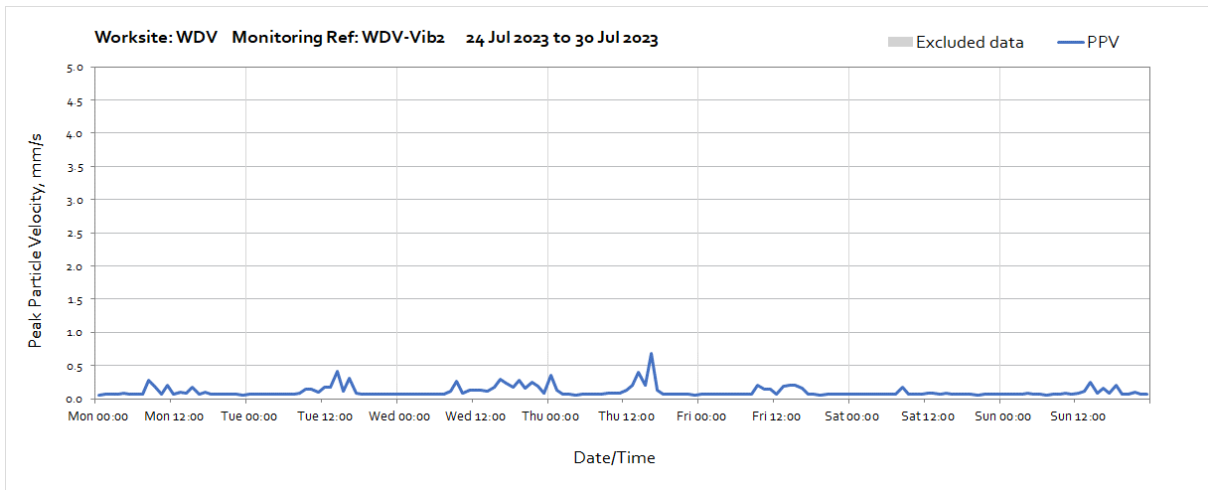
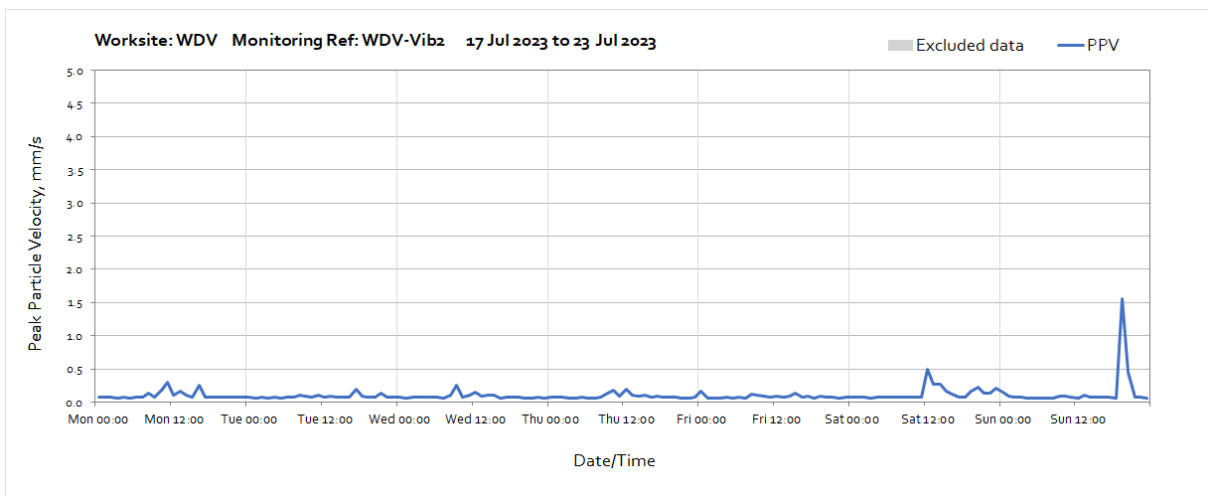
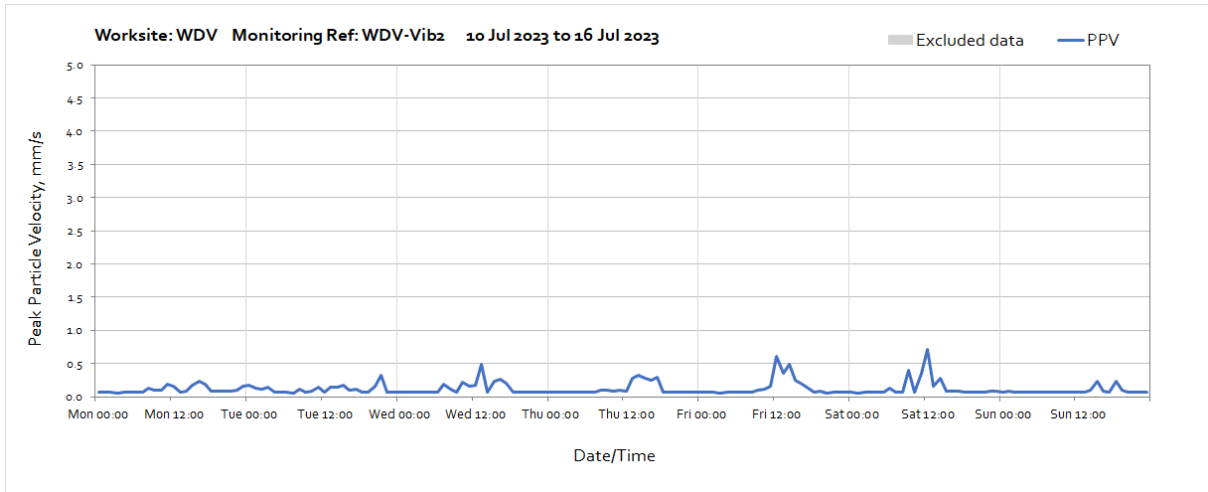


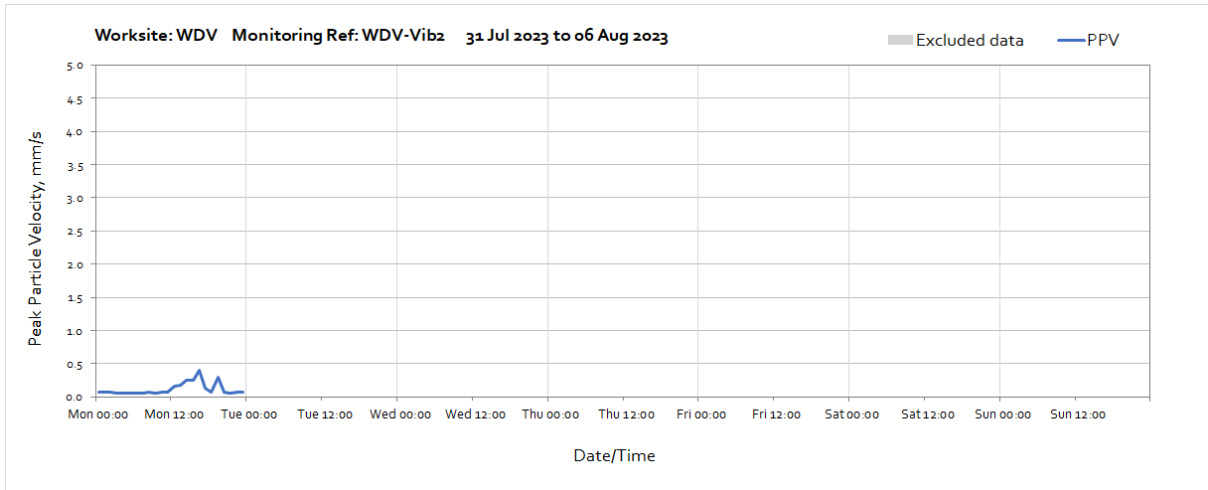




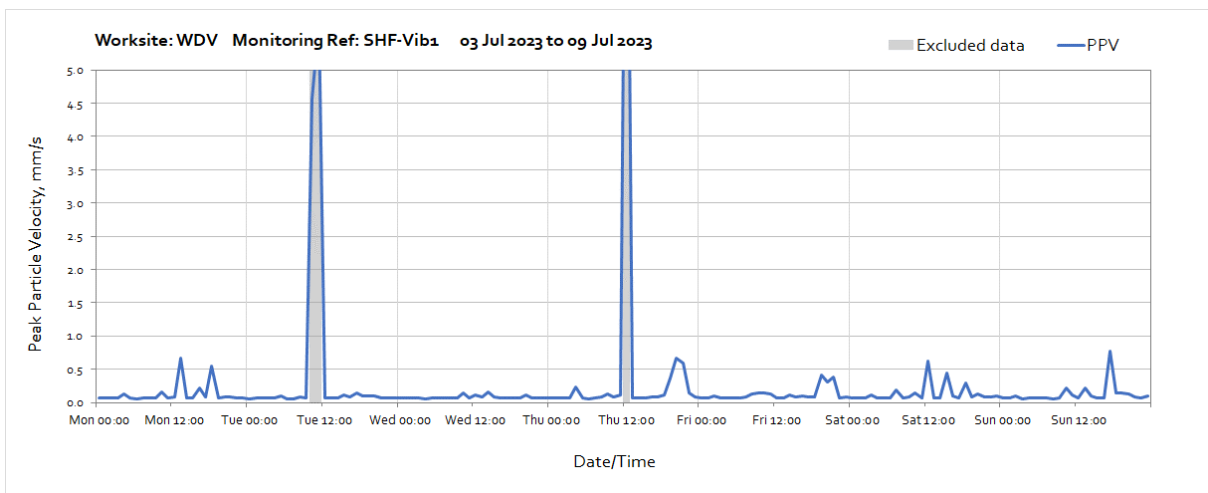
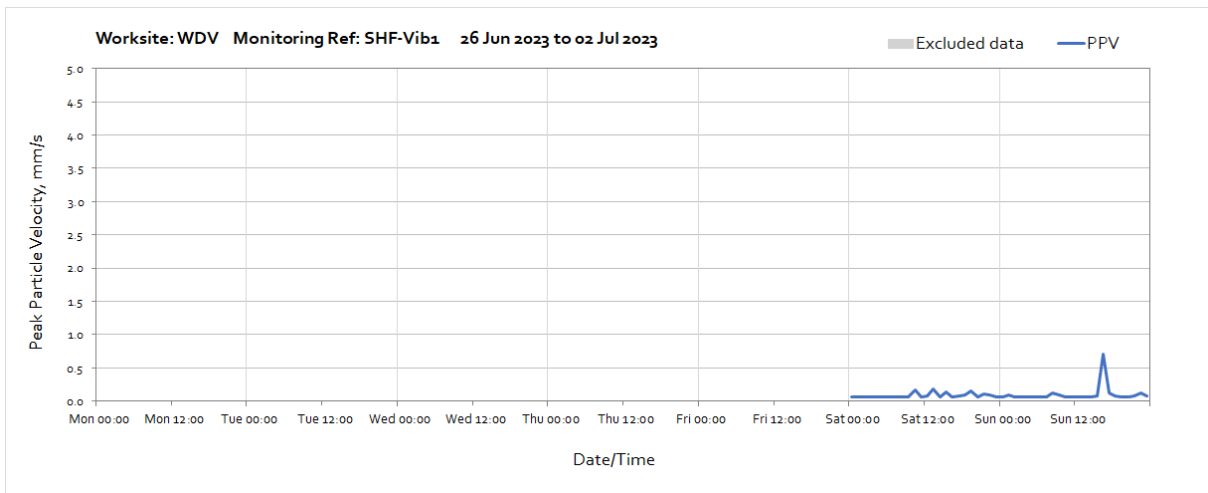
Worksite: WDV – Monitoring Ref: WDV-Vib 2

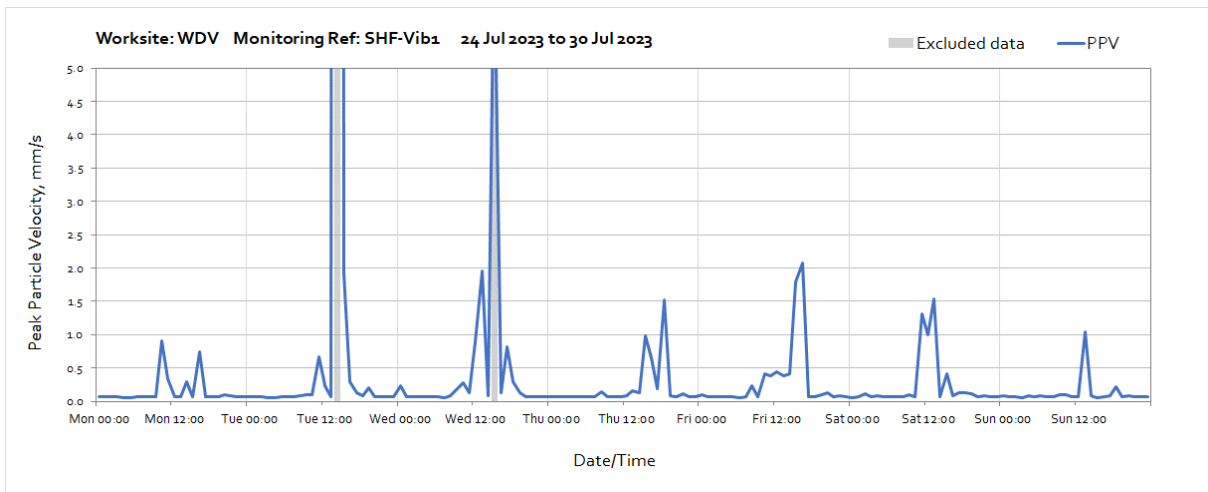
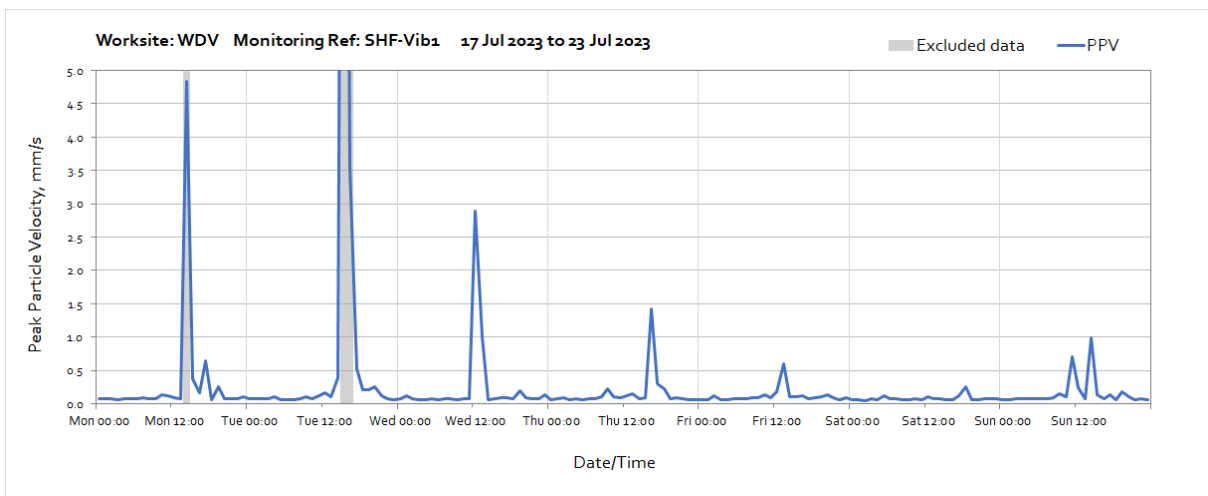
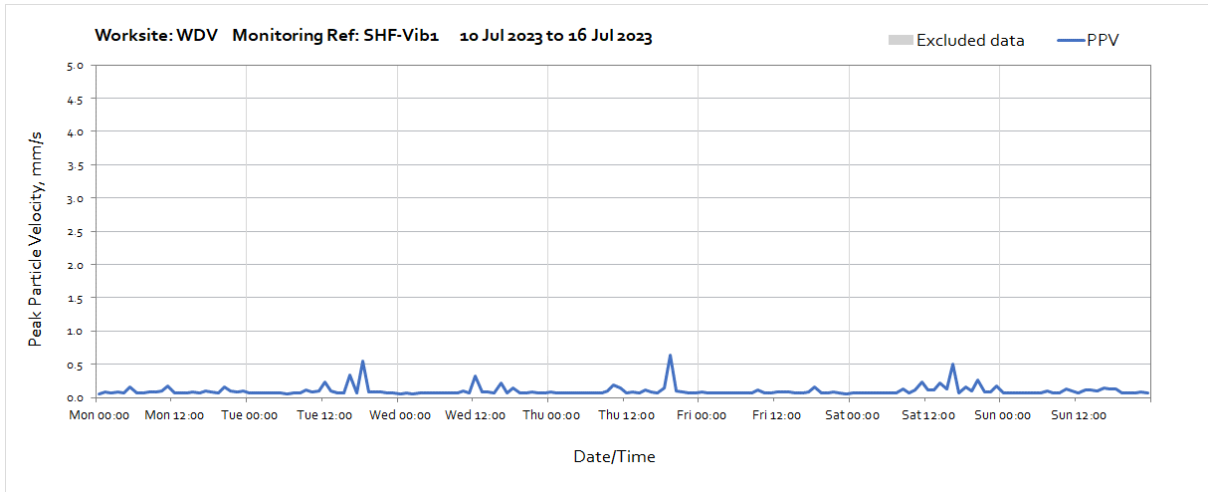


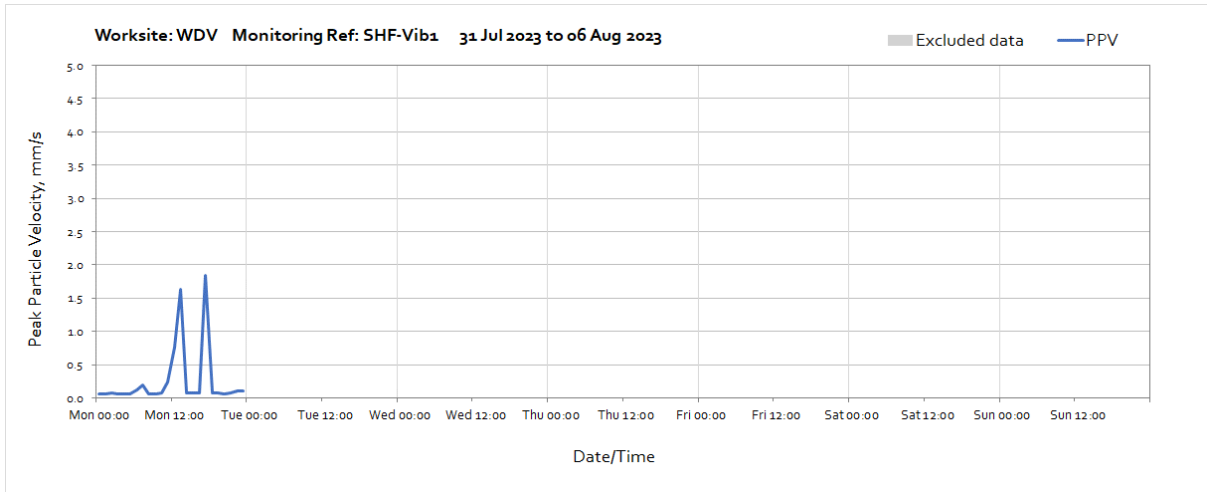




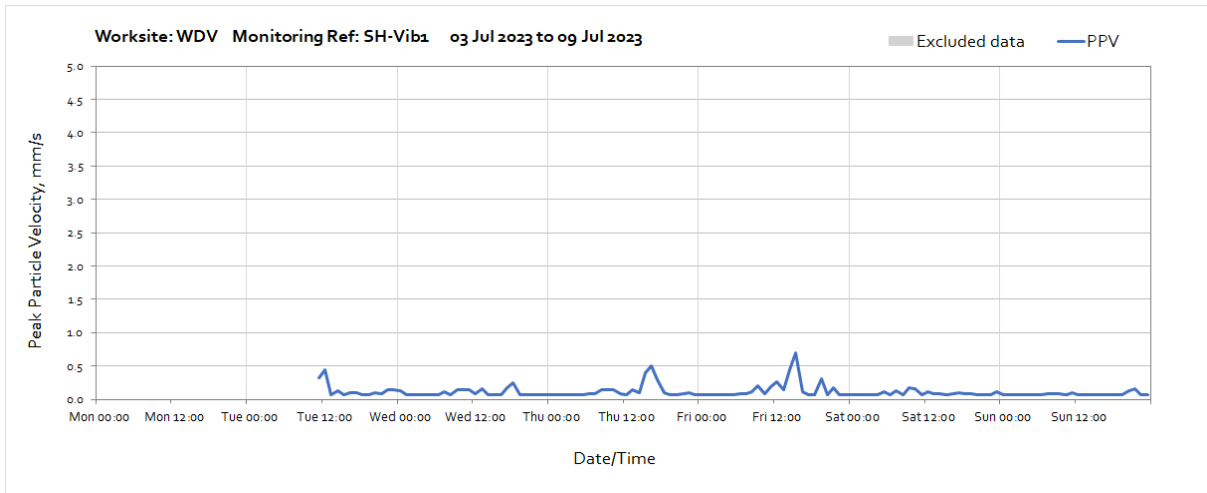
Worksite: WDV – Monitoring Ref: SHF-Vib1



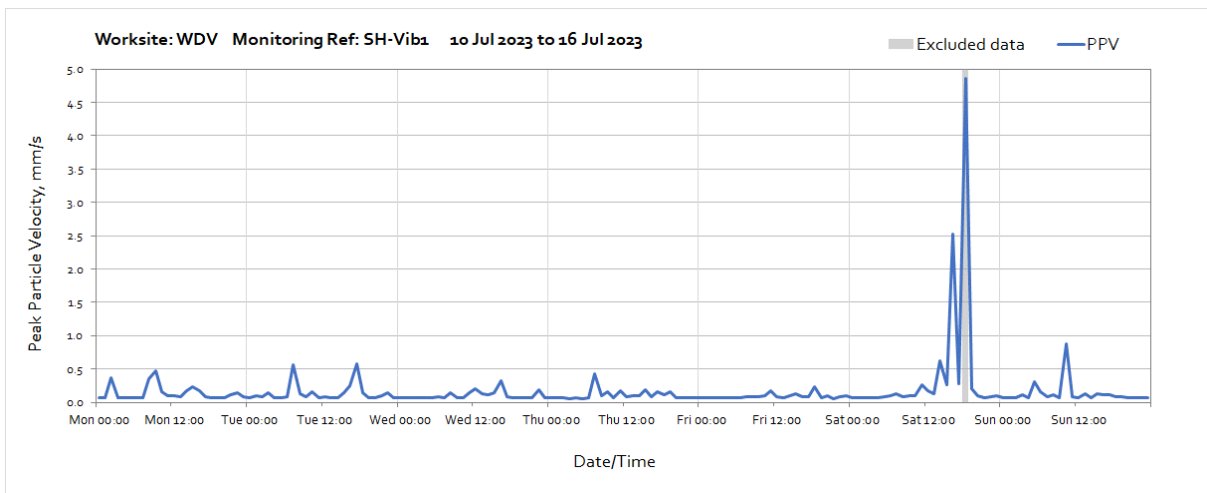


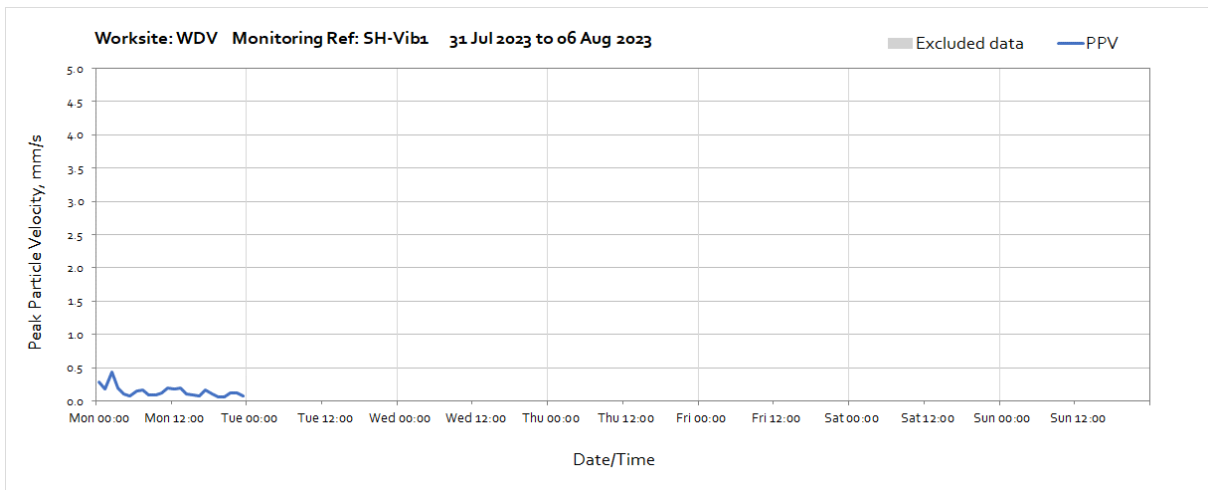
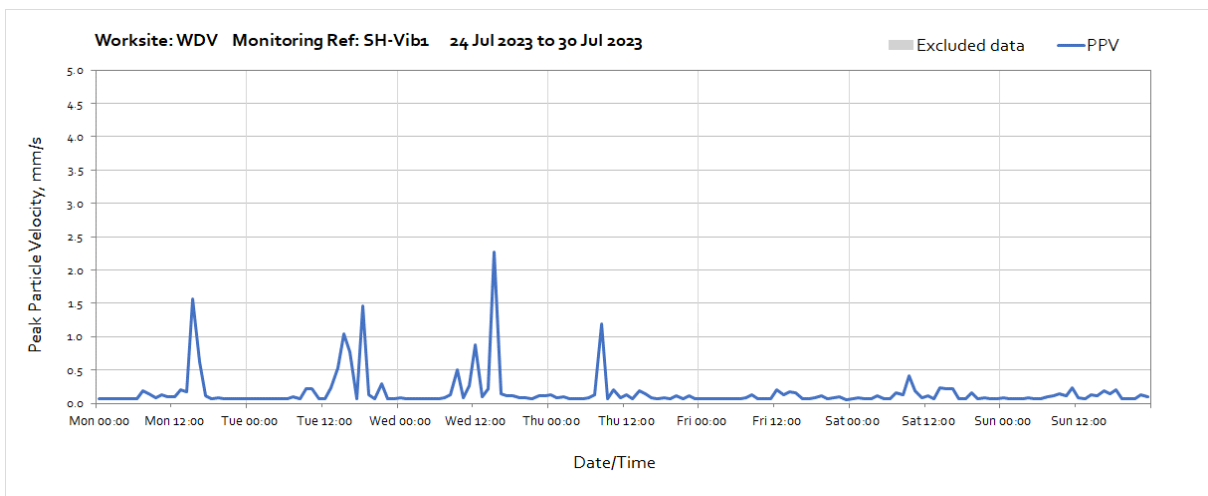
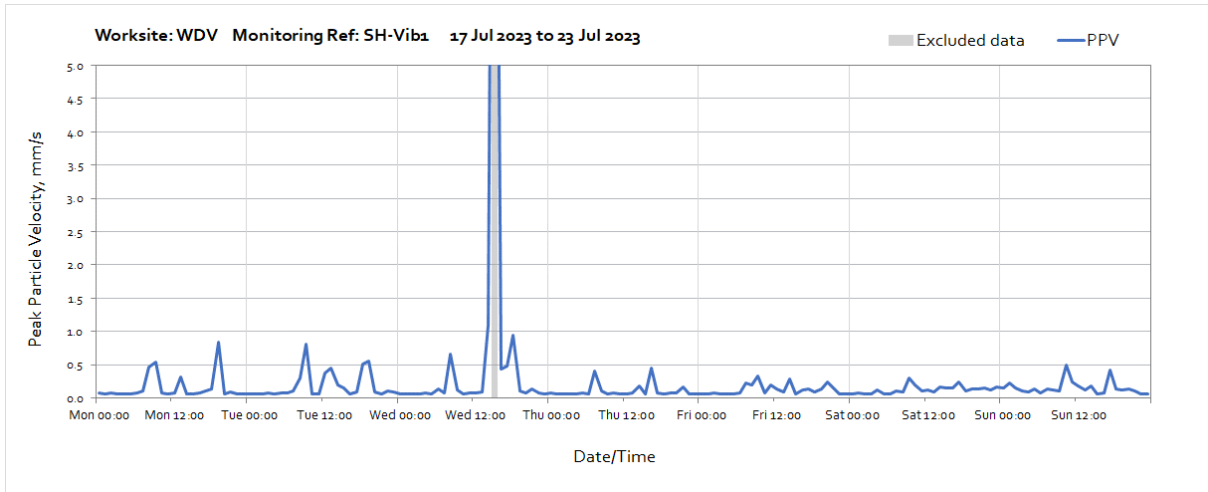


Worksite: WDV – Monitoring Ref: SH-Vib1

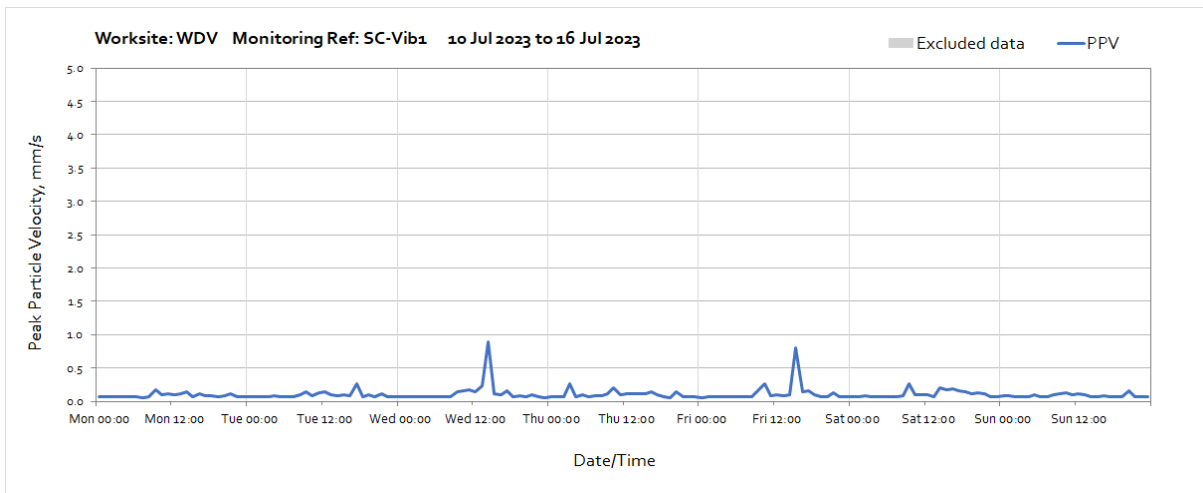
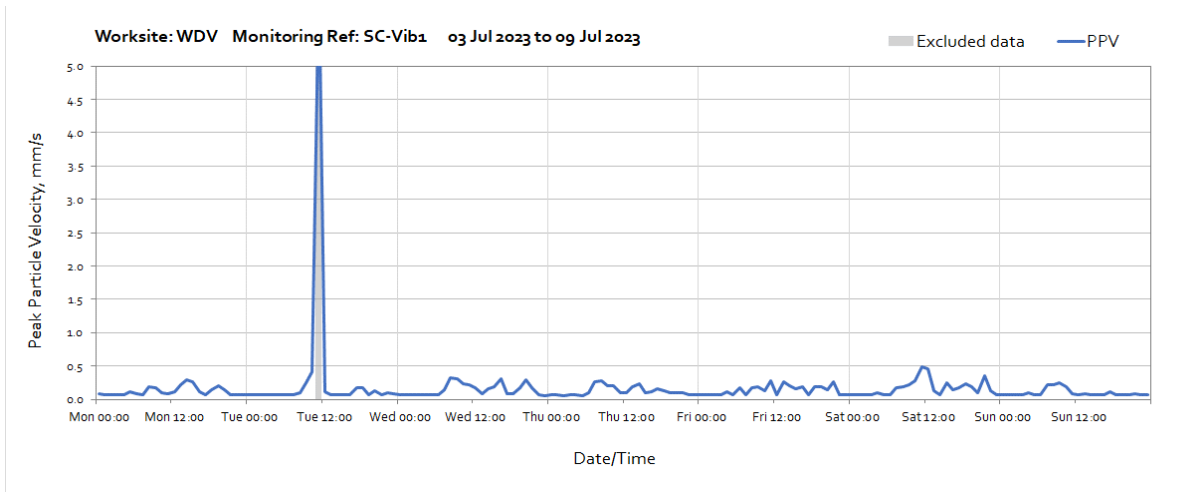
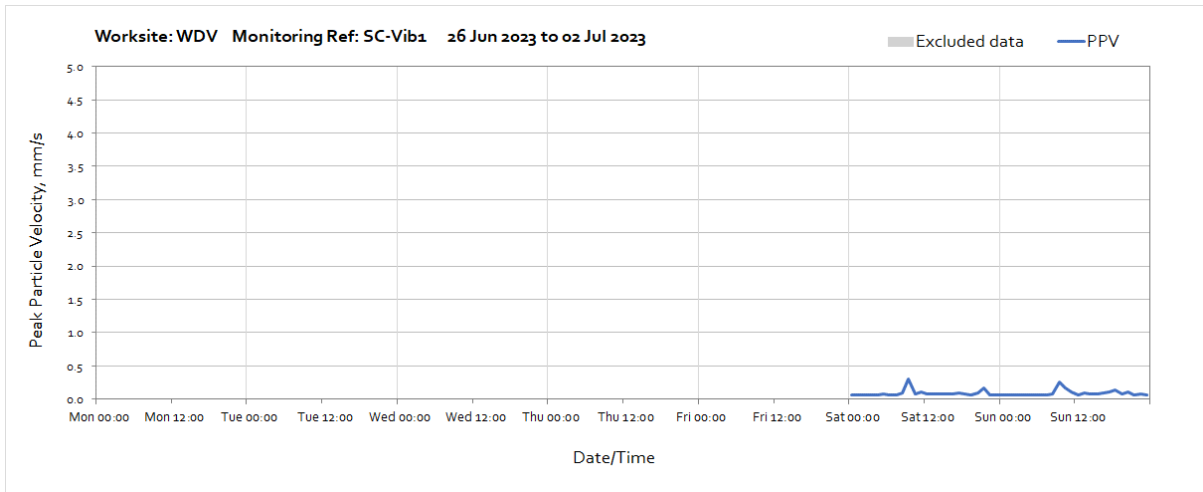


Note: Missing data from the beginning of the month to 10:00 on Tuesday 4th July was due to depleted monitor battery.





Worksite: WDV – Monitoring Ref: SC-Vib1



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