

## Construction Noise and Vibration Monthly Report – September 2023

Buckinghamshire

<b>Non-Technical Summary</b>	<b>1</b>
<b>Abbreviations and Descriptions</b>	<b>5</b>
<b>1 Introduction</b>	<b>6</b>
1.2 Measurement Locations	14
<b>2 Summary of Results</b>	<b>17</b>
2.1 Summary of Measured Noise Levels	17
2.2 Exceedances of the LOAEL and SOAEL	23
2.3 Exceedances of Trigger Level	28
2.4 Complaints	28
<b>Appendix A Site Locations</b>	<b>30</b>
<b>Appendix B Monitoring Locations</b>	<b>47</b>
<b>Appendix C Data</b>	<b>62</b>

### List of tables

Table 1: Table of Abbreviations	5
Table 2: Monitoring Locations	14
Table 3: Summary of Measured dB $L_{Aeq}$ Data over the Monitoring Period	18
Table 4: Summary of Measured PPV Data over the Monitoring Period	23
Table 5: Summary of Exceedances of LOAEL and SOAEL	24
Table 6: Summary of Total Exceedances of SOAEL	28
Table 7: Summary of Exceedances of Trigger Levels	28
Table 8: Summary of Complaints	29

# 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 September 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, river realignment and excavation works 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, removal of badger fencing, fencing works, stockpiling, vehicle movements and drainage works were underway.
- Noise monitoring was undertaken in the vicinity of the Twyford worksite (ref.: TW) where access and haul road maintenance, drainage works, culvert works, topsoil stripping, vehicle movements 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, technical backfill and 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 underway.
- Noise monitoring was undertaken in the vicinity of the Calvert worksite (ref.: CAL) where operation of concrete batching plant, material movements, dig and replace, 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 units, culvert works, technical backfilling, material movements, construction of piling platform and sheet piling were underway.
- Noise monitoring was undertaken in the vicinity of the Quainton worksite (ref.: QAR) where de-vegetation and fence installation works were underway.
- Noise monitoring was undertaken in the vicinity of the Meadoway and Glebe House worksite (ref: MW&GH) where backfilling and overbridge works were underway.

- Noise monitoring was undertaken in the vicinity of Oat Close worksite (ref: OC) where topsoil stripping, stockpiling, excavation, overbridge and PRA blockade works were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane worksite (ref.: NLL) where earthworks, material movements, temporary bridge construction, concrete works, vegetation clearance, compound works, topsoil stripping, steel beam placement, mobilisation of drilling and piling machinery and hard fixing were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Green Tunnel worksite (ref.: WGT) where construction of plant crossing, utility works, bridleway realignment, stockpiling, material deliveries, de-vegetation, excavation, fencing installation, sand laying, bridge construction, batching plant works, concrete crushing and backfilling were underway.
- Noise monitoring was undertaken in the vicinity of Grove Farm worksite (ref.: GF) where fencing installation, trial hole construction and compound set-up were underway.
- Noise monitoring was undertaken in the vicinity of Small Dean Viaduct Compound worksite (ref.: SDVC) where earthworks, concrete and piling works were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref.: RLE) where earthworks and installation of sheet anchors were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Dean Viaduct worksite (ref.: WDV) where earthworks, vegetation clearance and maintenance, backfilling and platform extension works were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref.: LL) where earthworks were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref.: SHCW) where earthworks were underway.
- Noise monitoring was undertaken in the vicinity of North Portal worksite (ref.: NP) where plant operations, building platform, piling platform, tunnel bore machine preparation and porous portal structure works were underway.
- Noise monitoring was undertaken in the vicinity of Chesham Road worksite (ref.: CHSM), where site operation, concrete, internal structure and building works were underway.
- Noise monitoring was underway in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site operation, internal structures construction, basement construction and superstructure concrete works were underway.



- Noise monitoring was underway in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site operation, tunnel connection, basement construction, superstructure concrete and drainage works were underway.
- Noise monitoring was underway in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where site operation, road maintenance, tunnel connection, ground level and building works were underway.
- Noise monitoring was underway 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 underway in the vicinity of the Colne Valley Viaduct worksite, which is partly located in the London Borough of Hillingdon (LBH), (ref.: CVV), where jetty and haul road maintenance and operation, compound operations, auto transformed feeder station works, ground investigation, pier construction, pumping water management, satellite compound welfare, abutment works, generator farm operation, gas crossing emergency dismantling works, 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 excavation, vegetation clearance, stockpiling, drainage, pond excavation and maintenance, removal of badger fencing, fencing works 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 formwork reinforced concrete works were underway.
- Charndon Lodge where technical backfilling and drainage works were underway.
- Infrastructure Maintenance Depot (IMD) where technical backfill and earthworks filling were underway.
- Shepherds Furze Culvert where installation of pre-cast units was underway.
- MCJ where earthworks including excavation and filling and bulk earthworks 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 works and technical backfill were underway.
- Doddershall Culvert where technical backfilling was underway.
- Hills Farm where stockpiling 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, highways, drainage, kerbing, pavement, vehicle restraint systems operation and signage installation were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Bowood Lane where overbridge works including installation of shutters, de-vegetation and installation of access road were underway.
- Nash Lee Road Diversion where material movements and earthworks were underway.
- Aylesbury Golf Course where utility diversion works were underway.

The HS2 threshold levels for significant noise impacts, which are defined in Information Paper E23 (<https://www.gov.uk/government/publications/hs2-information-papers-environment>), were exceeded sixteen (16) times during the reporting period.

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

Twelve (12) complaints were 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 September 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 1<sup>st</sup> to 30<sup>th</sup> September 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.
  - River realignment.
  - Excavation, including excavation and replace.
- 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.

- Fencing works.
- Stockpiling.
- Vehicle movements.
- Drainage works, including pond maintenance.
- Twyford worksite, ref.: TW (see Plan 2 in Appendix A), where works activities included:
  - Access and haul road maintenance.
  - Drainage works.
  - Culvert works.
  - Topsoil stripping.
  - Vehicle movements.
  - Stockpiling.
- West Street Overbridge worksite, ref.: WSO (see Plan 2 in Appendix A), where works activities included:
  - Commissioning.
  - Formwork reinforced concrete works.
  - Earthwork embankments.
  - Technical backfill.
  - 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.
  - Dig and replace.

- 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 units.
  - Culvert works, including mammal shelf construction.
  - Technical backfilling.
  - Material movements.
  - Construction of piling platform.
  - Sheet piling.
- Quanton worksite, ref.: QAR (see Plan 4 in Appendix A) where works activities included:
  - De-vegetation.
  - Fence installation.
- Meadoway and Glebe House worksite, ref.: MW&GH (see Plan 5 in Appendix A), where works activities included:
  - Backfilling.
  - Overbridge works, including excavation.
- 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.
- Nash Lee Lane worksite, ref.: NLL (see Plan 6 in Appendix A), where works activities included:
  - Earthworks.
  - Material movements.
  - Temporary bridge construction.
  - Concrete works.

- Vegetation clearance.
- Compound works, including construction and relocation.
- Topsoil stripping.
- Steel beam placement.
- Mobilisation of drilling and piling machinery.
- Hoard fixing.
- Wendover Green Tunnel worksite, ref.: WGT (see Plan 6 in Appendix A), where works activities included:
  - Construction of plant crossing, including lining, traffic lights installation and archaeological surveys.
  - Utility works, including diversion.
  - Bridleway realignment.
  - Stockpiling.
  - Material deliveries.
  - De-vegetation.
  - Excavation.
  - Fencing installation.
  - Sand laying.
  - Bridge construction.
  - Batching plant works, including lining and scaffold installation.
  - Concrete crushing.
  - Backfilling.
- Grove Farm worksite, ref.: GF (see Plan 7 in Appendix A), where works activities included:
  - Fencing installation.
  - Trial hole construction.
  - Compound set-up.
- Small Dean Viaduct Compound worksite, ref.: SDVC (see Plan 7 in Appendix A), where works activities included:

- Earthworks, including excavation of materials.
- Concrete works, including concrete pours.
- Piling works.
- Rocky Lane Embankment worksite, ref.: RLE (see Plan 7 in Appendix A), where works activities included:
  - Earthworks, including stockpile relocation.
  - Installation of sheet anchors.
- Wendover Dean Viaduct worksite, ref.: WDV (see Plan 7 in Appendix A), where works activities included:
  - Earthworks, including stockpile movement.
  - Vegetation clearance and maintenance.
  - Backfilling.
  - Platform extension works.
- Leather Lane worksite, ref.: LL (see Plan 8 in Appendix A), where works activities included:
  - Earthworks, including stockpile relocation.
- South Heath Cutting worksite, ref.: SHCW (see Plan 8 in Appendix A), where works activities included:
  - Earthworks, including stockpile relocation.
- North Portal worksite, ref.: NP (see Plan 8 in Appendix A), where works activities included:
  - General site operation of plant.
  - Building platform works including scraping, installation of hardstanding, surfacing, services and drainage.
  - Piling platform works including scraping, installation of hardstanding, earthworks and dismantling works.
  - Tunnel bore machine preparation.
  - Porous portal structure works including reinforced concrete works and concrete works.
- 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.
- Internal building 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 works.
  - Superstructure concrete works.
- Amersham Vent Shaft worksite, ref.: AM (see Plan 10 in Appendix A), where works activities included:
  - General site activities including operation of plant.
  - Tunnel connection works.
  - Basement construction, including installation of basement internals.
  - Superstructure concrete works.
  - Drainage 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.
  - Ground level works, including concrete works.
  - Building 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:
  - Jetty and haul road operation and maintenance.
  - Compound operations.
  - Auto transformed feeder station works, including site preparation and bulk earthworks filling.
  - 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.
  - Abutment works, including yard support activities and formwork reinforced concrete works.
  - Gas crossing emergency dismantling works.
  - Fencing works.
  - Environmental maintenance.
  - River Colne crossing including emergency removal of obstruction to reinforced concrete crossing.
  - Girder and deck erection and installation, including span segmental erection, internal post-tensioning and steel structure erection, stressing and grouting, crane assembly 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, north abutment works, 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, drainage, soil placement and vegetation clearance.

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 excavation, vegetation clearance, stockpiling, drainage, pond excavation, removal of badger fencing, fencing works 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 formwork reinforced concrete works were underway.
- Charndon Lodge where technical backfilling and drainage works were underway.
- Infrastructure Maintenance Depot (IMD) where technical backfill and earthworks filling were underway.
- Shepherds Furze Culvert where installation of pre-cast units was underway.
- MCJ where earthworks including excavation and filling and bulk earthworks 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 works and technical backfill were underway.
- Doddershall Culvert where technical backfilling was underway.
- Hills Farm where stockpiling 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, highways, drainage, kerbing, pavement, vehicle restraint systems operation and signage installation were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.

- Bowood Lane where overbridge works including installation of shutters, de-vegetation and installation of access road were underway.
- Nash Lee Road Diversion where material movements and 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 (40) noise and eight (8) vibration monitoring installations were active in September in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in September 2023.
- 1.2.2 Vibration monitors WDV-Vib2, SHF-Vib1, SH-Vib1 and SC-Vib1, within the vicinity of Wendover Dean Viaduct, ref.: WDV, were decommissioned at the start of September.
- 1.2.3 Noise monitor HG-NMP1, within the vicinity of Leather Lane, ref.: LL, was decommissioned at the start of September.
- 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

Worksite Reference	Measurement Reference	Address
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
OC	MF-NMP1	Moat Farm, Marsh Lane
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
	WF-Vib1	41 Westfield, Hawkslade
	BP-NMP1	Booker Park School, Aylesbury
	BP-Vib1	Booker Park School, Aylesbury
	ML-NMP1	Marsh Lane, Aylesbury
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
WGT	ER-NMP1	Ellesborough Rd, Wendover
	ER-Vib1	Ellesborough Rd, Wendover
	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
LL	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

<b>Worksite Reference</b>	<b>Measurement Reference</b>	<b>Address</b>
	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
	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<sub>Aeq</sub> Data over the Monitoring Period

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Saturday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Sunday / Public Holiday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )	
				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	48.2 (52.2)	52.5 (56.8)	46.7 (52.6)	45.7 (51.1)	45.3 (53.1)	47.2 (48.4)	52.0 (56.6)	50.6 (52.0)	48.9 (58.5)	44.2 (46.0)	46.1 (51.4)	45.1 (50.2)
SE	SE-NMP1	School End, Chetwode	Free-field	49.7 (55.9)	59.5 (64.6)	44.0 (56.4)	41.3 (53.9)	40.2 (54.2)	50.6 (53.9)	57.2 (59.4)	56.9 (63.5)	51.6 (58.8)	40.4 (46.9)	44.6 (55.3)	41.6 (54.6)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	50.9 (57.0)	57.9 (61.9)	46.6 (56.8)	45.4 (56.7)	45.0 (59.1)	49.2 (52.3)	53.1 (57.6)	53.8 (59.3)	50.1 (57.6)	45.1 (51.3)	47.5 (56.6)	45.5 (54.0)
TW	TW-NMP1	Twyford	Free-field	44.5 (62.1)	52.1 (58.3)	43.8 (47.7)	41.0 (49.7)	38.2 (46.0)	44.6 (50.8)	51.4 (56.3)	49.1 (55.6)	47.7 (64.0)	39.7 (45.7)	45.0 (55.9)	39.8 (51.2)
WSO	WSO-NMP1	West Street, Twyford	Free-field	51.4 (63.7)	56.0 (67.0)	48.4 (64.4)	44.5 (65.2)	41.1 (64.8)	45.1 (46.5)	48.9 (51.1)	49.7 (55.2)	49.5 (57.2)	45.5 (56.1)	49.4 (65.1)	45.3 (59.4)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	46.2 (52.4)	57.7 (68.0)	41.9 (47.9)	38.1 (48.7)	35.1 (48.2)	45.5 (48.2)	52.0 (55.0)	45.9 (51.1)	42.6 (48.3)	34.9 (39.1)	45.5 (52.2)	37.5 (50.1)



Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Saturday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Sunday / Public Holiday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )	
				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	57.1	60.8	55.2	48.6	45.4	53.2	54.2	54.9	52.8	48.2	54.2	47.0
				(65.2)	(67.8)	(62.1)	(65.5)	(67.8)	(57.9)	(61.7)	(63.1)	(60.9)	(60.8)	(63.3)	(60.3)
	FCC-NMP1	Calvert South	Free-field	52.5	53.0	50.3	45.3	42.5	46.3	48.3	50.2	46.4	39.5	45.5	44.7
				(57.0)	(56.3)	(57.8)	(53.0)	(55.4)	(49.4)	(53.9)	(55.3)	(56.1)	(46.6)	(50.9)	(55.4)
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Free-field	68.3	68.2	54.1	43.5	43.0	47.7	56.9	62.9	57.2	41.9	52.6	43.8
				(71.0)	(70.0)	(67.9)	(51.2)	(60.0)	(55.4)	(59.8)	(80.2)	(83.5)	(49.5)	(74.6)	(51.3)
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	49.4	52.8	48.7	45.2	43.2	45.3	49.1	49.4	49.6	44.4	51.4	45.9
				(66.0)	(71.2)	(67.8)	(67.4)	(69.7)	(48.8)	(52.2)	(55.9)	(59.5)	(55.0)	(64.5)	(62.5)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	53.8	54.7	53.6	52.1	49.0	52.6	53.5	53.0	52.3	48.0	52.1	48.5
				(56.3)	(71.8)	(56.6)	(56.8)	(54.7)	(53.9)	(56.1)	(54.2)	(54.5)	(50.7)	(58.7)	(54.7)
OC	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	48.9	50.4	46.5	48.0	47.8	46.1	48.0	46.3	46.8	44.4	50.8	45.0
				(55.5)	(54.2)	(52.8)	(58.2)	(61.7)	(50.0)	(53.7)	(48.7)	(59.0)	(57.3)	(60.9)	(52.2)
	MF-NMP1	Moat Farm, Marsh Kane	Free-field	46.9	51.0	44.4	43.7	42.2	45.1	47.5	48.4	45.3	41.1	46.2	40.8
				(51.7)	(58.7)	(52.2)	(52.3)	(51.2)	(49.0)	(50.0)	(55.8)	(51.8)	(51.2)	(58.4)	(49.9)
BP-NMP1	Booker Park School, Aylesbury	Free-field	51.0	53.1	48.1	47.9	48.1	45.3	48.9	49.1	49.5	45.0	55.4	52.3	
			(60.4)	(62.1)	(60.6)	(66.6)	(67.7)	(48.0)	(51.7)	(57.0)	(57.0)	(54.3)	(65.9)	(59.5)	
ML-NMP1	Marsh Lane, Aylesbury	Free-field	50.5	55.4	52.2	52.4	52.3	47.9	48.4	47.4	51.3	50.0	42.1	38.6	
			(67.6)	(69.7)	(70.5)	(71.6)	(73.7)	(50.6)	(53.6)	(51.2)	(63.7)	(67.3)	(69.2)	(59.1)	

OFFICIAL

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Saturday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Sunday / Public Holiday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )	
				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	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	54.1 (57.6)	59.6 (67.9)	52.6 (57.1)	51.0 (55.8)	49.3 (55.2)	52.7 (58.1)	53.5 (60.5)	54.0 (62.3)	52.9 (64.6)	49.7 (52.5)	51.4 (55.5)	49.7 (53.6)
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	52.9 (58.3)	60.4 (65.1)	51.2 (57.5)	50.0 (60.5)	46.9 (54.3)	51.0 (53.5)	57.6 (63.1)	50.9 (54.5)	50.8 (60.0)	46.8 (49.7)	52.0 (65.7)	47.9 (55.8)
WGT	ER-NMP1	Ellesborough Rd, Wendover	Free-field	52.5 (62.2)	56.3 (62.3)	53.3 (64.8)	51.0 (74.1)	46.7 (58.7)	50.6 (51.9)	52.7 (57.5)	52.3 (54.6)	51.4 (54.3)	43.9 (50.6)	51.9 (59.1)	49.7 (63.3)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	47.1 (49.8)	49.4 (68.4)	47.4 (50.8)	46.5 (53.8)	44.9 (48.9)	46.9 (48.4)	47.8 (50.2)	46.4 (48.3)	47.0 (51.7)	45.0 (47.1)	46.5 (52.0)	44.6 (50.2)
	WT-NMP1	A413, Wendover	Free-field	65.4 (67.0)	65.8 (66.7)	65.9 (67.6)	62.9 (70.0)	59.3 (67.3)	62.8 (63.6)	64.3 (65.5)	64.5 (65.6)	63.6 (67.5)	57.7 (65.4)	63.8 (68.8)	59.0 (65.8)
GF	GF-NMP1	Grove Farm, Wendover	Free-field	52.4 (58.1)	54.0 (61.8)	50.4 (60.1)	47.1 (59.0)	44.2 (53.8)	49.3 (56.4)	49.2 (53.7)	47.8 (53.5)	51.1 (59.0)	43.3 (46.2)	50.2 (58.6)	43.9 (51.6)
SDVC	SDVC-NMP1	Rocky Lane, Wendover	Free-field	62.7 (64.3)	62.5 (65.6)	61.5 (64.5)	59.2 (63.8)	56.5 (63.1)	60.4 (61.6)	61.0 (62.6)	59.8 (62.1)	60.0 (62.2)	54.5 (57.8)	59.6 (62.6)	56.5 (63.2)
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	51.6 (61.1)	56.5 (63.9)	47.5 (53.5)	46.3 (56.0)	43.6 (56.5)	45.3 (47.5)	48.0 (50.8)	45.9 (47.2)	45.5 (49.9)	42.3 (45.4)	46.5 (55.4)	43.9 (50.1)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	56.2 (58.7)	55.6 (58.5)	54.4 (57.6)	52.5 (58.8)	49.0 (57.0)	51.7 (52.3)	52.7 (54.9)	52.2 (54.6)	52.0 (55.9)	47.3 (51.1)	53.1 (57.9)	49.7 (56.0)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Saturday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Sunday / Public Holiday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 -0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover	Free-field	50.4 (54.5)	55.6 (73.6)	48.7 (54.9)	46.3 (59.3)	43.6 (54.5)	45.9 (47.1)	47.2 (49.8)	46.7 (49.5)	46.2 (51.3)	42.5 (45.3)	47.4 (55.6)	44.3 (56.9)
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	46.0 (46.0)	47.9 (47.9)	53.6 (59.6)	52.7 (64.6)	47.9 (64.6)	45.2 (45.2)	50.4 (50.4)	58.9 (58.9)	61.6 (66.7)	46.9 (49.4)	-* -*	-* -*
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	49.8 (60.7)	52.7 (60.3)	48.2 (54.4)	44.8 (60.6)	42.5 (61.7)	47.1 (48.7)	51.0 (53.1)	47.7 (51.6)	47.2 (54.3)	41.4 (50.0)	49.2 (56.9)	45.5 (58.1)
NP	BFH-NMP1	Bury Farm, Great Missenden	Free-field	44.5 (49.6)	50.4 (56.6)	46.0 (52.0)	42.5 (50.3)	37.9 (51.4)	42.7 (46.2)	46.4 (48.6)	46.7 (49.1)	43.9 (48.5)	37.4 (43.4)	44.4 (50.8)	37.5 (42.5)
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	50.6 (53.7)	55.7 (60.5)	52.1 (59.4)	48.0 (55.4)	43.2 (53.0)	47.9 (51.5)	53.7 (56.0)	52.5 (55.5)	49.8 (63.1)	43.3 (50.4)	50.2 (58.6)	43.3 (50.5)
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Free-field	47.9 (52.5)	50.2 (54.6)	50.1 (56.9)	45.6 (54.0)	40.2 (51.2)	46.7 (50.0)	50.3 (52.7)	50.8 (57.2)	49.0 (62.7)	38.7 (45.4)	50.1 (61.6)	38.8 (46.1)
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	56.1 (57.5)	55.8 (58.0)	55.0 (57.0)	51.9 (56.4)	47.0 (53.6)	53.2 (54.1)	54.6 (55.8)	54.0 (55.4)	53.5 (57.6)	46.7 (54.6)	55.0 (63.0)	46.1 (52.8)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	61.1 (61.9)	61.0 (63.0)	59.6 (61.8)	56.9 (60.1)	52.7 (59.3)	57.5 (57.8)	59.7 (60.4)	59.4 (60.5)	57.8 (60.1)	52.1 (57.2)	58.0 (61.2)	52.4 (59.0)

OFFICIAL

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Saturday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )					Sunday / Public Holiday Average L <sub>Aeq,T</sub> (Highest Day L <sub>Aeq,T</sub> )	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	58.3 (60.0)	57.4 (59.3)	57.8 (59.5)	54.7 (57.6)	50.3 (57.9)	53.9 (54.5)	56.1 (57.5)	56.5 (58.2)	55.5 (58.3)	49.1 (53.2)	55.5 (59.6)	50.6 (58.5)
	PWC-NMP1	Patricia Holmes, LM Worksite, Amersham	Free-field	59.6 (60.9)	58.9 (63.9)	59.2 (60.7)	55.7 (58.8)	51.3 (58.9)	55.1 (55.7)	57.6 (59.0)	57.7 (59.3)	56.8 (59.5)	50.4 (54.2)	56.7 (60.3)	51.6 (59.2)
CSG	CSG-NMP1	CSG Worksite, Bottom House Farm Lane	Free-field	47.0 (53.9)	49.5 (53.1)	49.5 (65.0)	46.1 (60.6)	41.3 (57.9)	47.0 (52.0)	51.7 (60.0)	49.5 (50.2)	47.4 (60.9)	42.0 (56.5)	49.5 (62.4)	44.7 (61.5)
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter	Free-field	58.1 (60.4)	57.3 (58.7)	57.1 (59.0)	53.2 (56.1)	47.6 (55.2)	54.0 (55.4)	58.1 (63.8)	56.4 (57.4)	54.2 (56.6)	48.3 (52.8)	54.4 (60.8)	47.3 (54.7)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	45.9 (48.9)	49.2 (51.1)	46.4 (52.7)	44.5 (50.3)	40.2 (48.3)	43.9 (45.4)	48.6 (49.4)	50.5 (56.3)	46.3 (52.6)	41.5 (50.7)	46.6 (51.0)	41.5 (50.3)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	56.5 (58.1)	56.0 (58.1)	55.9 (57.4)	53.2 (56.2)	48.7 (55.2)	53.3 (54.3)	55.9 (57.5)	55.8 (57.3)	54.2 (57.2)	48.2 (52.6)	54.3 (59.0)	48.5 (54.9)
CVV	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	62.7 (64.0)	61.4 (62.5)	61.3 (63.1)	57.4 (63.4)	53.7 (62.8)	58.4 (59.2)	60.4 (61.2)	60.8 (62.4)	58.9 (63.3)	50.8 (55.5)	58.5 (64.7)	55.0 (62.3)
	DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	48.2 (54.1)	49.6 (63.9)	48.3 (52.4)	45.6 (52.5)	42.8 (52.5)	46.5 (48.8)	47.0 (48.7)	46.7 (48.1)	46.9 (54.0)	42.3 (50.2)	46.0 (51.7)	42.6 (49.9)
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	48.1 (51.6)	48.4 (56.4)	46.2 (49.7)	44.2 (51.1)	42.3 (55.0)	46.6 (48.3)	47.1 (48.1)	45.7 (54.5)	45.7 (52.8)	41.7 (48.2)	45.9 (49.9)	41.9 (50.1)

\* Missing data at monitor GD-NMP1 was due to monitor re-installation on 28<sup>th</sup> September.

OFFICIAL

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	1.07 (Y-axis)
OC	BP-Vib1	Booker Park School, Aylesbury	4.61 (X-axis)
	WF-Vib1	41 Westfield, Hawkslade	5.30 (Y-axis)
WGT	ER-Vib 1	46, Ellesborough Rd, Wendover	8.91 (X-axis)
WDV	WDV-Vib1	Upper Wendover Dean Farm, A413, Wendover	0.97 (X-axis)
GF	GF-Vib1	Grove Farm, Wendover	1.09 (Z-axis)
WDL	WDL-Vib1	Station Road, Quainton	2.82 (X-axis)
SHC	SHC-Vib1	School Hill Compound, Calvert	4.11 (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	Weekdays	0800-1800	2	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	4	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	Weekdays	0800-1800	5	No exceedance
CAL	SHC-NMP1	School Hill Compound, Calvert	All days	All periods	Not Applicable	Not Applicable
	FCC-NMP1	Calvert South	Saturdays	1400-2200	2	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	4	No exceedance
				0800-1800	21	No exceedance
			Saturdays	1800-1900	1	No exceedance
				1300-1400	2	No exceedance
				1400-2200	2	No exceedance
QAR	QAR-NMP2	Station Rd, Quainton	Weekdays	0800-1800	2	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Weekdays	0800-1800	1	No exceedance
OC	MF-NMP1	Moat Farm, Marsh Lane	All days	All periods	No exceedance	No exceedance
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Weekdays	1900-2200	6	No exceedance
			Saturday	1400-2200	1	No exceedance
			Sundays	0700-2200	9	No exceedance
Nights			2200-0700	130	9	
BP-NMP1	Booker Park School, Aylesbury	Weekdays	0700-0800	1	No exceedance	
			1800-1900	1	No exceedance	
			1900-2200	5	No exceedance	
		Saturdays	1400-2200	5	No exceedance	
		Sundays	0700-2200	13	2	
		Nights	2200-0700	110	14	
ML-NMP1*	Marsh Lane, Aylesbury	Weekdays	0700-0800	1	No exceedance	
			0800-1800	1	No exceedance	
			1800-1900	1	1	
			1900-2200	9	2	
		Saturdays	1400-2200	5	No exceedance	
		Sundays	0700-2200	2	No exceedance	
		Nights	2200-0700	40	10	
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Weekdays	0800-1800	2	No exceedance
	NLL-NMP2	Nash Lee Lane, Nash Lee	Weekdays	0800-1800	4	No exceedance
Saturdays			0800-1300	1	No exceedance	

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
WGT	ER-NMP1	Ellesborough Rd, Wendover	All days	All periods	No exceedance	No exceedance
	BL-NMP1	Bacombe Lane, Wendover	Weekdays	0800-1800	1	No exceedance
	WT-NMP1	A413, Wendover	Weekdays Saturdays	0800-1800 0800-1300	21 1	No exceedance No exceedance
GF	GF-NMP1	Grove Farm, Wendover	All days	All periods	No exceedance	No exceedance
SDVC	SDVC-NMP1	Rocky Lane, Wendover	All days	All periods	No exceedance	No exceedance
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Weekdays	0800-1800	1	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
WDV	WDV-NMP1	A413, Wendover	Weekdays	0800-1800	2	1
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	All days	All periods	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	All days	All periods	No exceedance	No exceedance
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Weekdays Saturdays	1800-1900 1900-2200 1400-2200	2 2 1	No exceedance No exceedance No exceedance
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Saturdays	1400-2200	1	No exceedance
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekdays Saturdays	1900-2200 1400-2200	1 1	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



Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	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
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
CVV	CVV-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance
	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 nineteen (19) monitoring locations during the month of September 2023. LOAEL exceedances were recorded during weekdays, evenings, Saturdays, Sundays and night-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 September 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
OC	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	5
OC	BP-NMP1	Booker Park School, Aylesbury	5
OC	ML-NMP1	Marsh Lane, Aylesbury	5
WDV	WDV-NMP1	A413, Wendover	1

2.2.8 Sixteen (16) SOAEL exceedances were recorded due to HS2 construction works during September 2023. The exceedance occurred at WES-NMP1, BP-NMP1, ML-NMP1 and WDV-NMP1 during weekday, Sunday and night-time 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
-	-	-	-	-	-

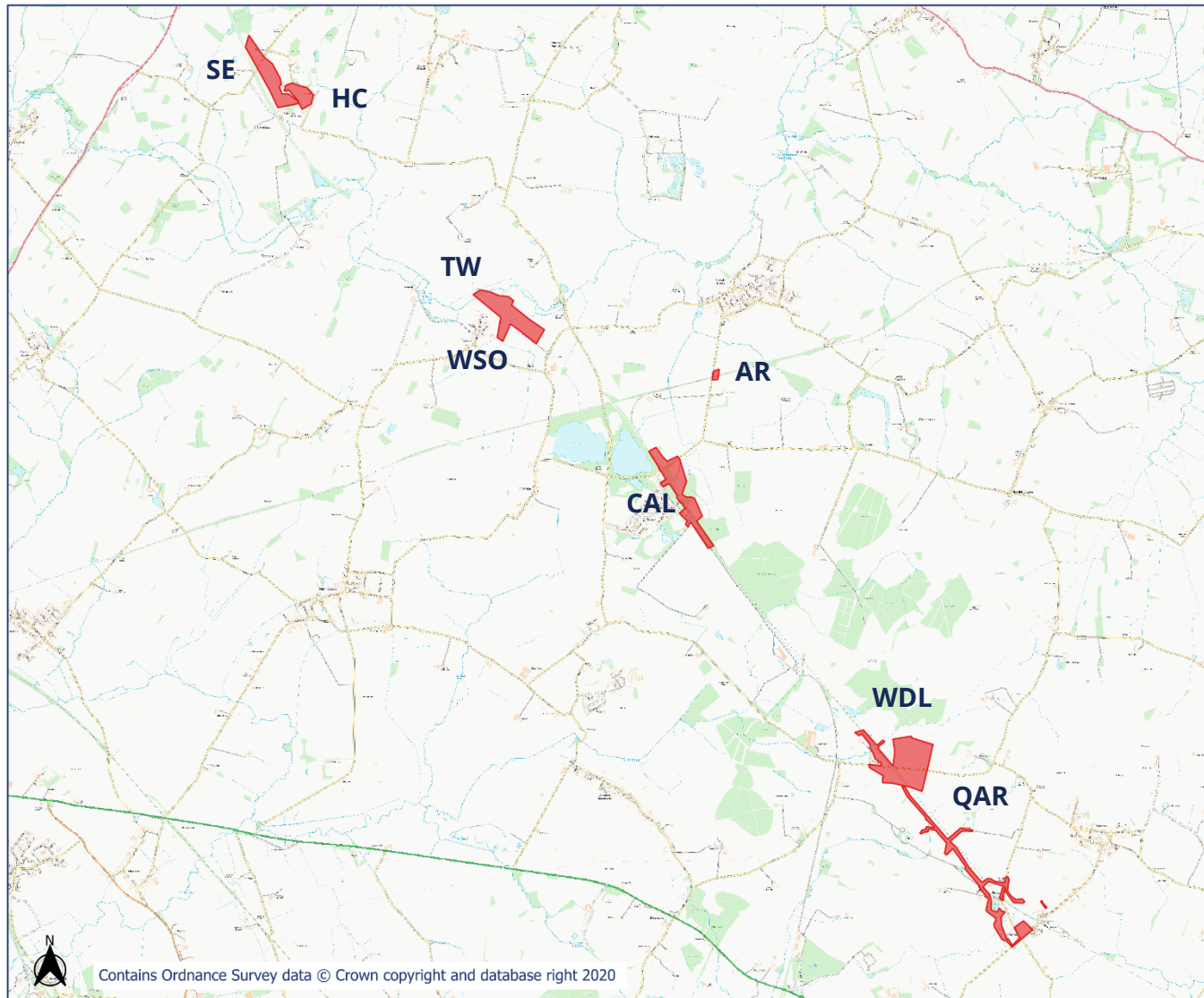
## 2.4 Complaints

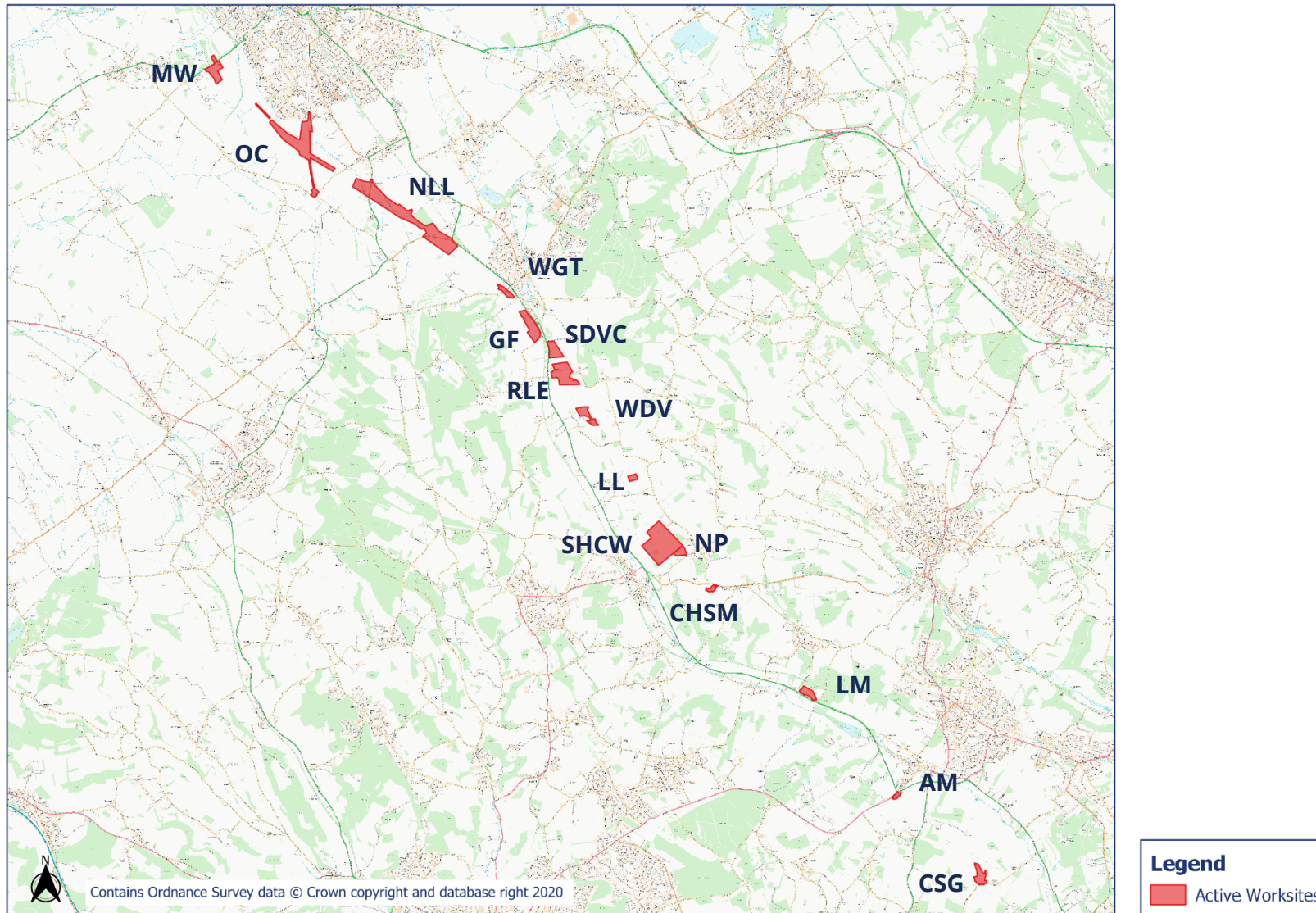
2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

Table 8: Summary of Complaints

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-23-100440-E-C	CAL	Complaint due to noise from works during the night-time causing sleep disturbance.	Works were in line with consented working hours. The works are now complete. Disturbance may have been due to other works in the area which were not related to HS2.	Stakeholder has been informed of the results of the investigation.
HS2-23-100645-E-C HS2-23-100579-E-C HS2-23-100411-E-C HS2-23-44950-C HS2-23-44971-C	OC	Complaint regarding noise at night from nearby works, including heavy breaker, drilling and banging noise.	Noise due to realignment railway works that are necessary for new railway to be constructed. Work due to finish on 30/10/23. Works are in line with consented working hours and noise monitoring is in place. No noise exceedances have been found to date.	The results of the investigation and a copy of the works notice has been provided to the resident.
HS2-23-100958-E-C	NLL	Disturbance due to generator noise during the night.	Investigation has found no generator used at location provided.	Stakeholder has been informed of the results of the investigation.
HS2-23-101034-E-C HS2-23-101136-E-C	NLL	Complaint due to generator noise at night.	Noise disturbance due to a faulty generator which has now been repaired.	Stakeholder has been informed of the results of the investigation.
HS2-23-44922-C	CAL	Vibration during the day.	Vibration disturbance due to roller use for earthworks. Vibration monitoring is underway and showed levels were within permitted limits.	Resident has been updated with the details from the investigation and provided with the opportunity for further discussion with an engagement manager if needed.
HS2-23-44942-C	CAL	Complaint due to constant tapping and droning noise coming from site.	Noise disturbance due to concrete pours. Noise monitoring is in place and no exceedances were recorded.	Stakeholder has been informed of the results of the investigation.
HS2-23-44962-C	WDL	Noise and vibration experienced at property.	Vibration disturbance due to use of heavy rollers, which have been exchanged for dead rollers, to decrease the vibration.	Resident has been updated with the details from the investigation.

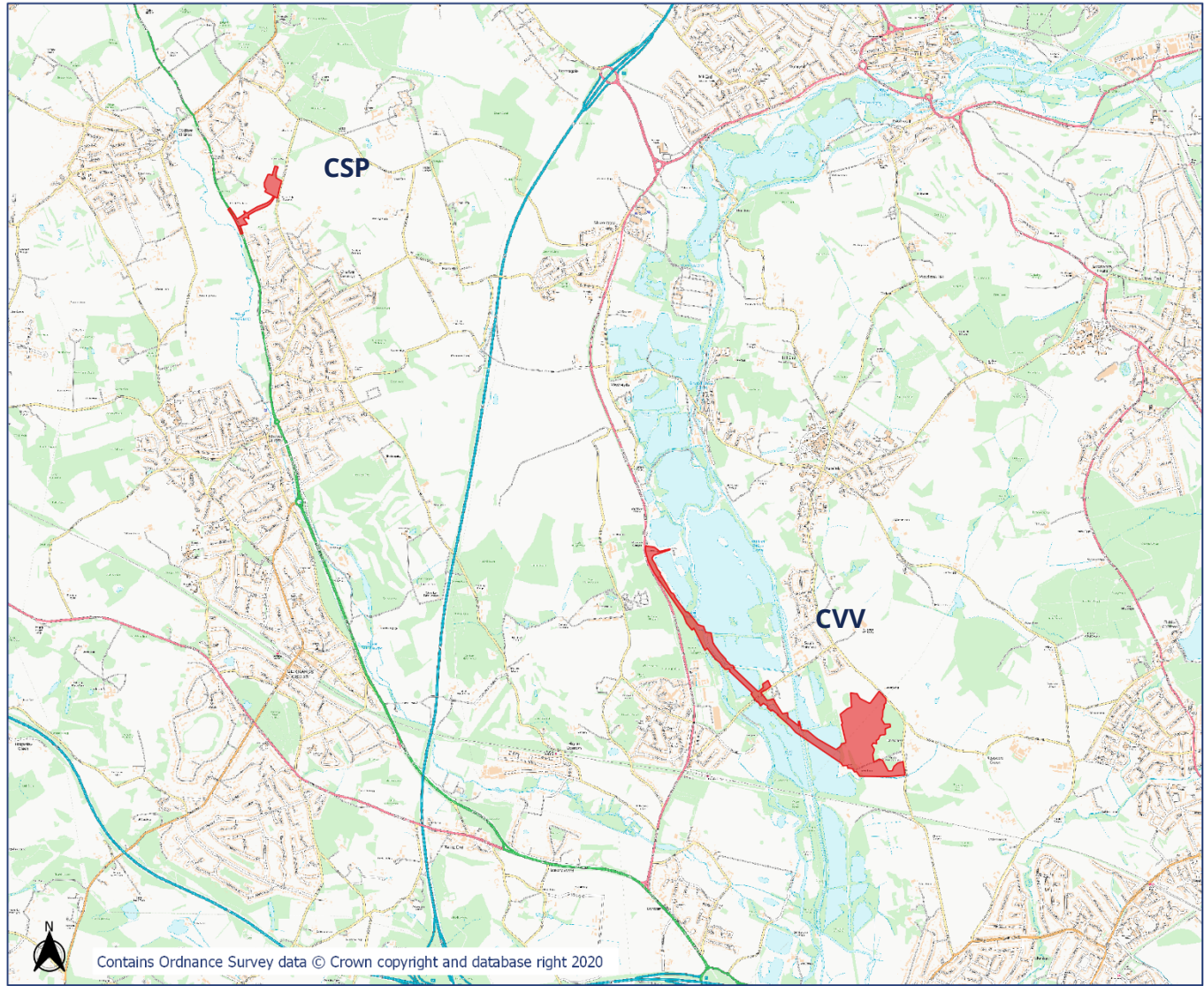
# Appendix A Site Locations



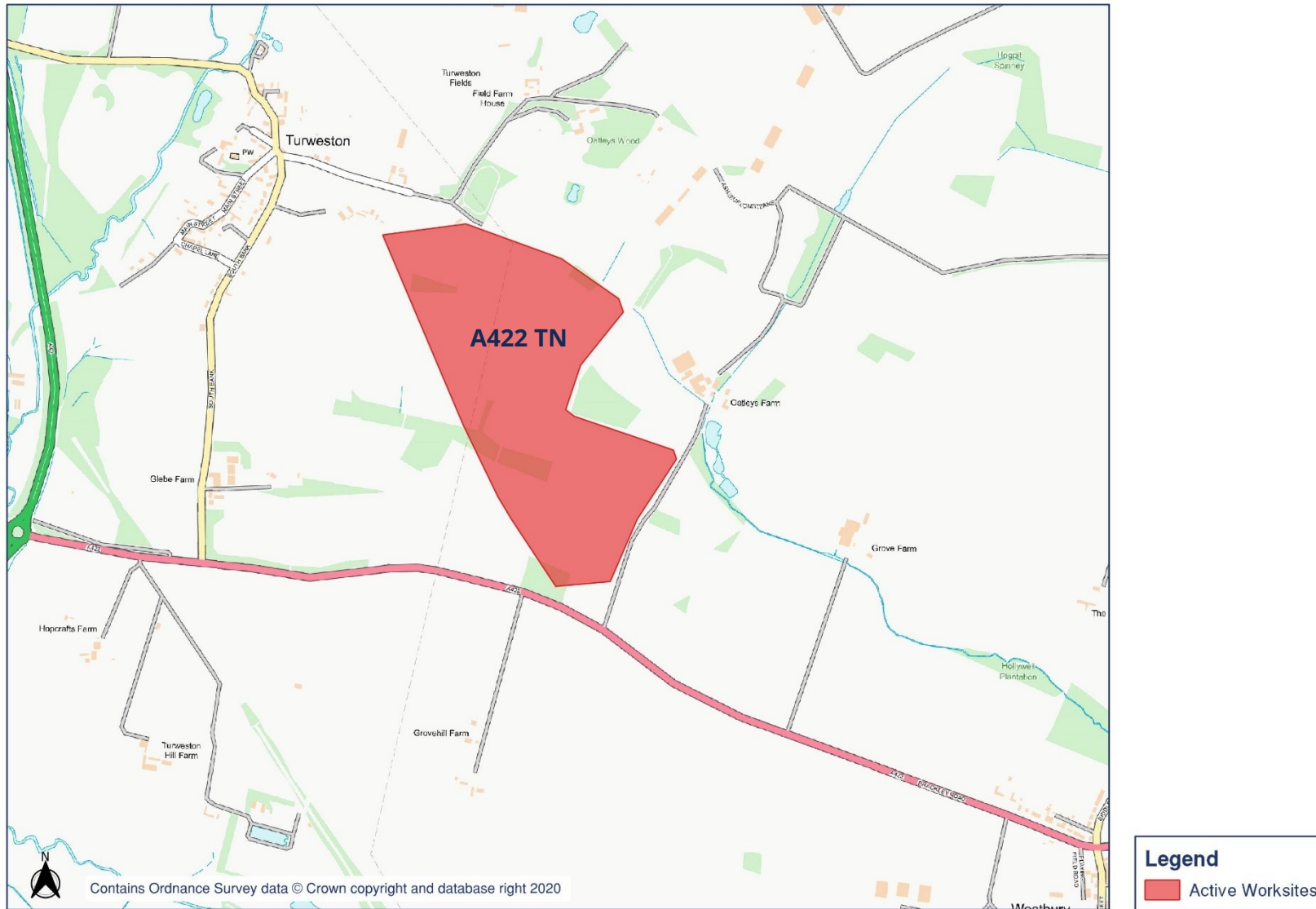




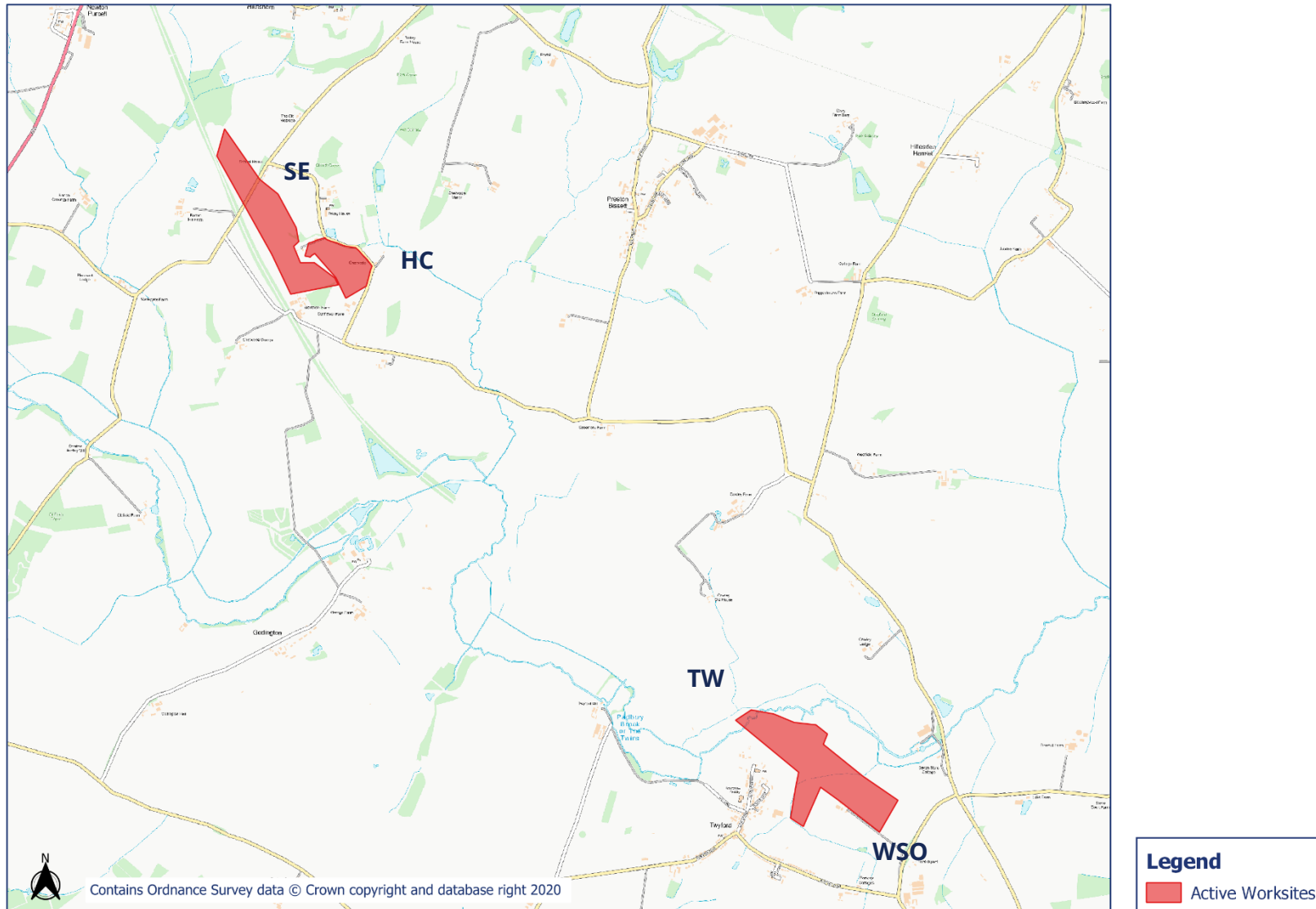
# HS2 Worksite Identification Plan - Overview 3

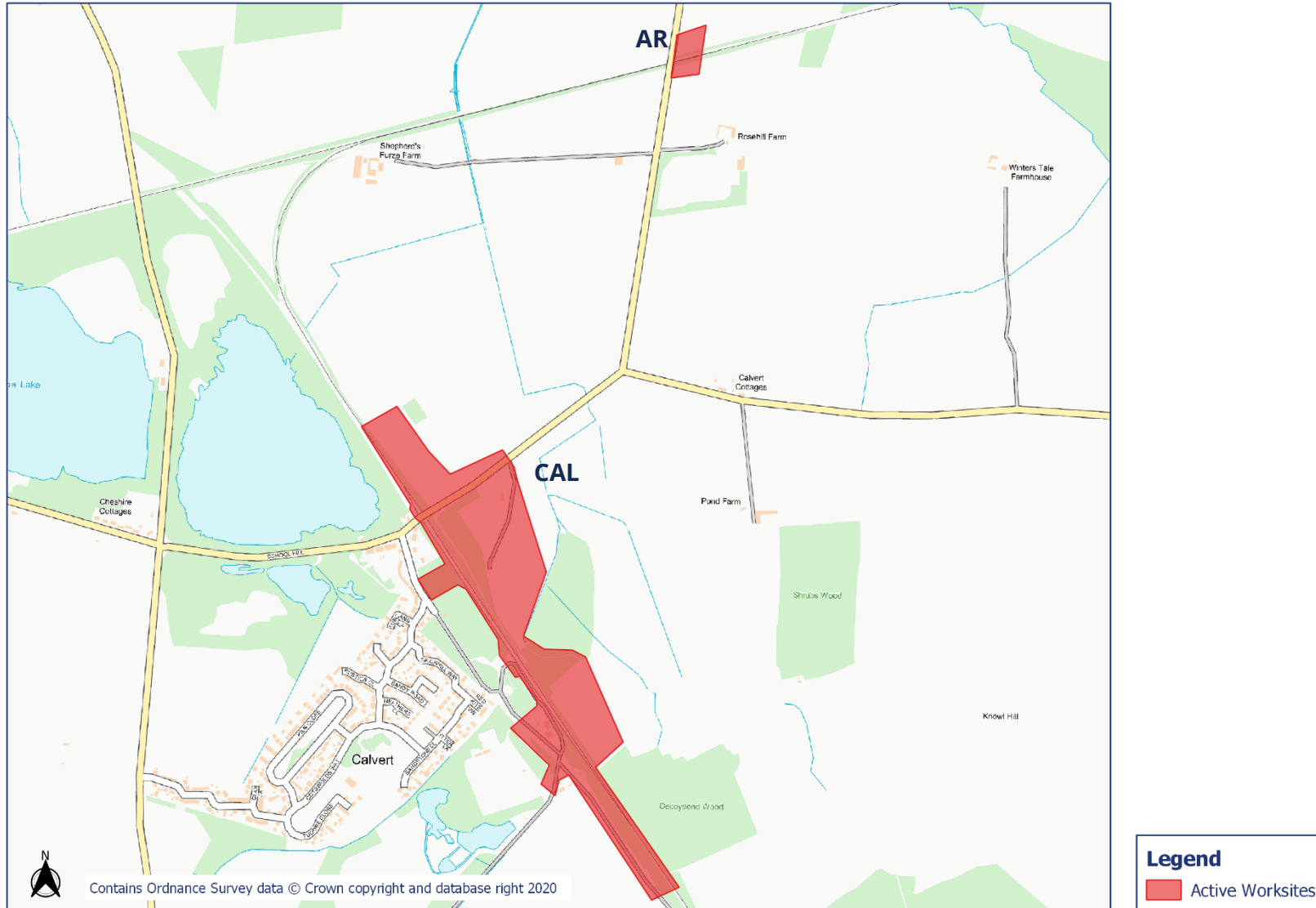


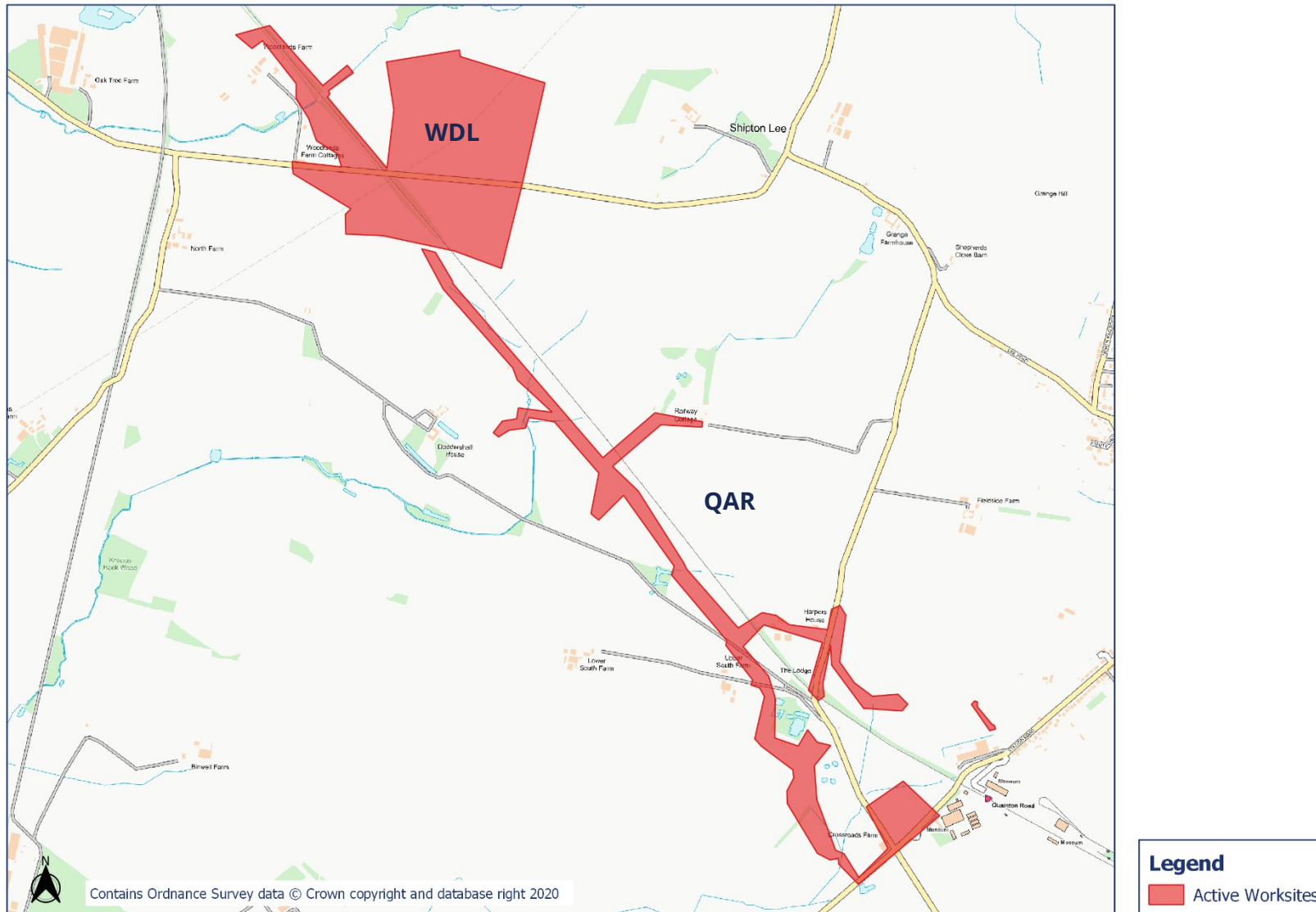
OFFICIAL

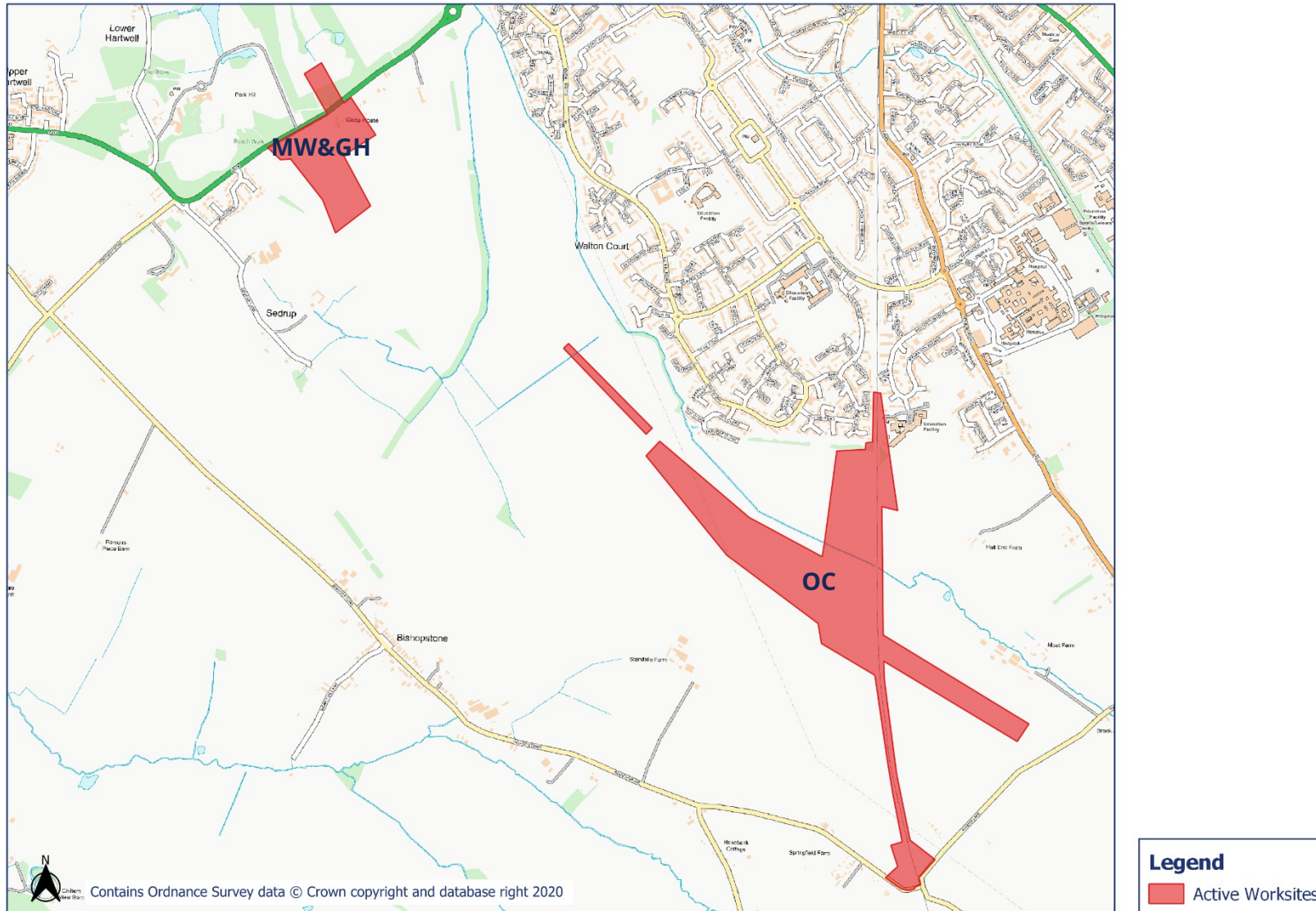




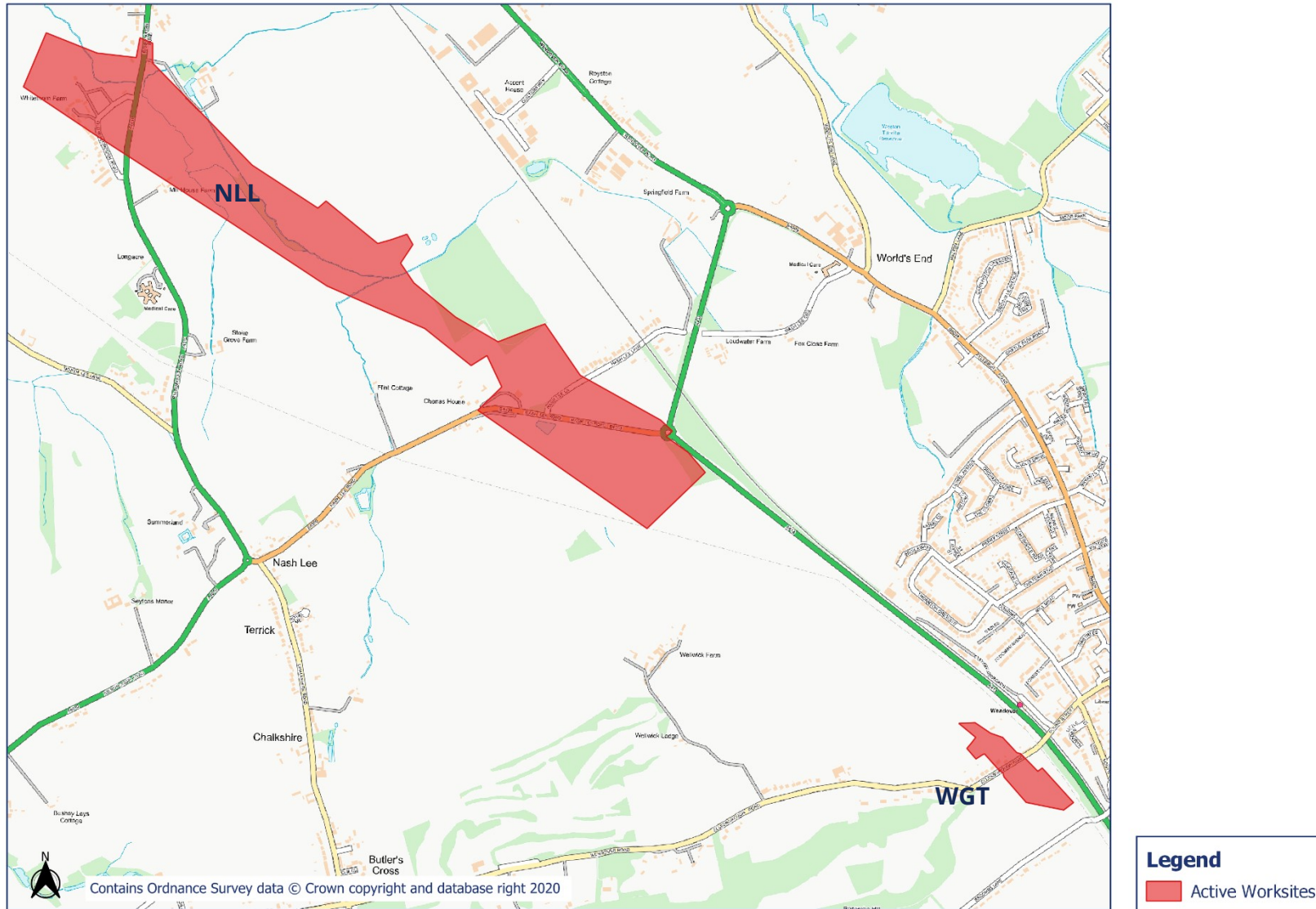


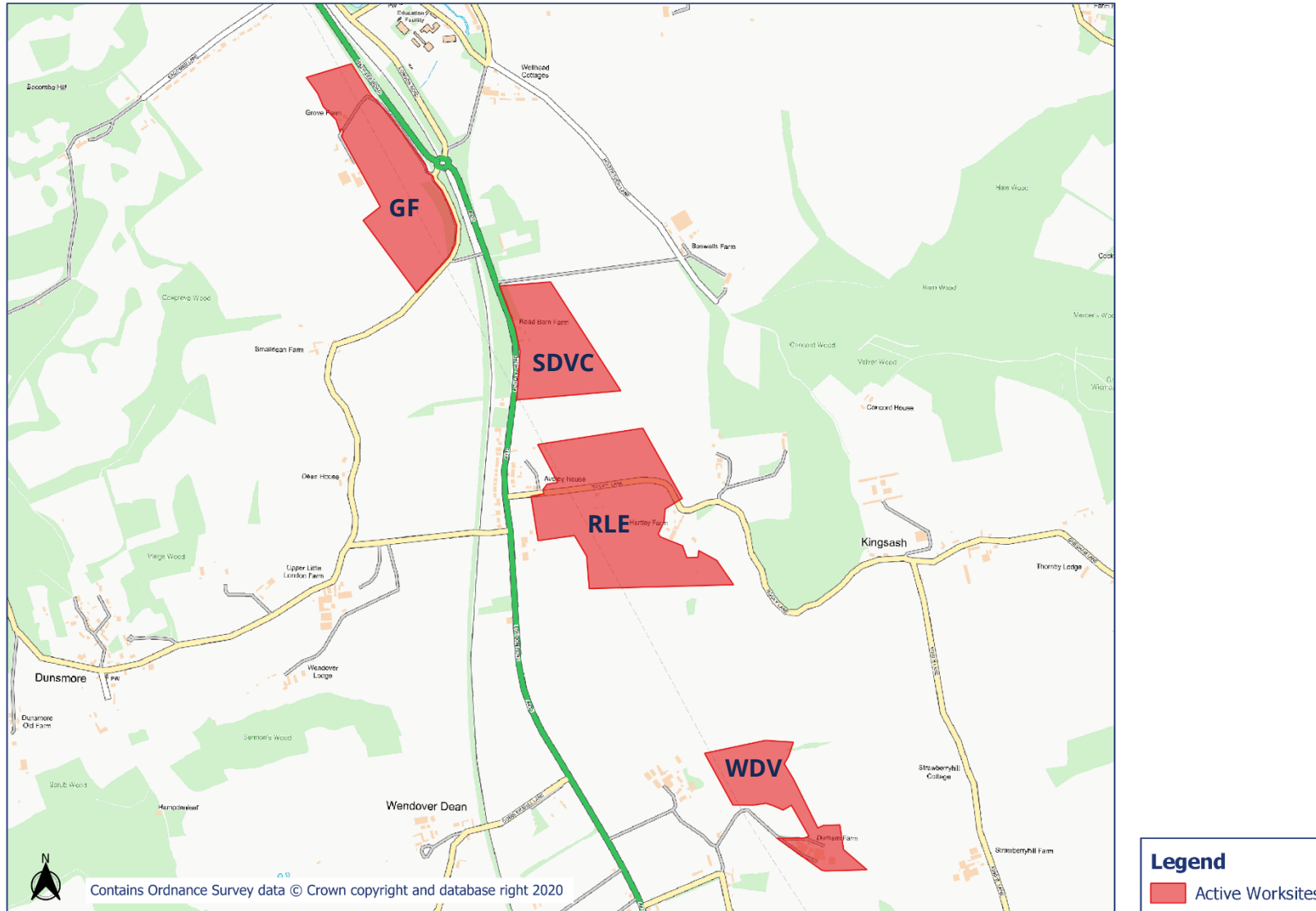


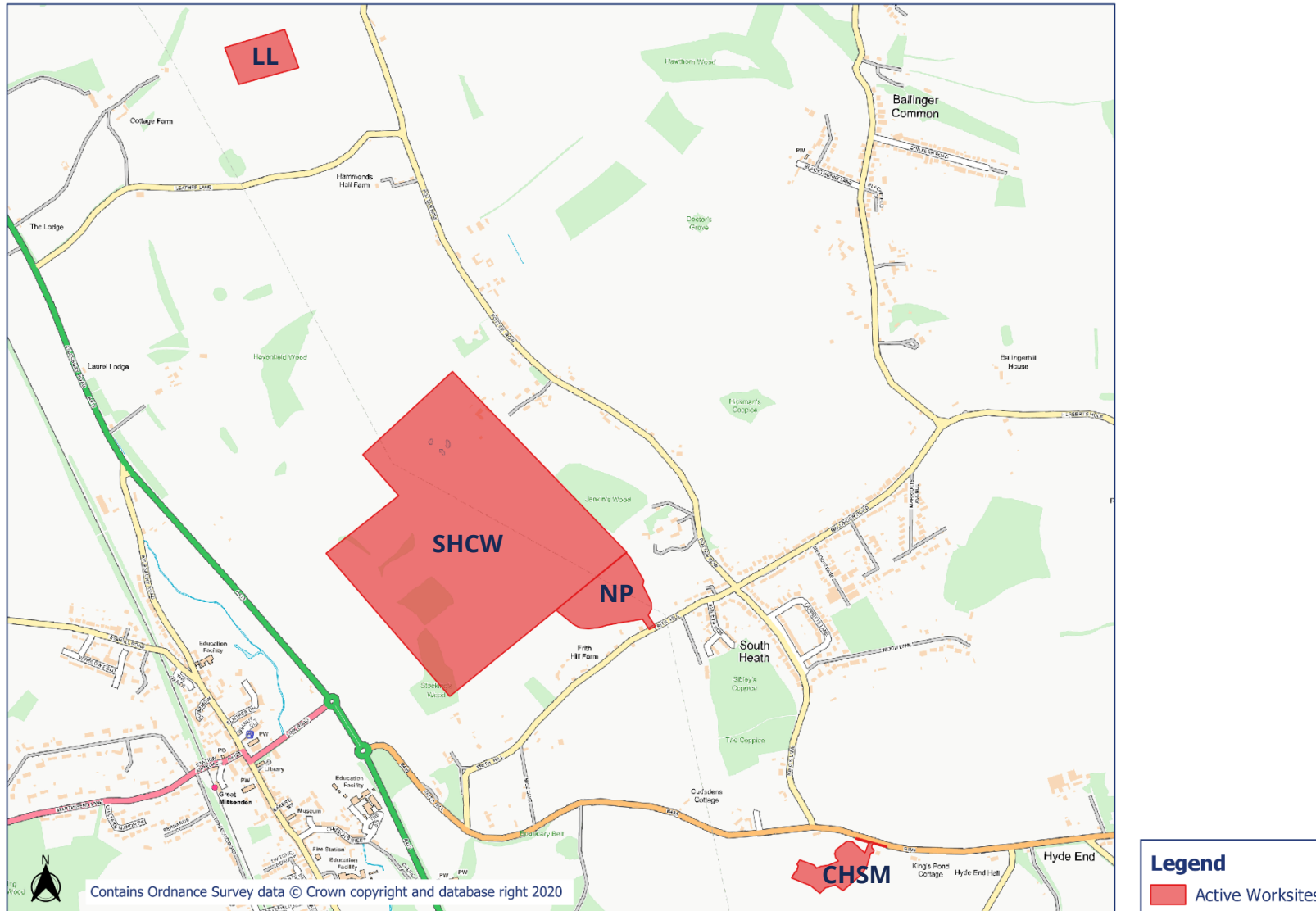






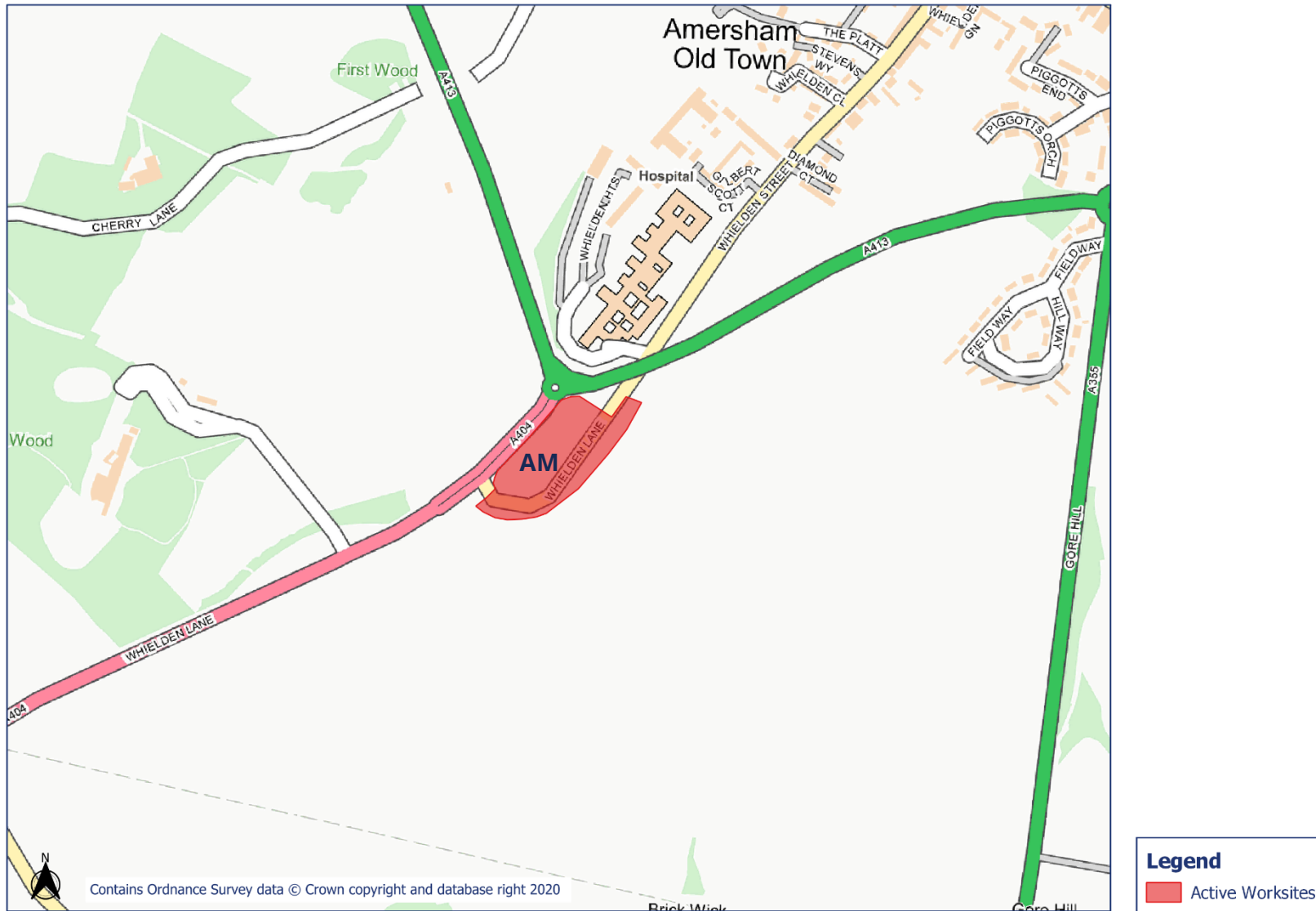






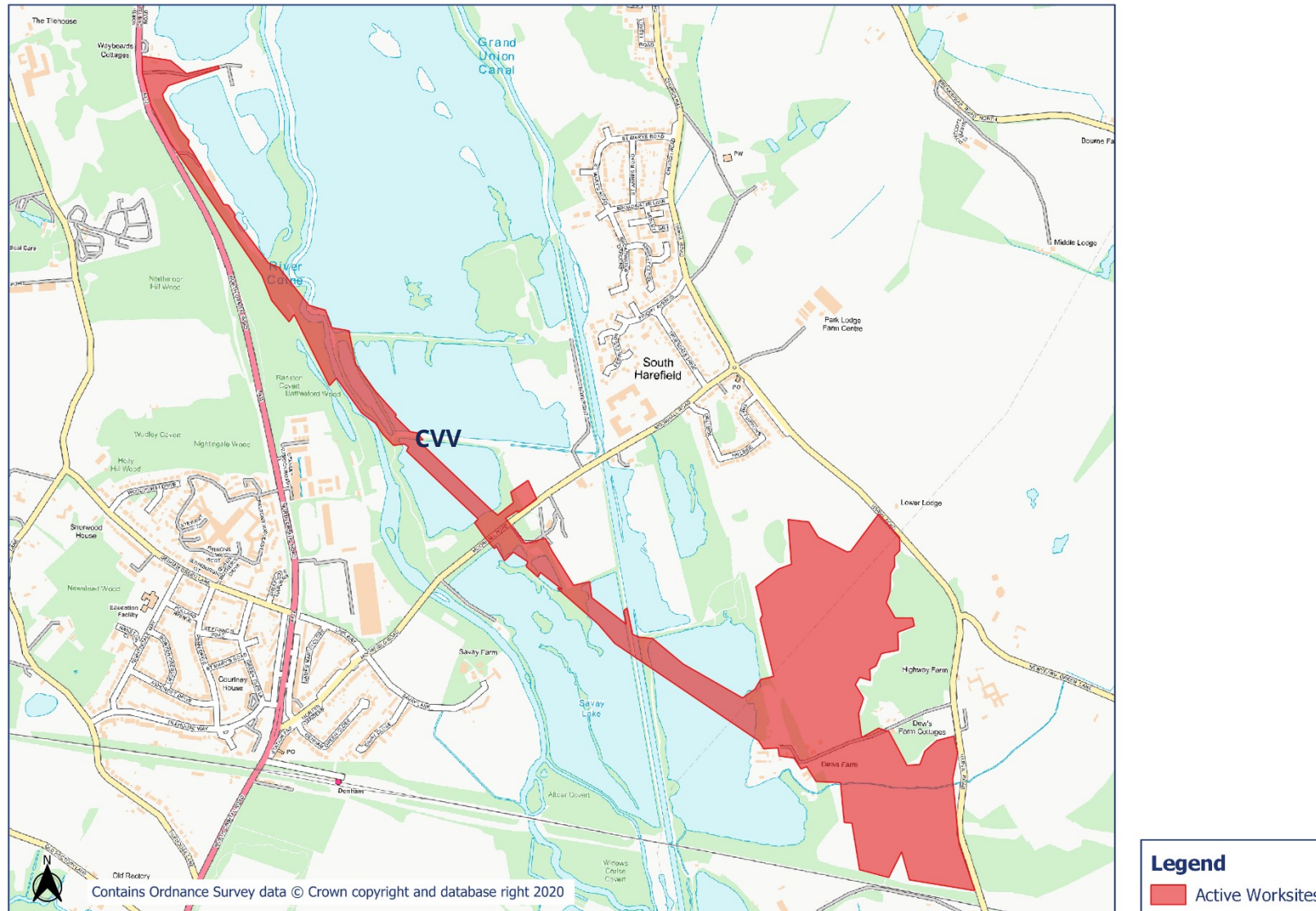






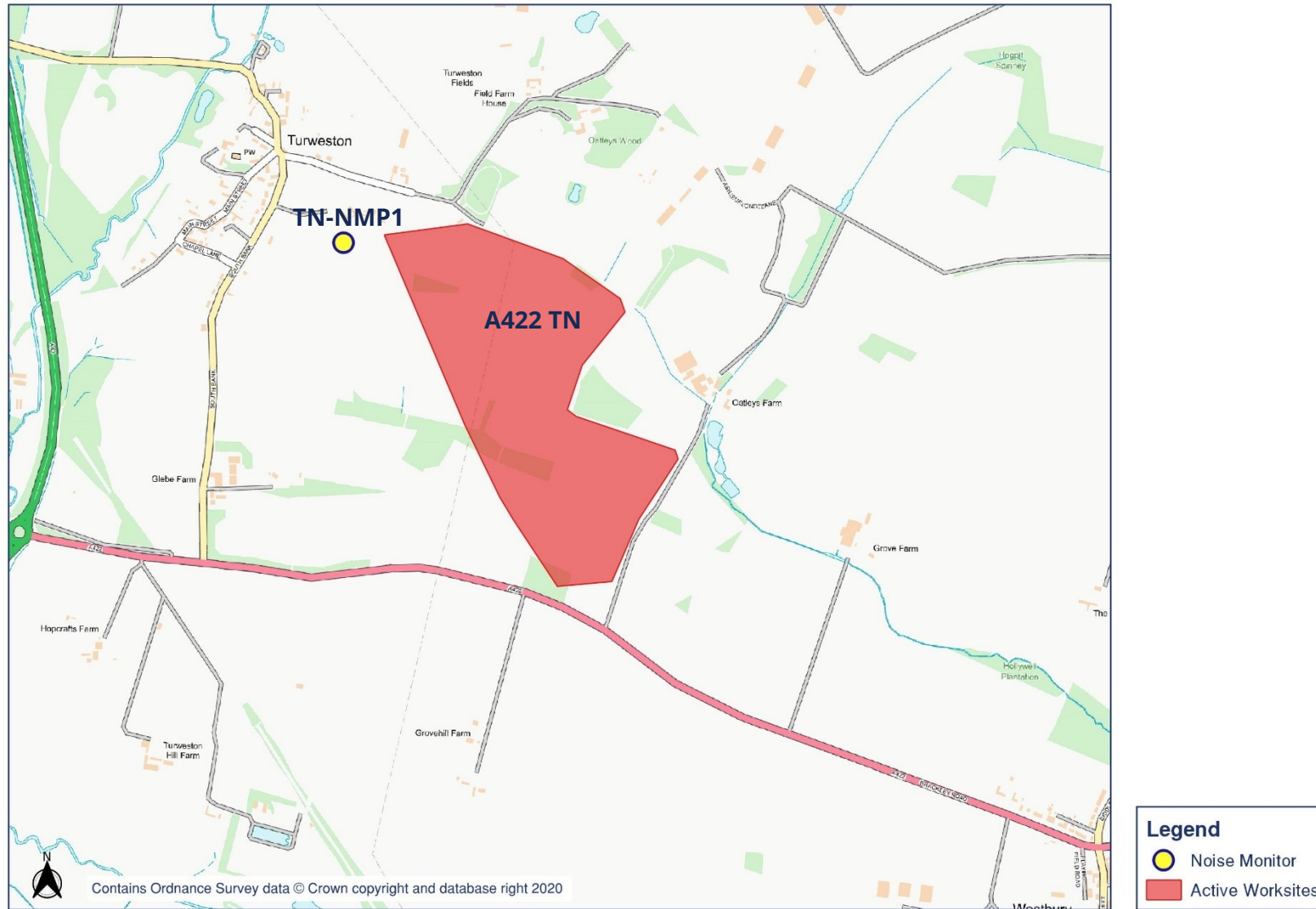


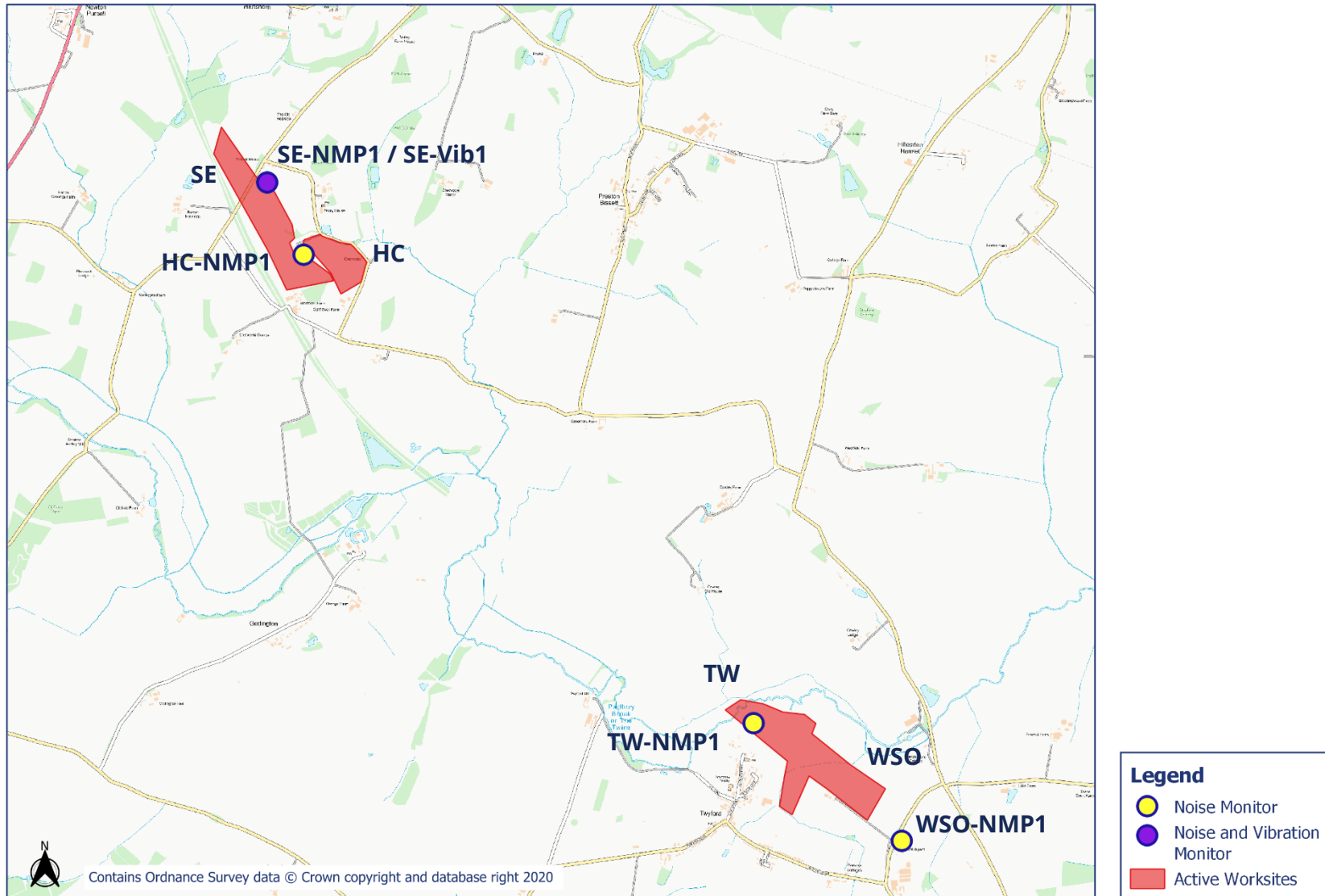




# Appendix B Monitoring Locations

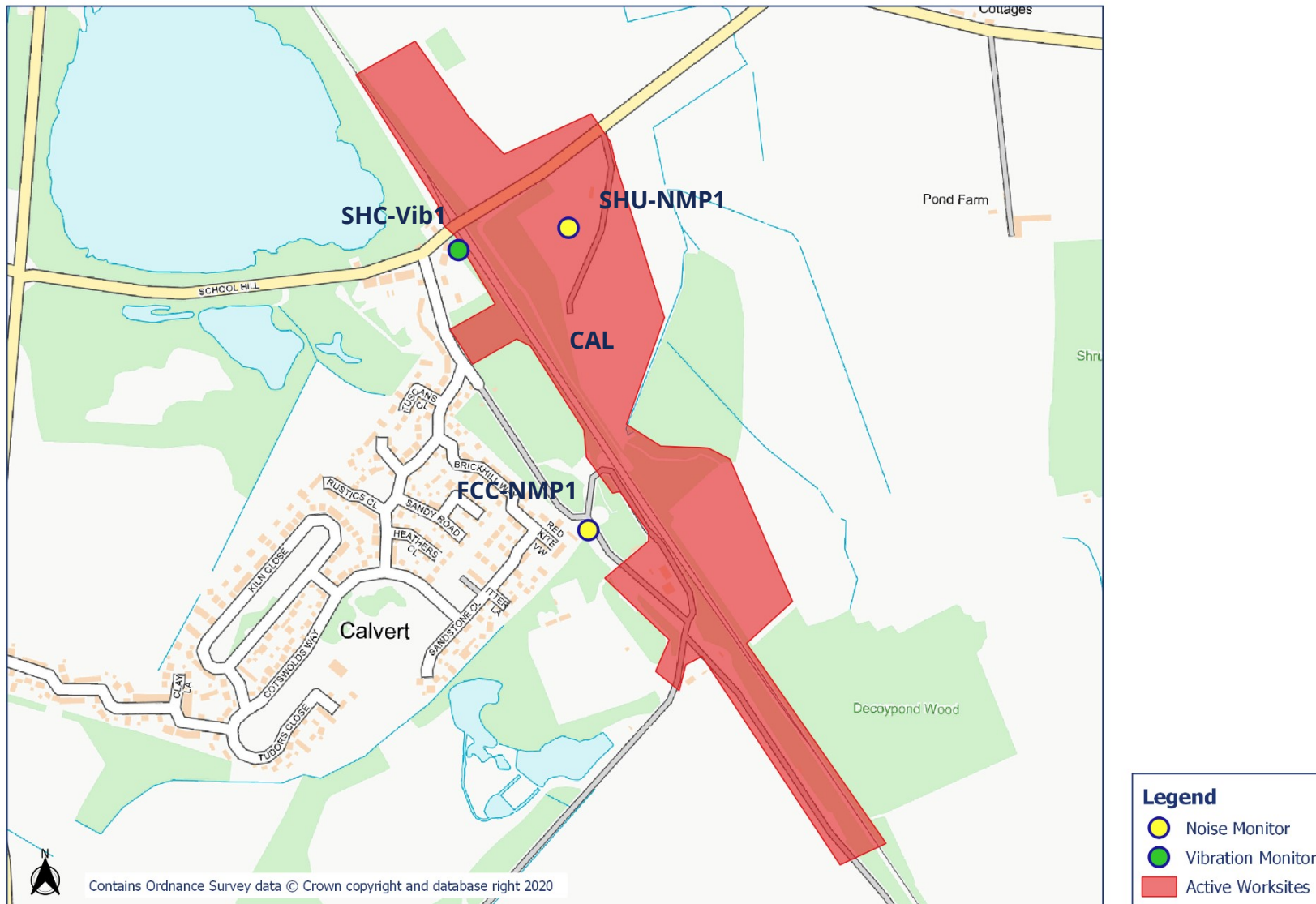


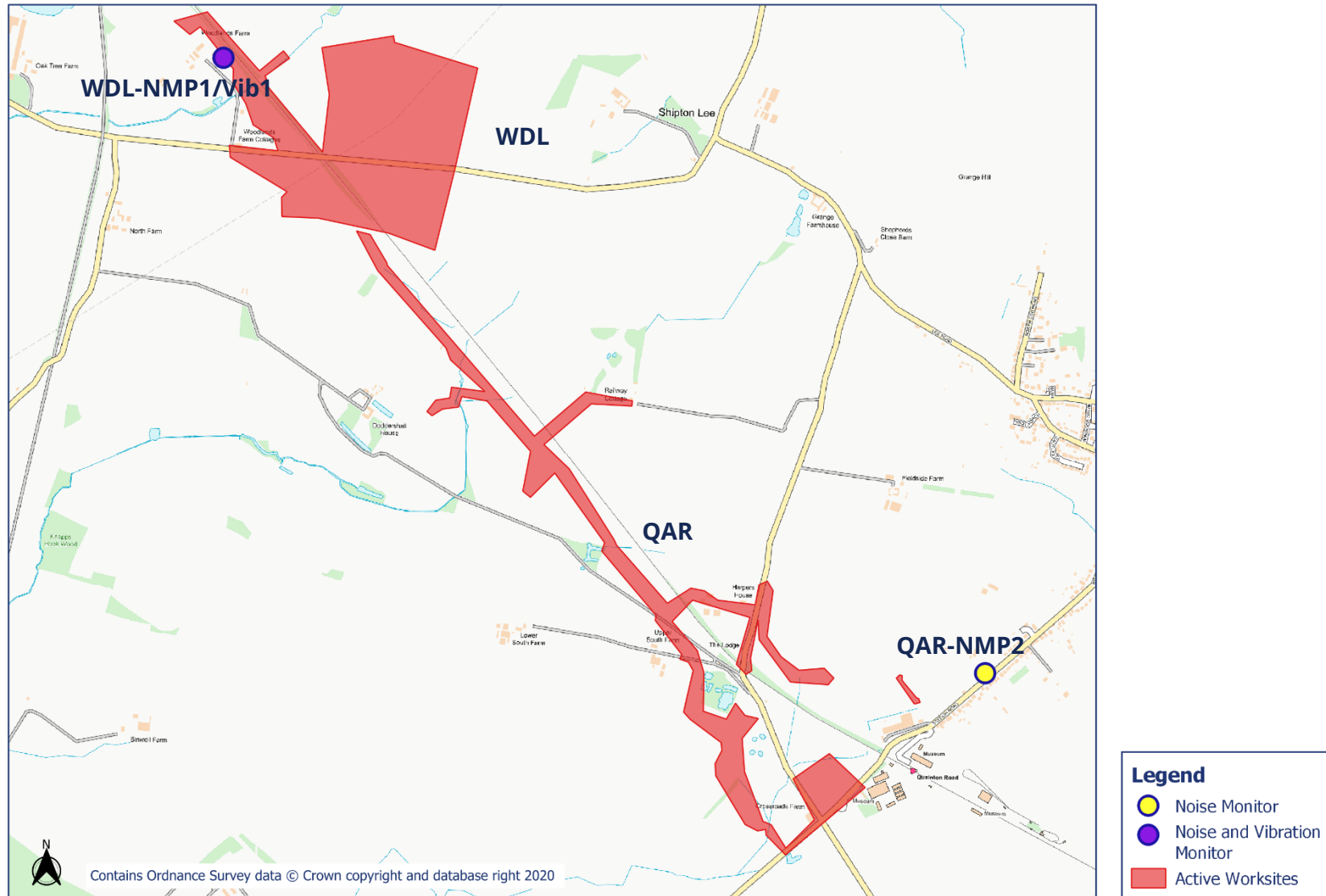


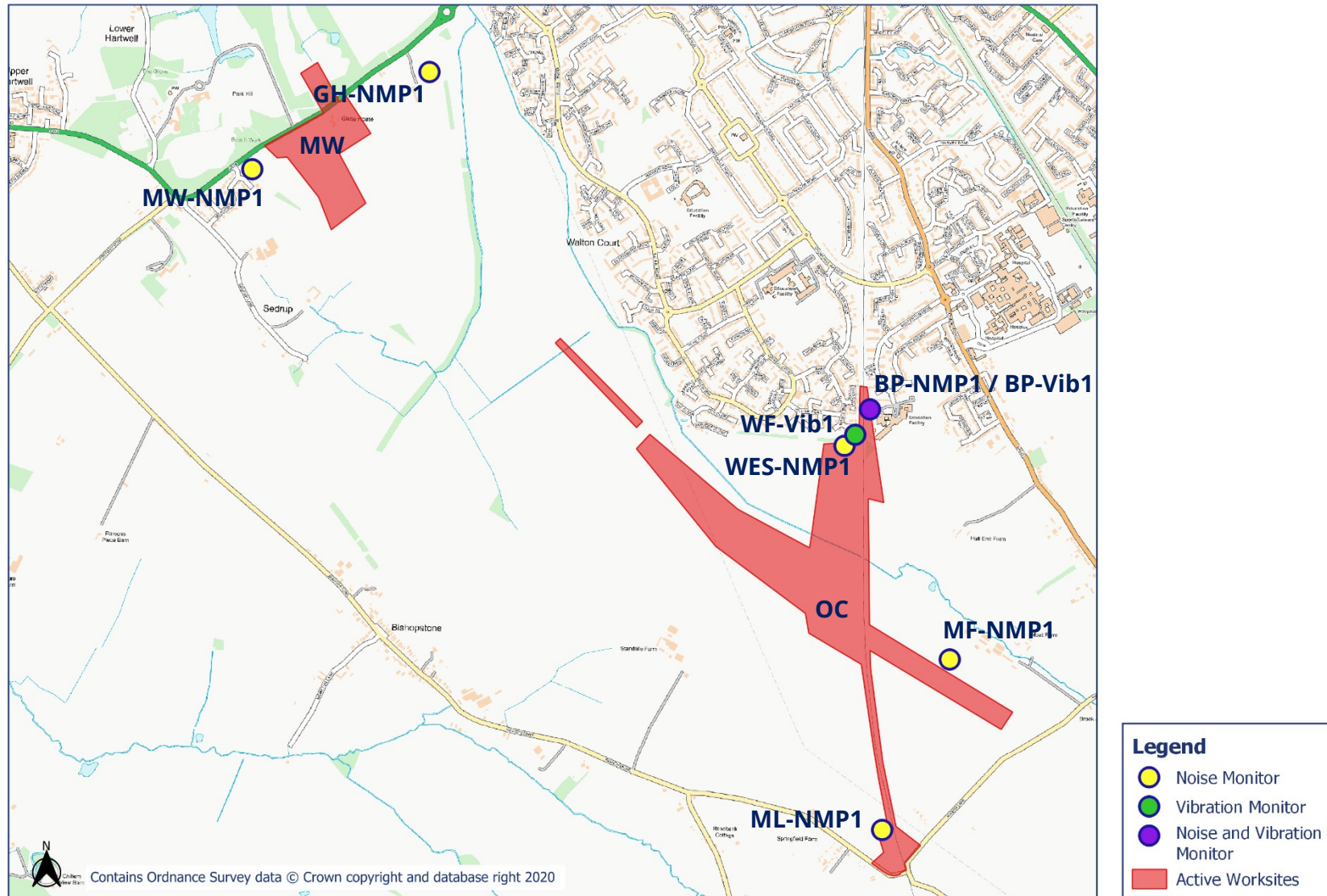


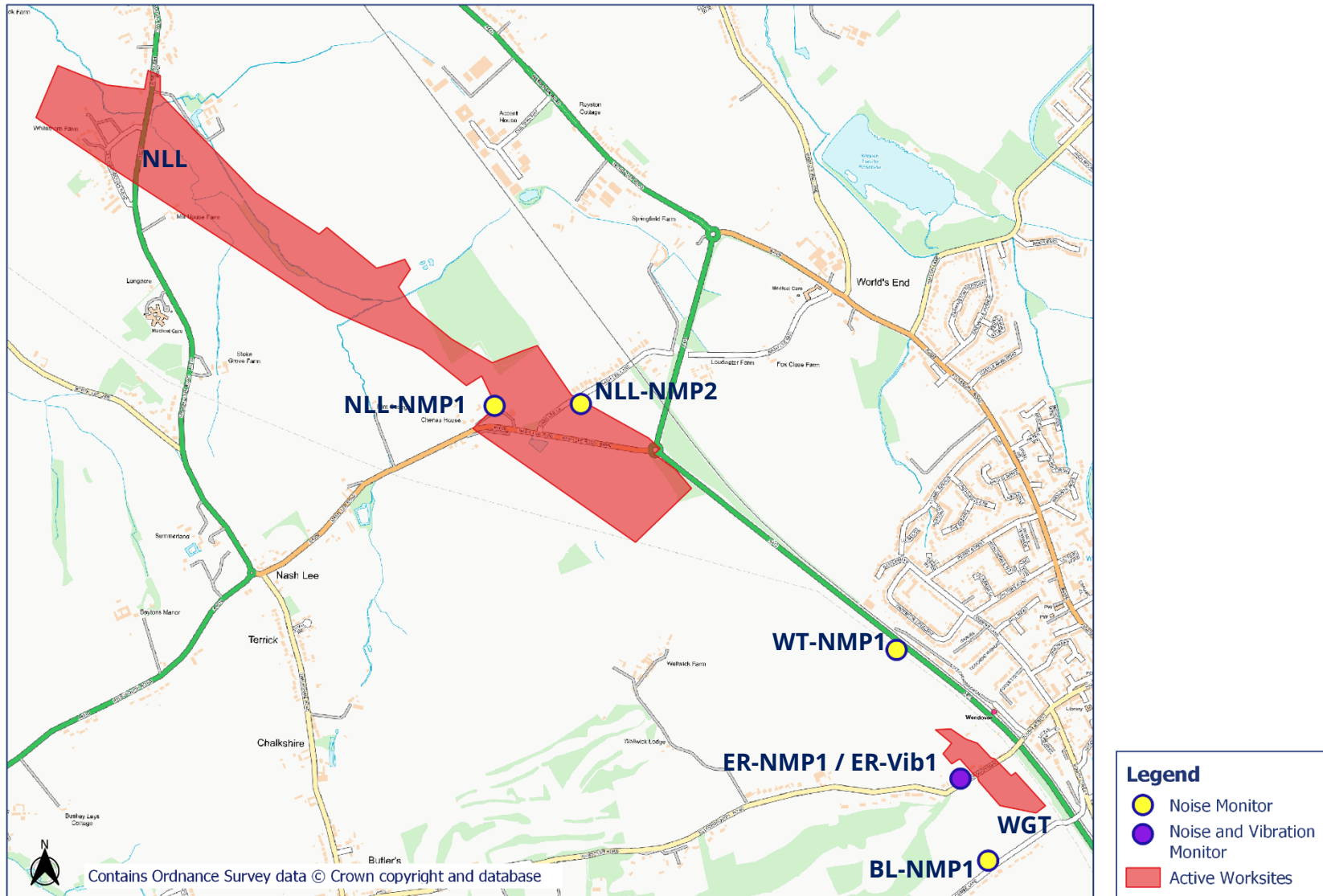




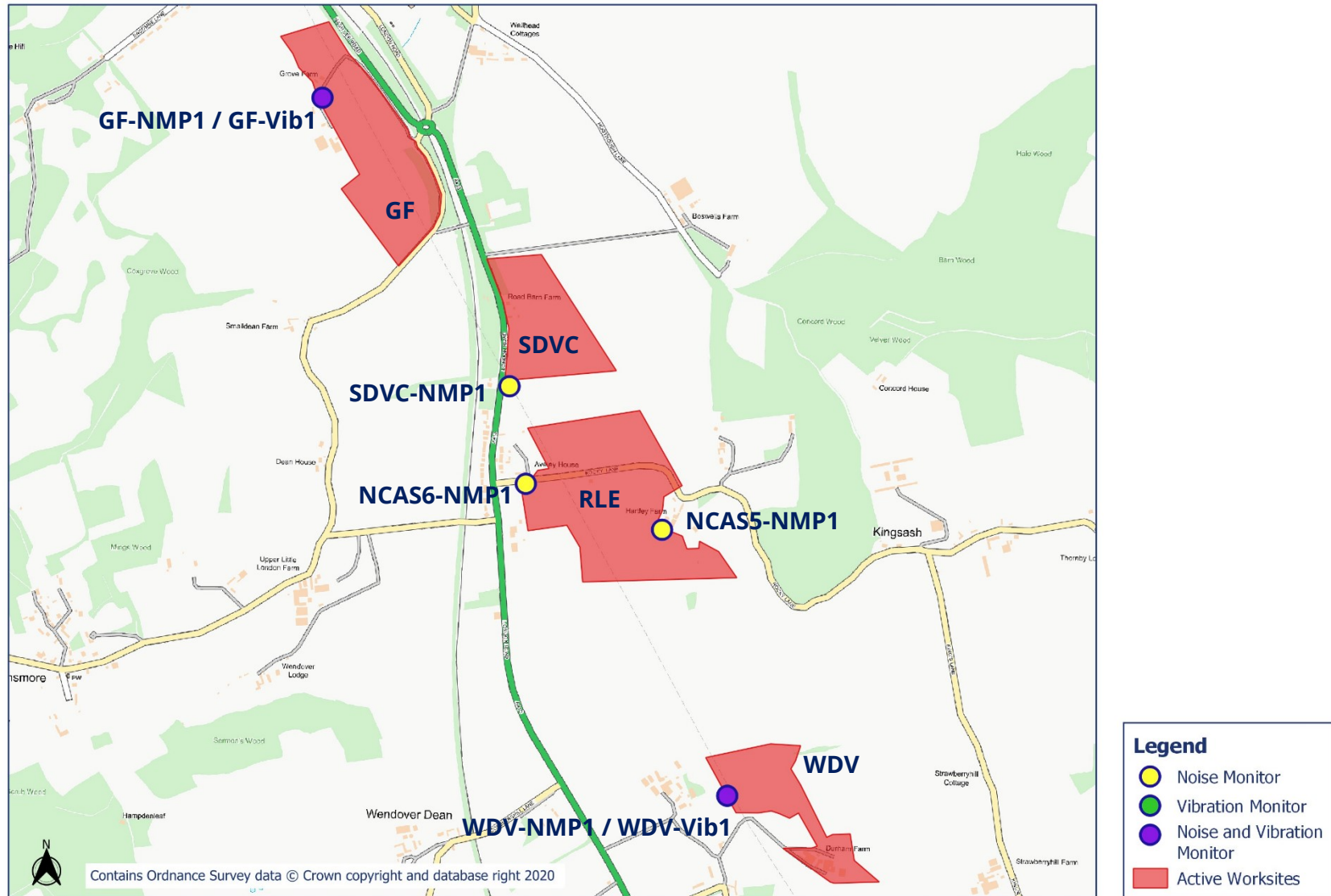


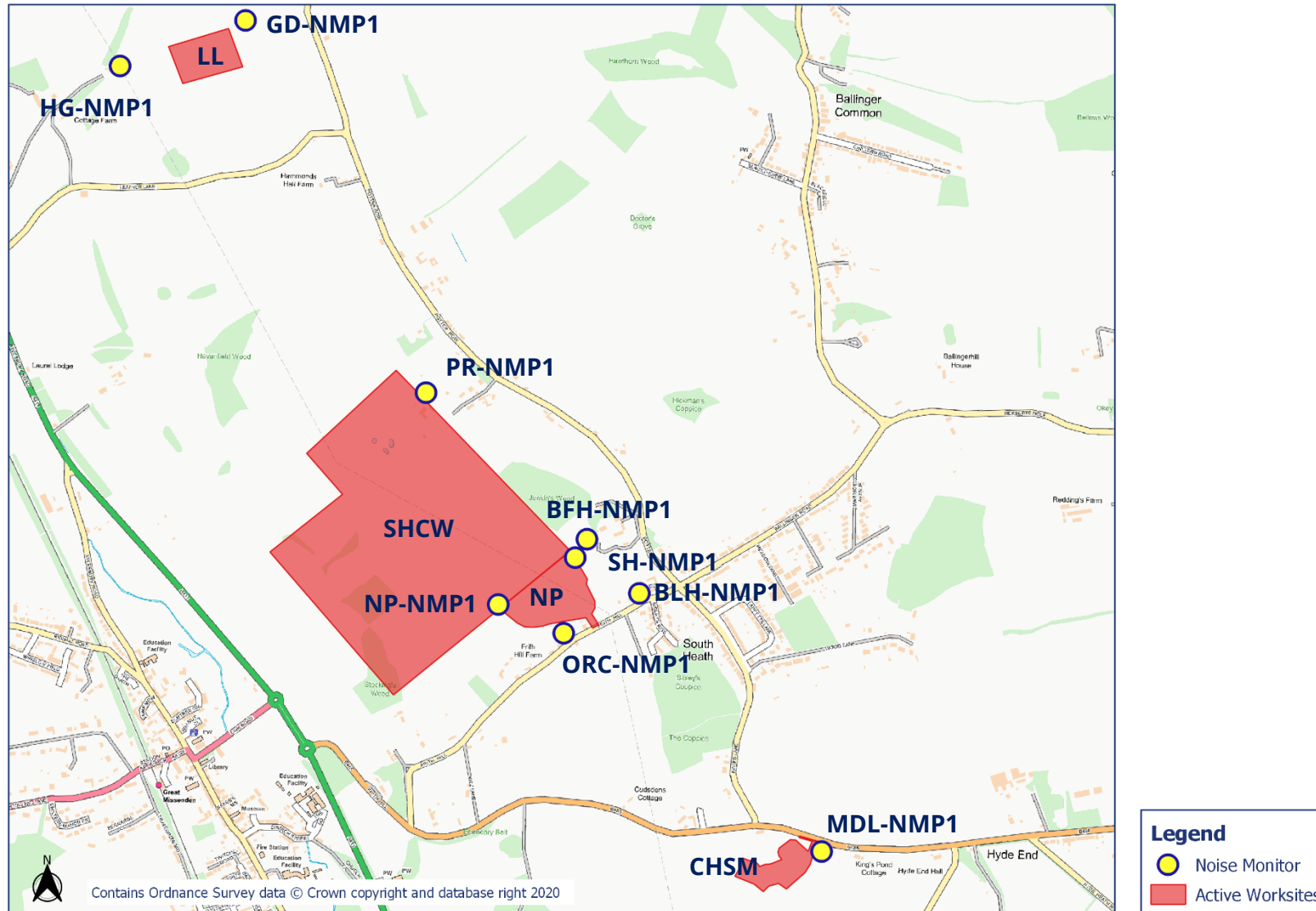




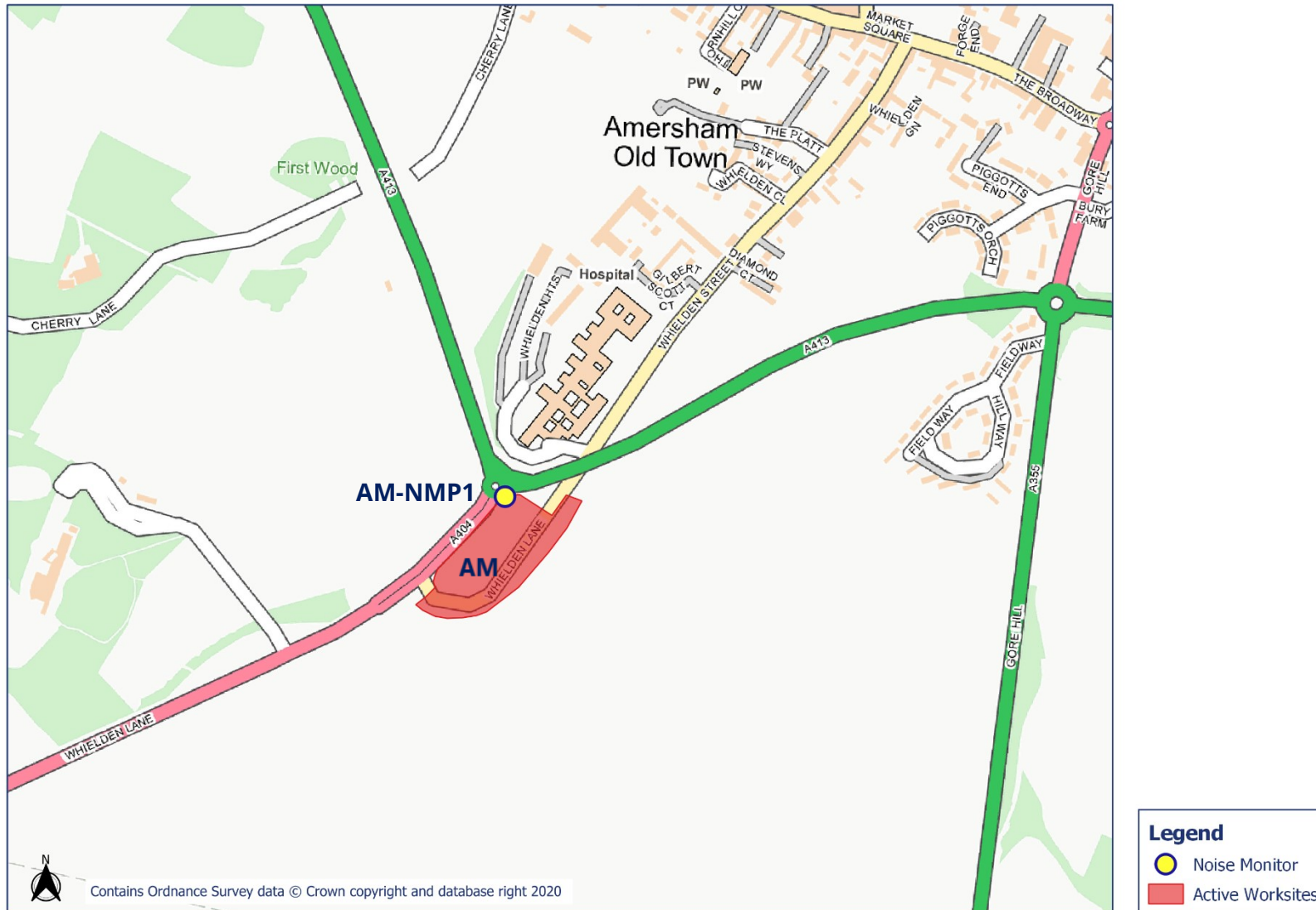








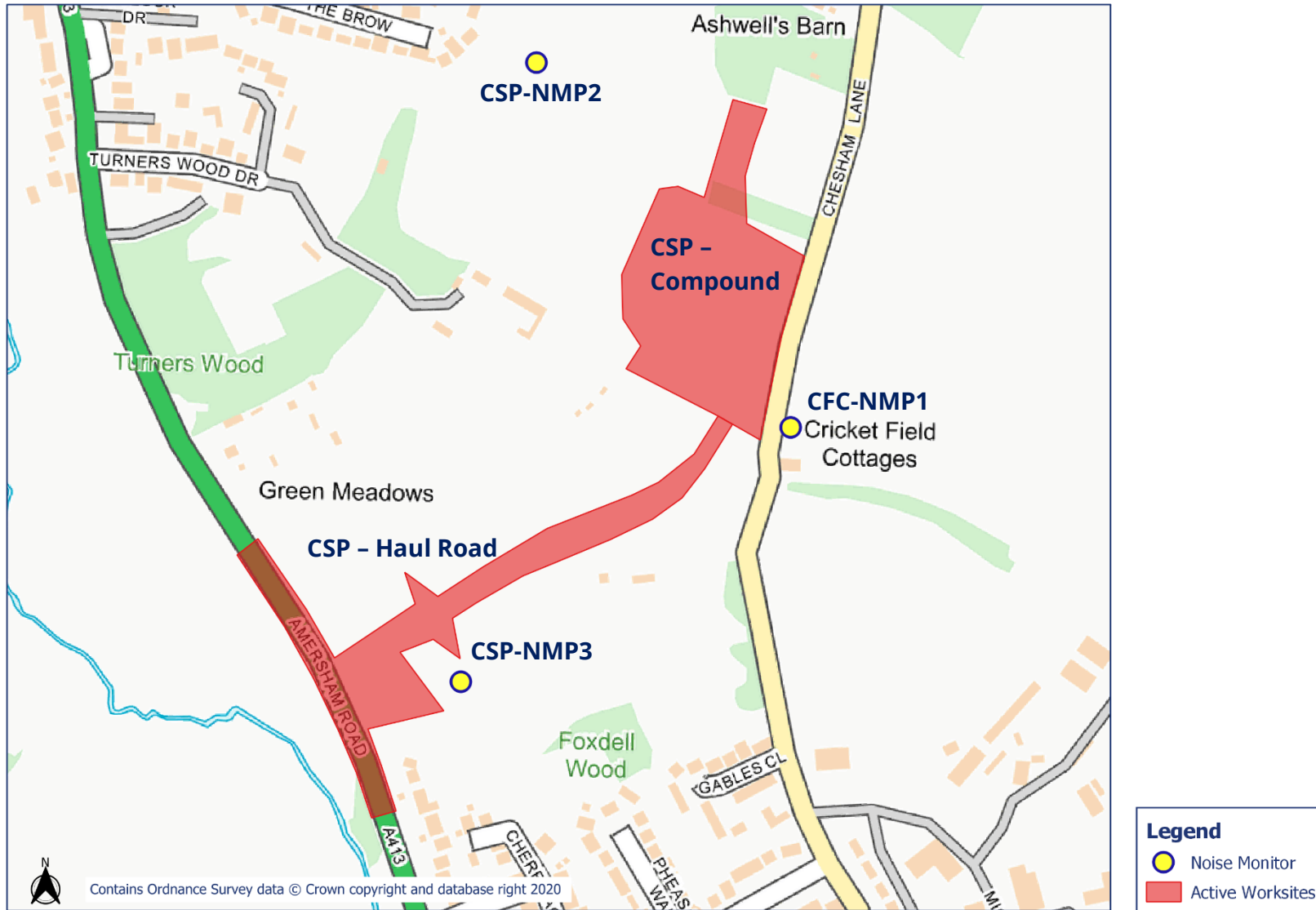


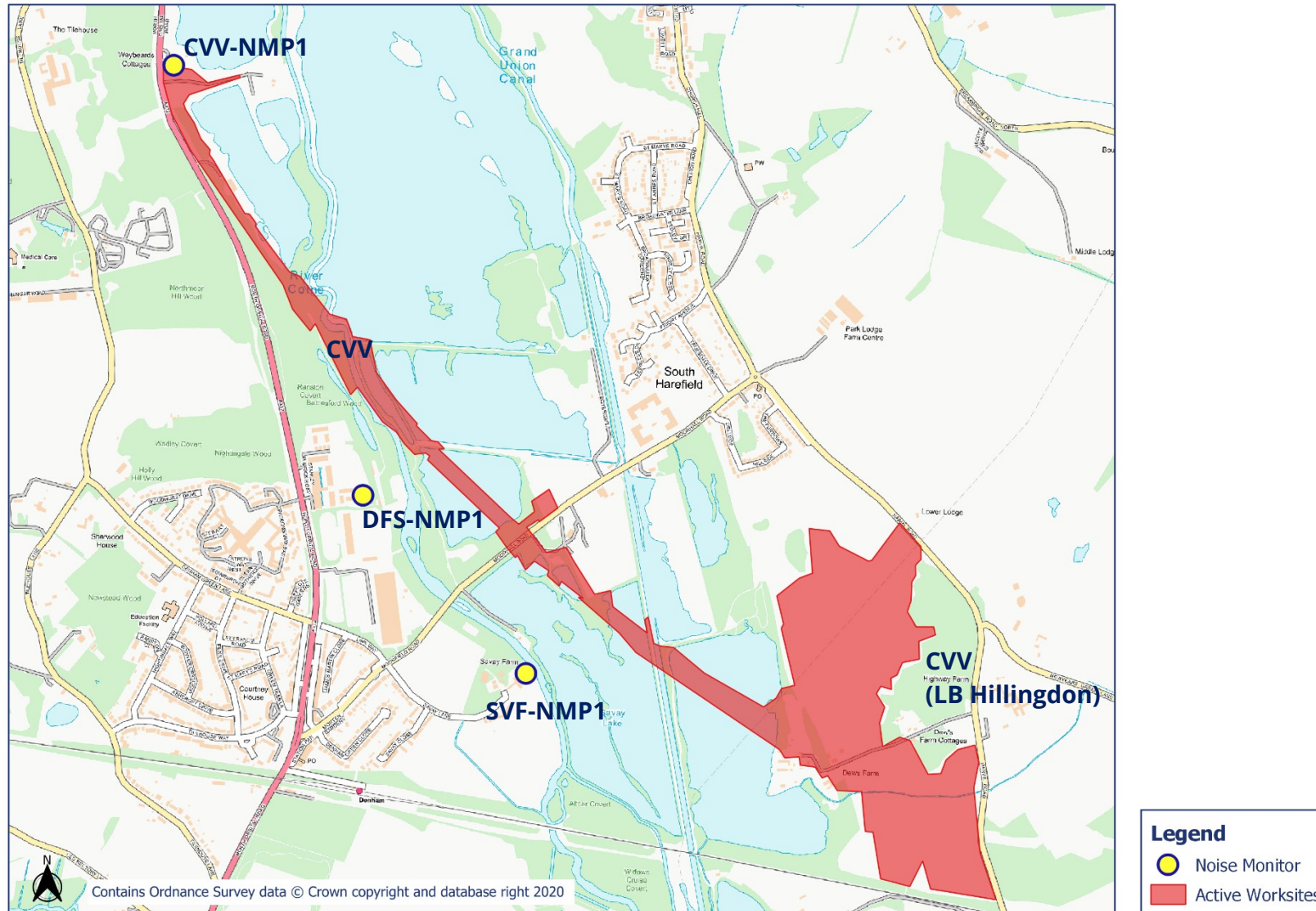






# HS2 Noise and Vibration Monitoring Plan - 13



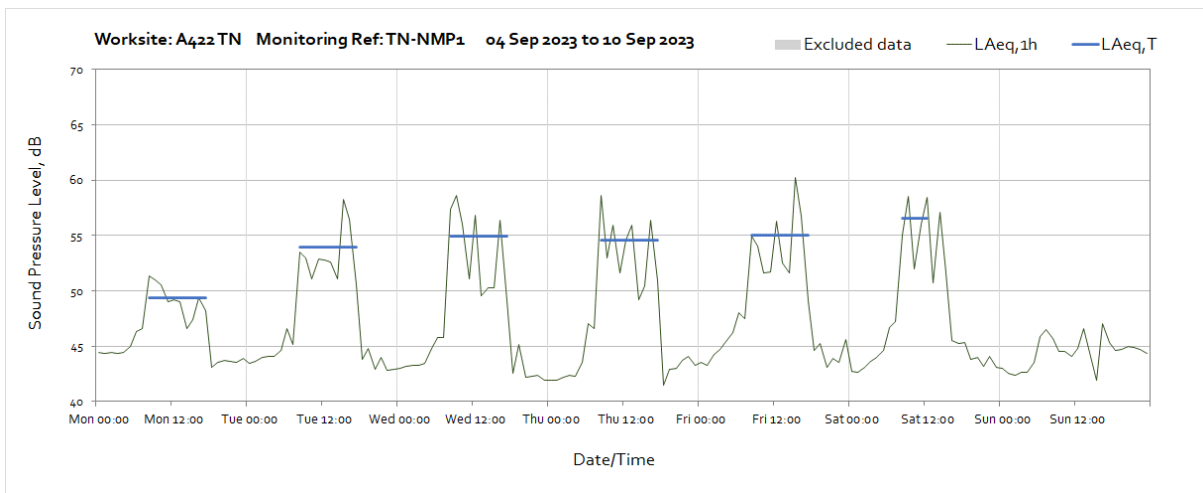
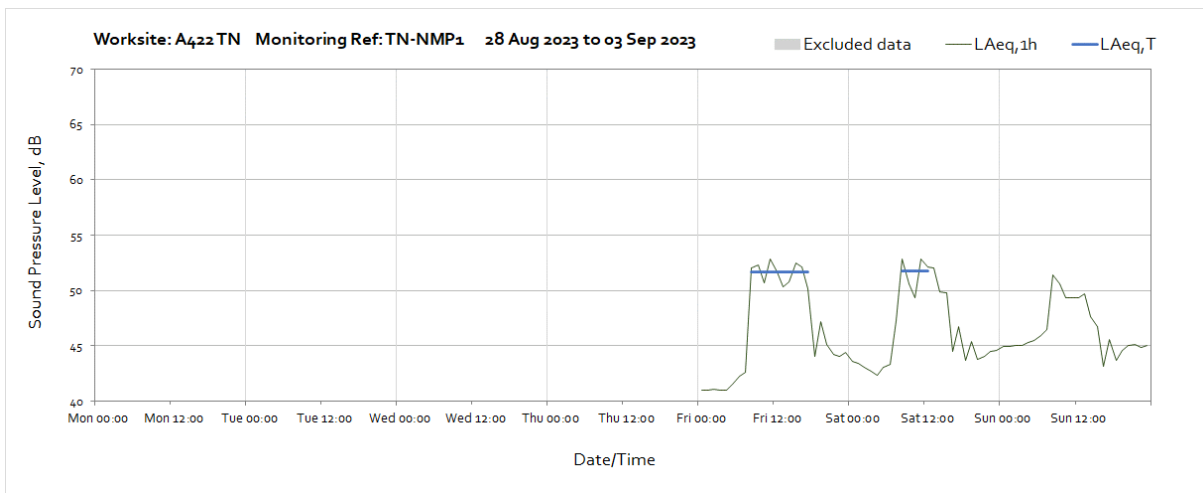


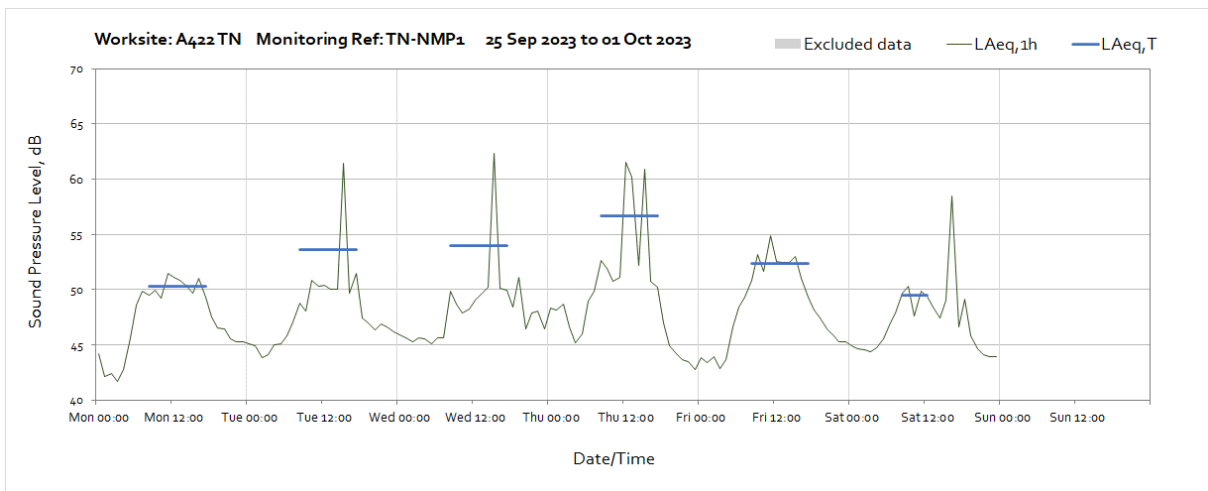
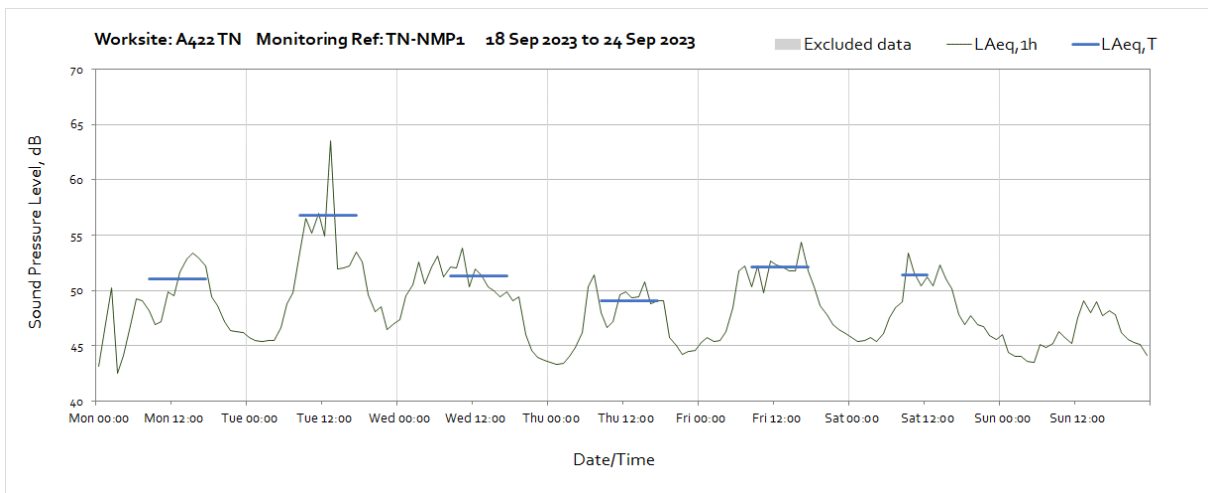
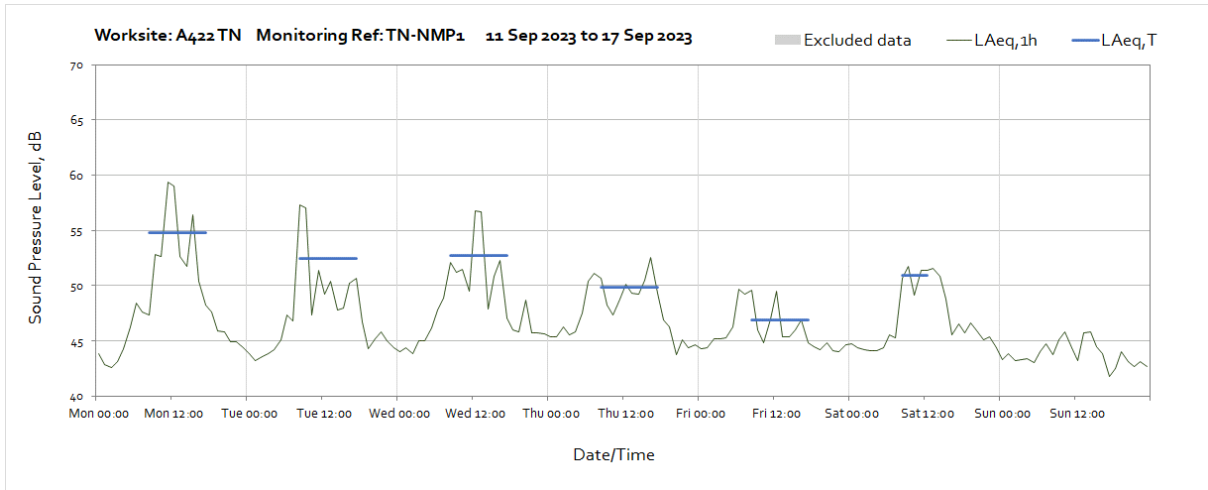
# Appendix C Data

## Noise

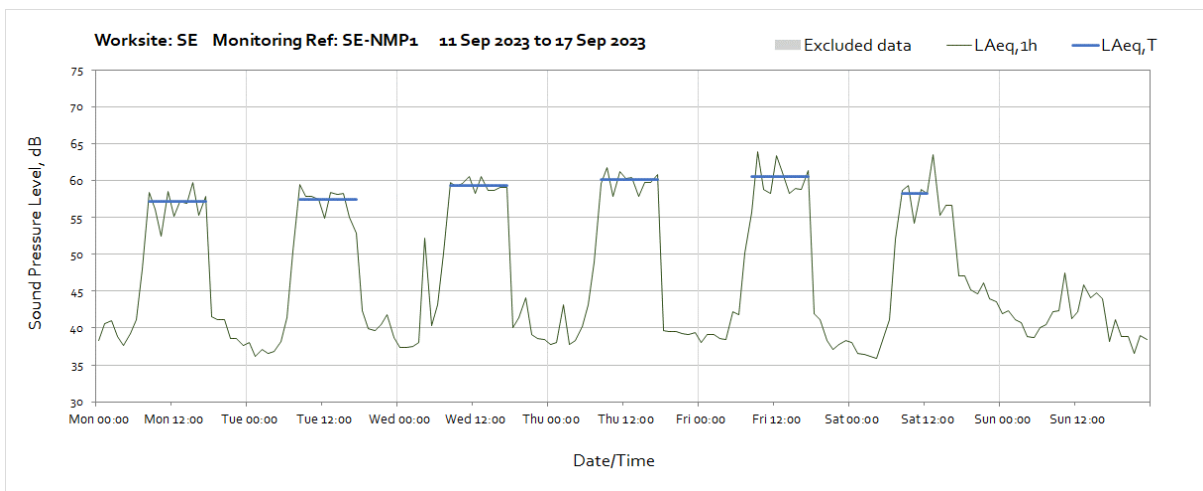
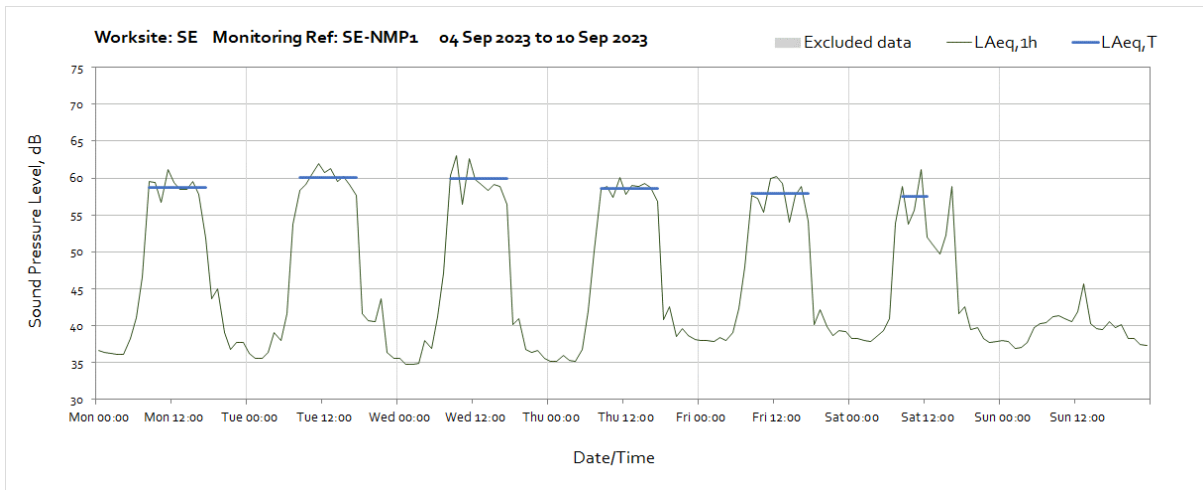
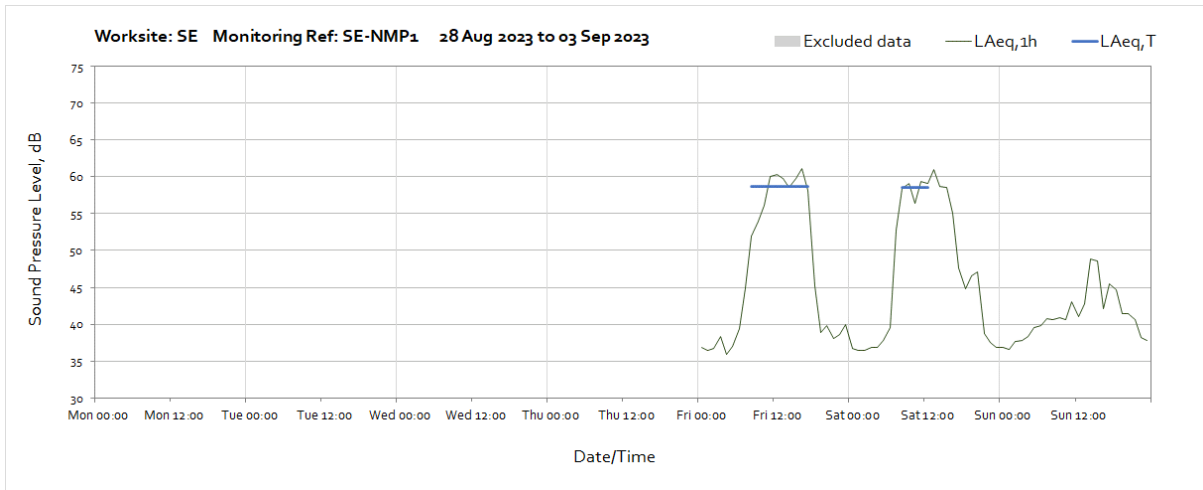
The following graphs show the hourly measured ambient noise level  $L_{Aeq,1h}$  and, where relevant, the averaged noise level  $L_{Aeq,T}$  values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods where noise levels are adversely affected by weather or only measured for part of the period, which are not representative of HS2 construction works, have been greyed out and excluded from the calculation of the  $L_{Aeq,T}$  values in Table 3 of the main report.

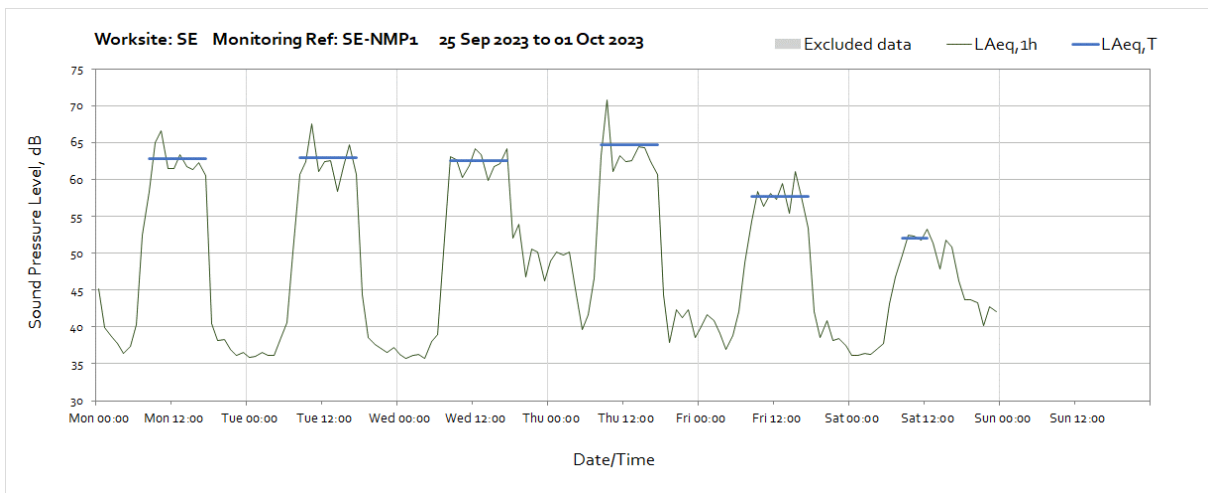
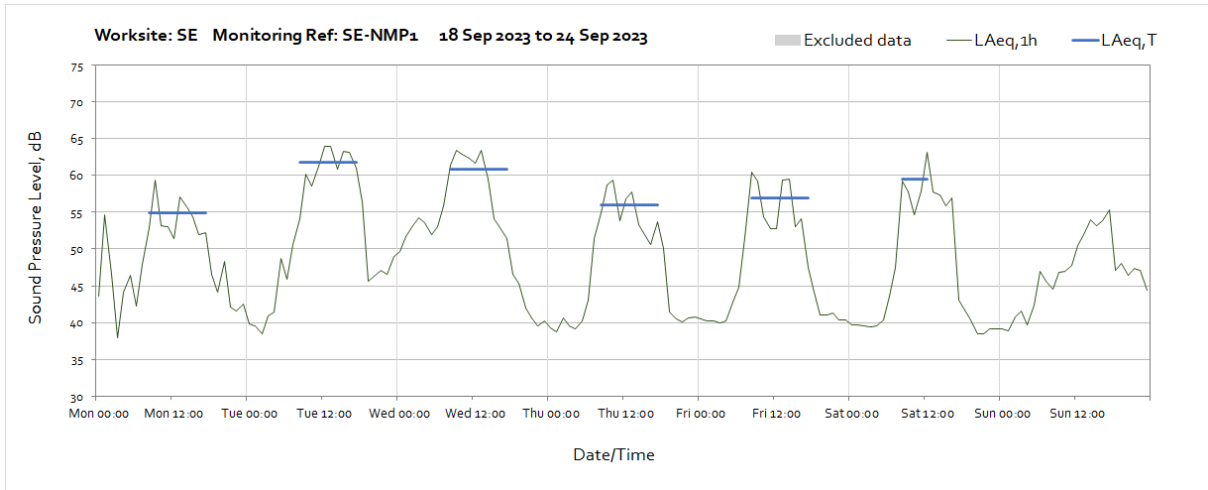
### Worksite: A422 TN – Monitoring Ref: TN-NMP1



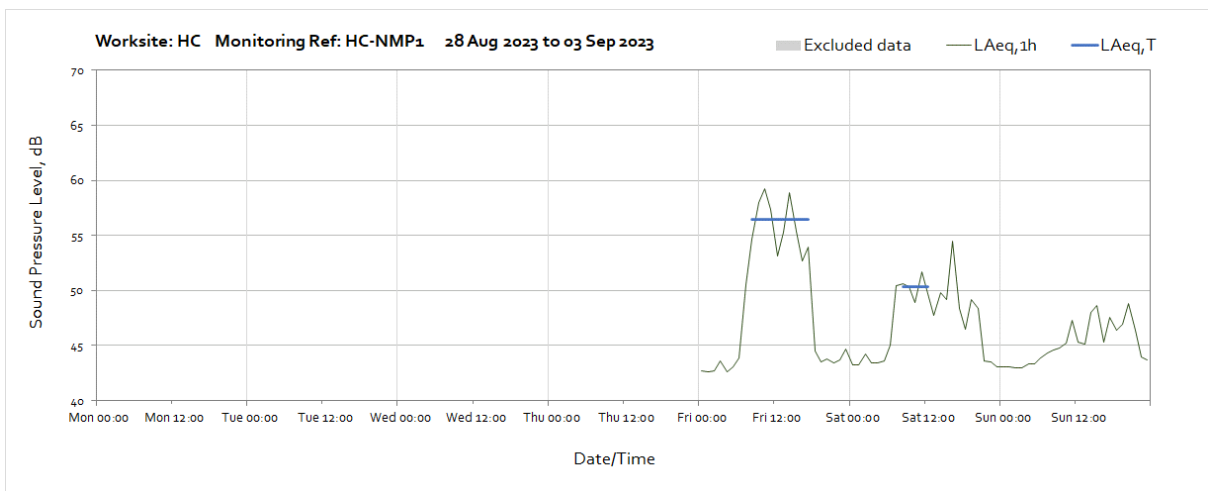


## Worksite: SE – Monitoring Ref: SE-NMP1

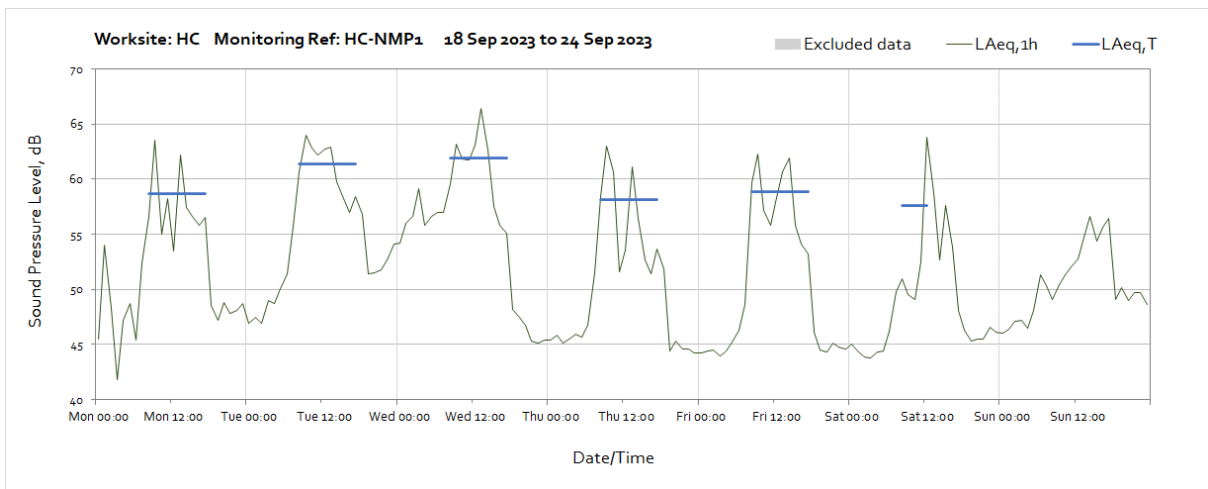
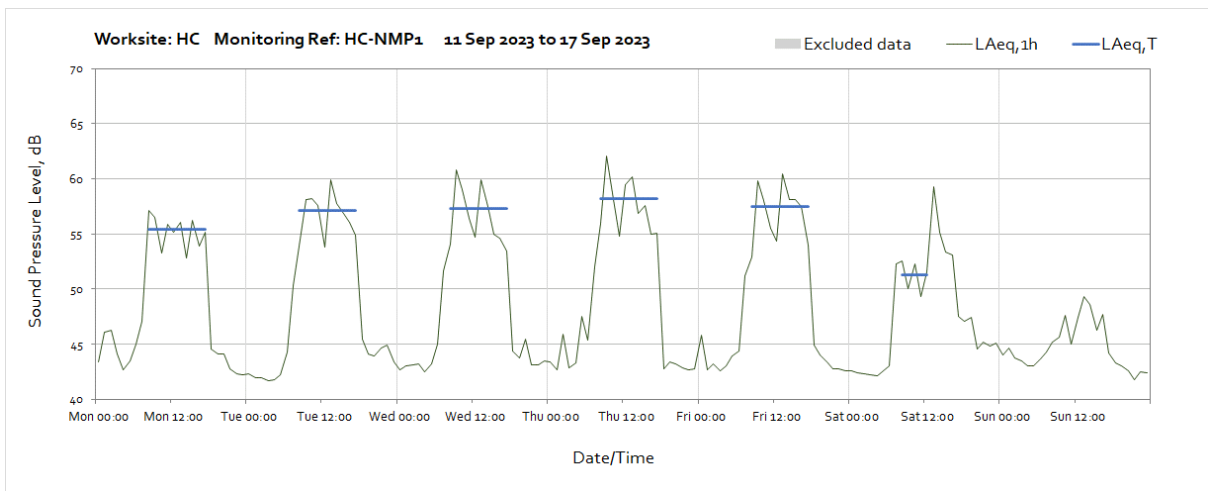
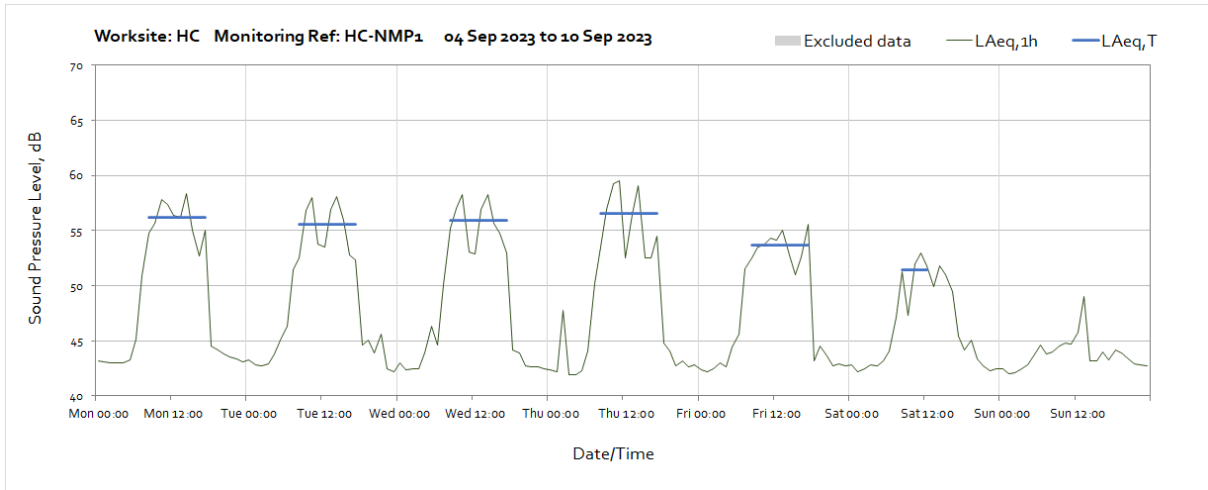


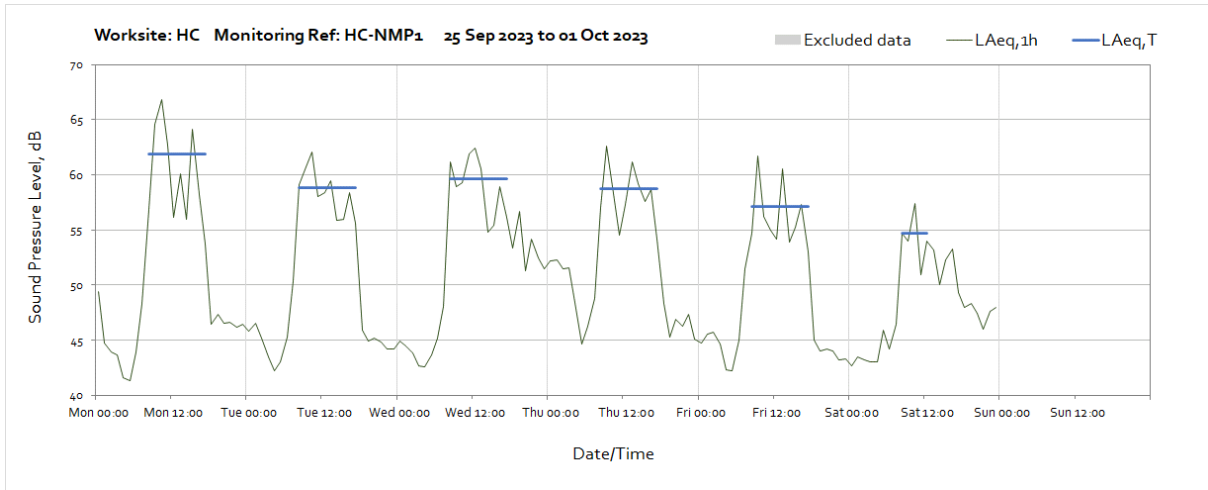


**Worksite: HC - Monitoring Ref: HC-NMP1**

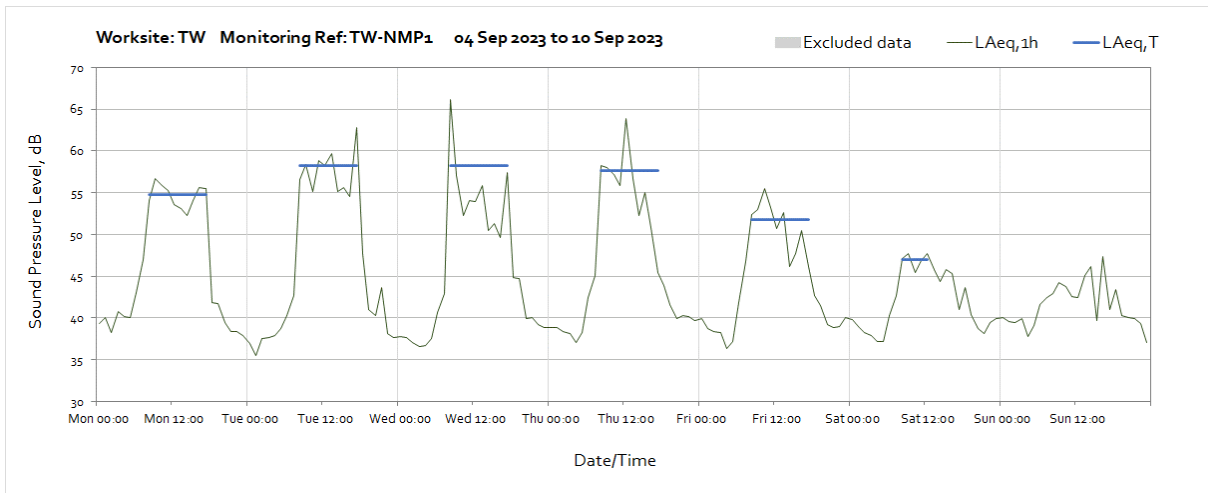
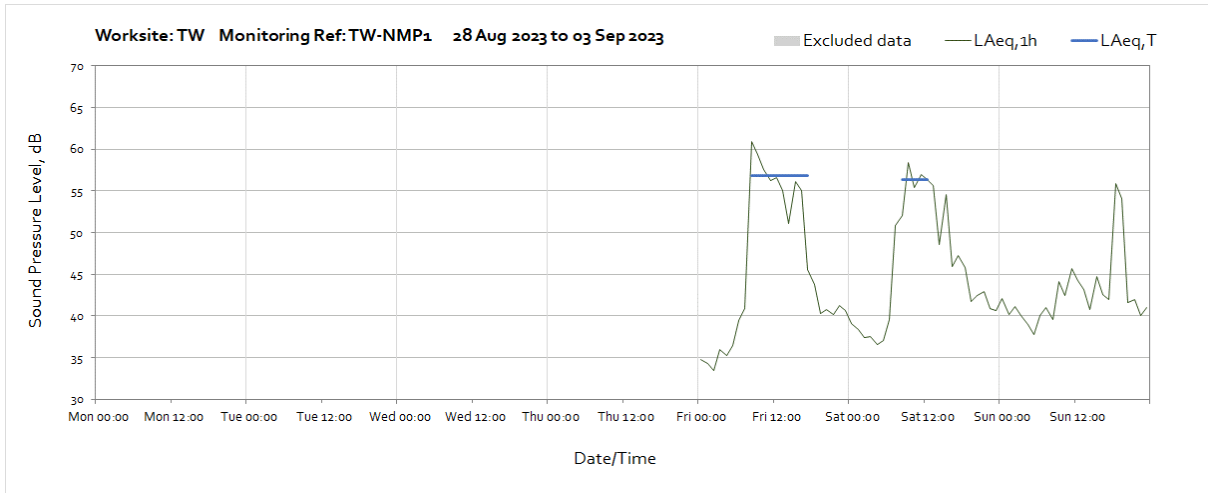


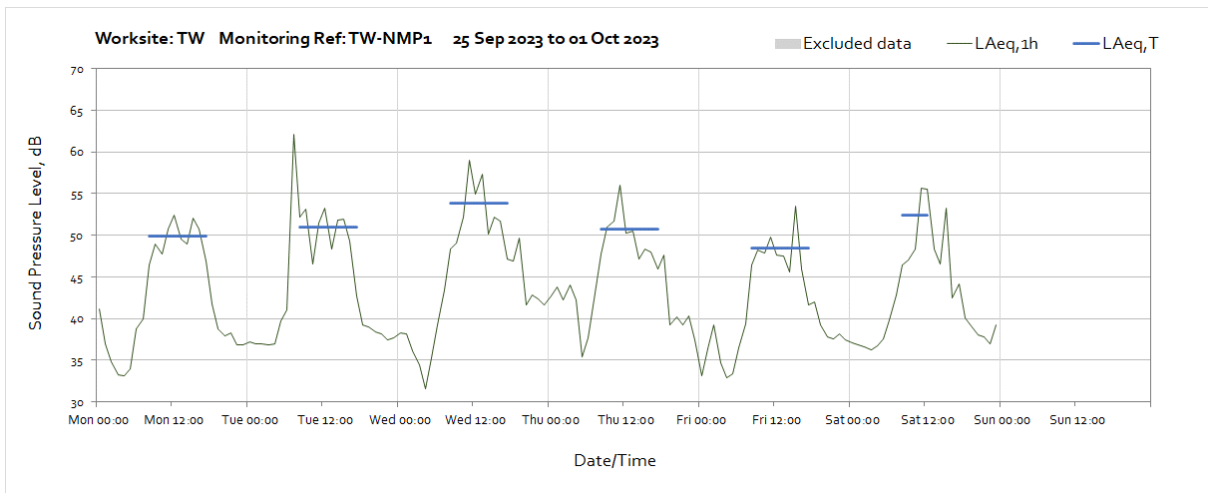
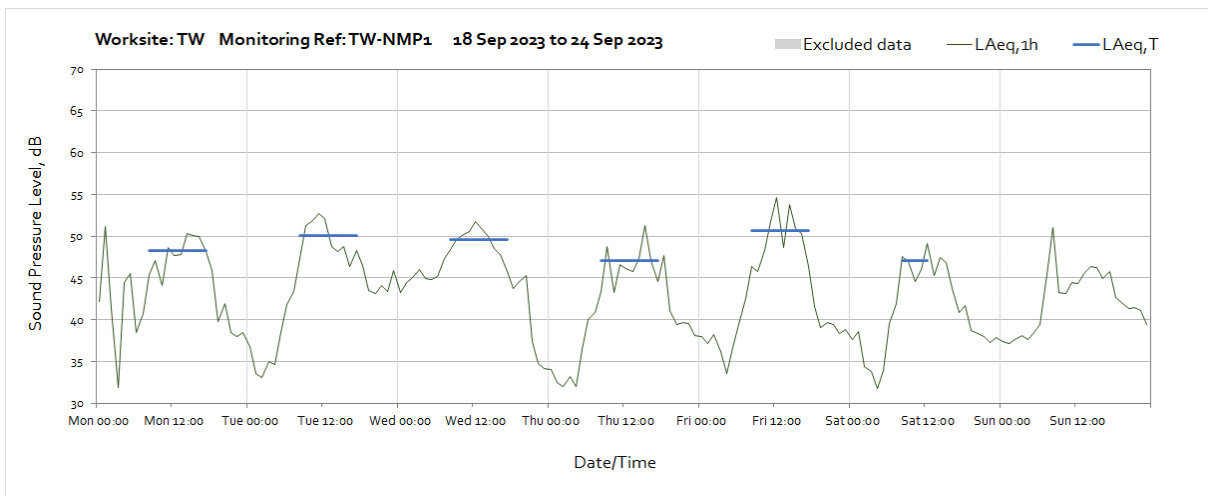
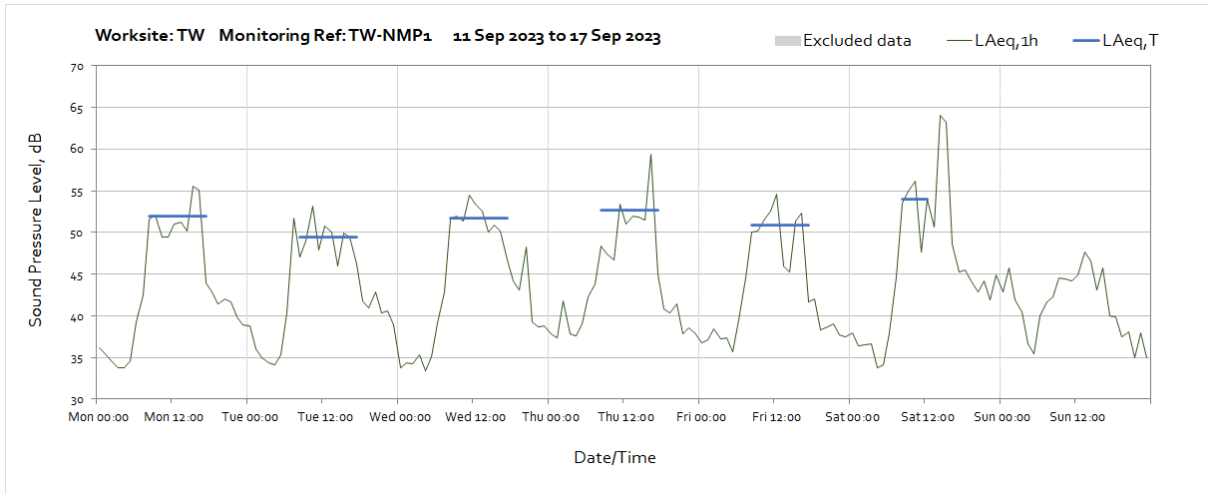




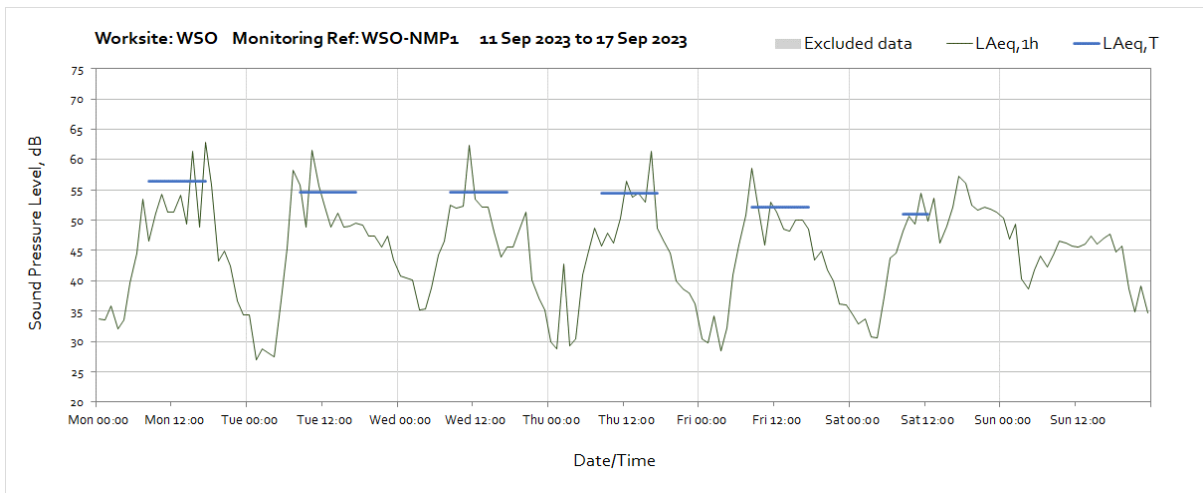
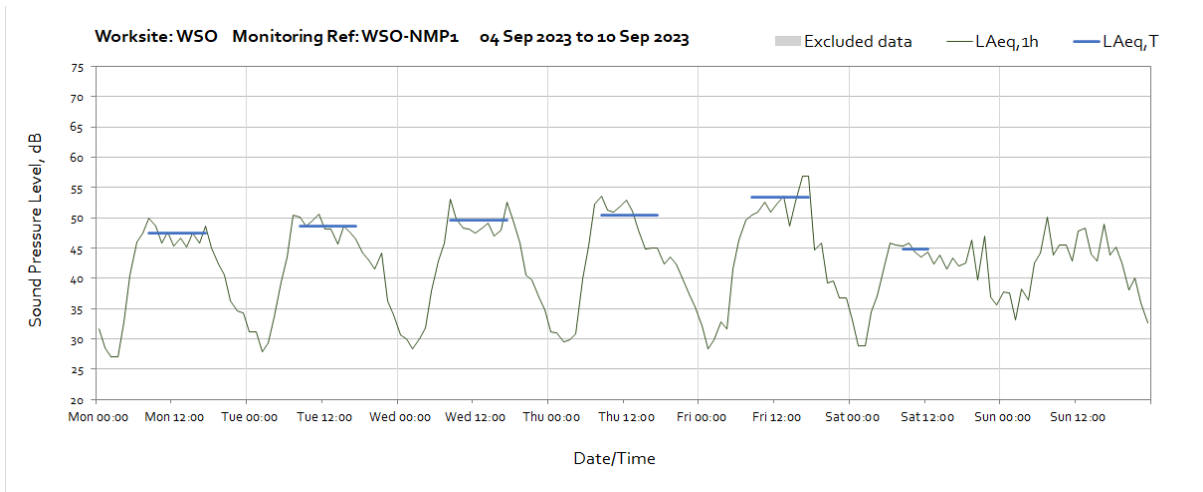
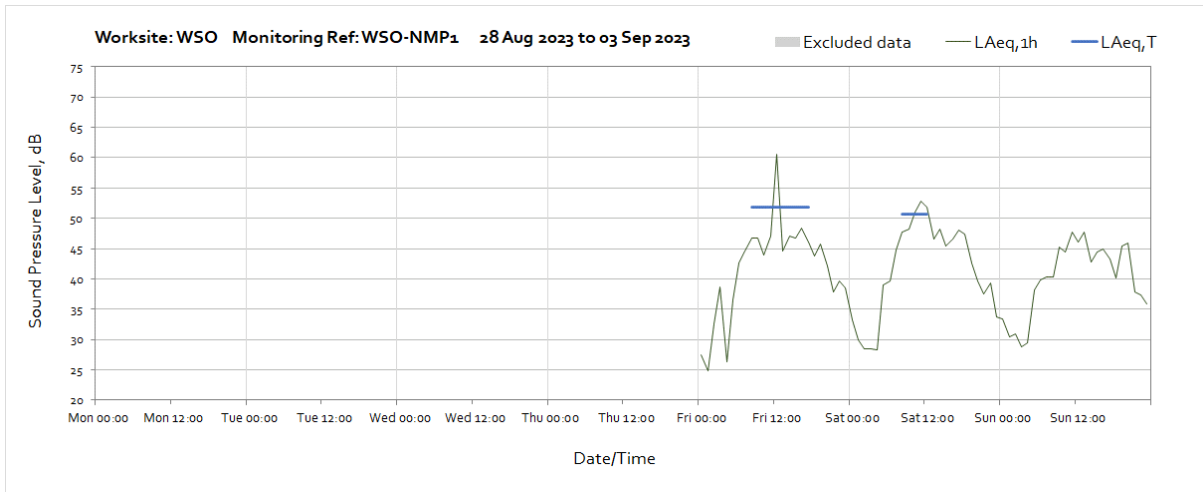


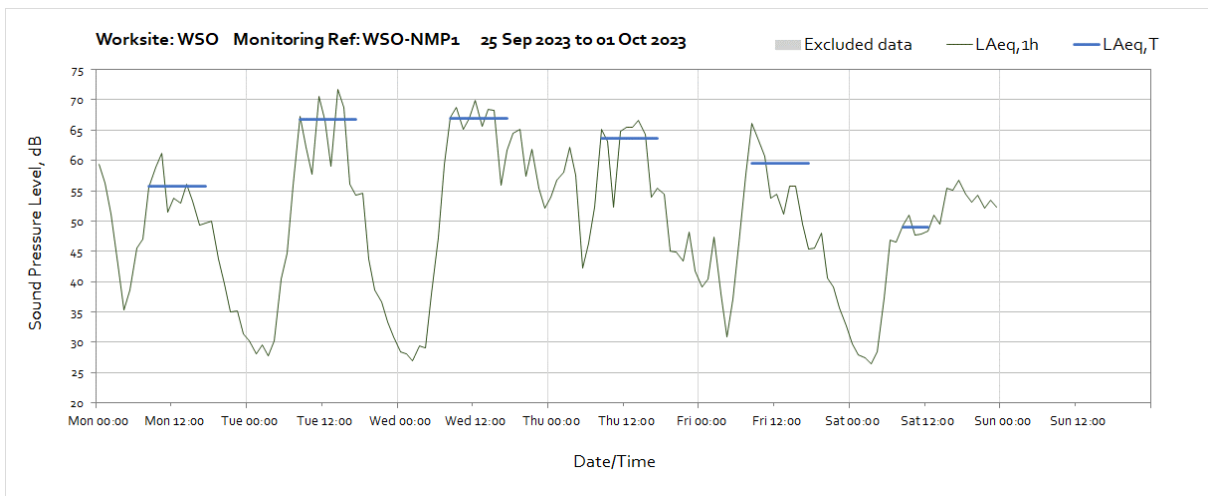
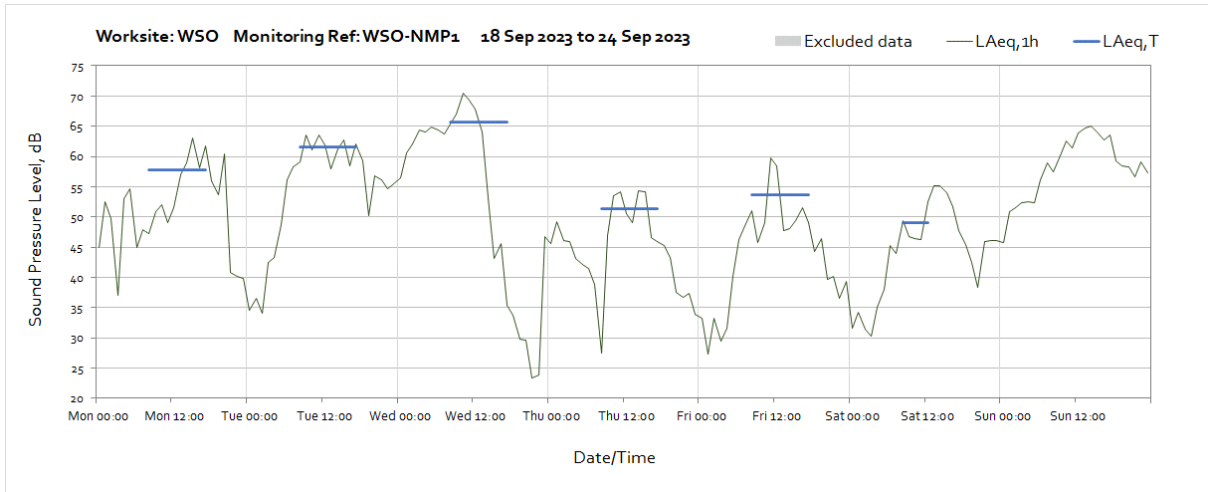
**Worksite: TW – Monitoring Ref: TW-NMP1**



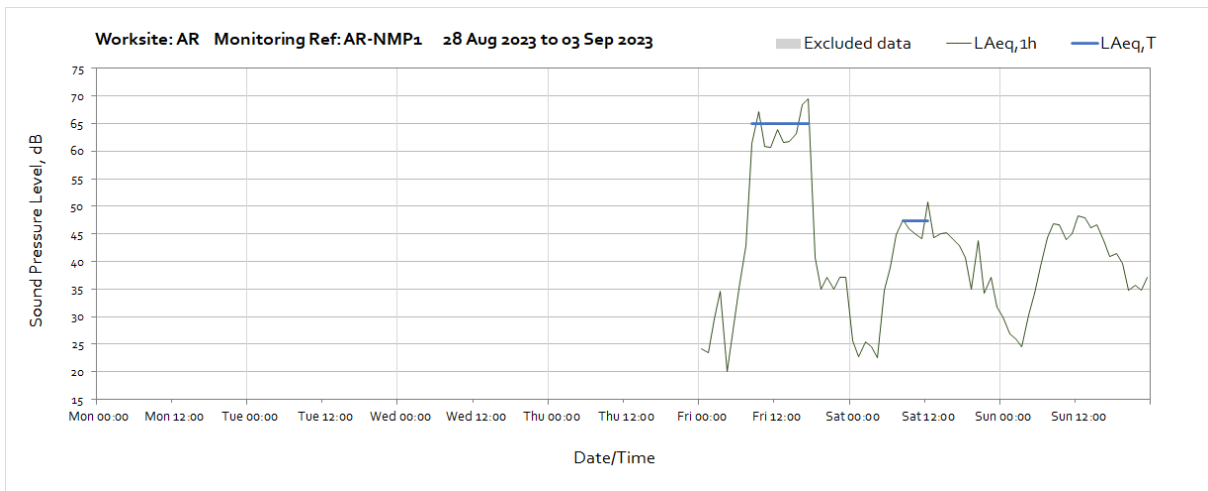


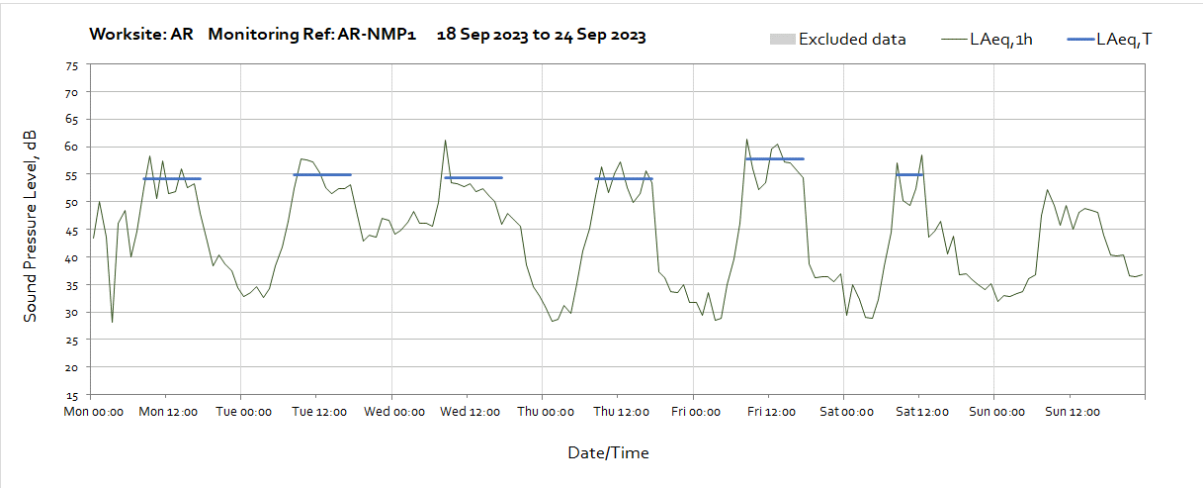
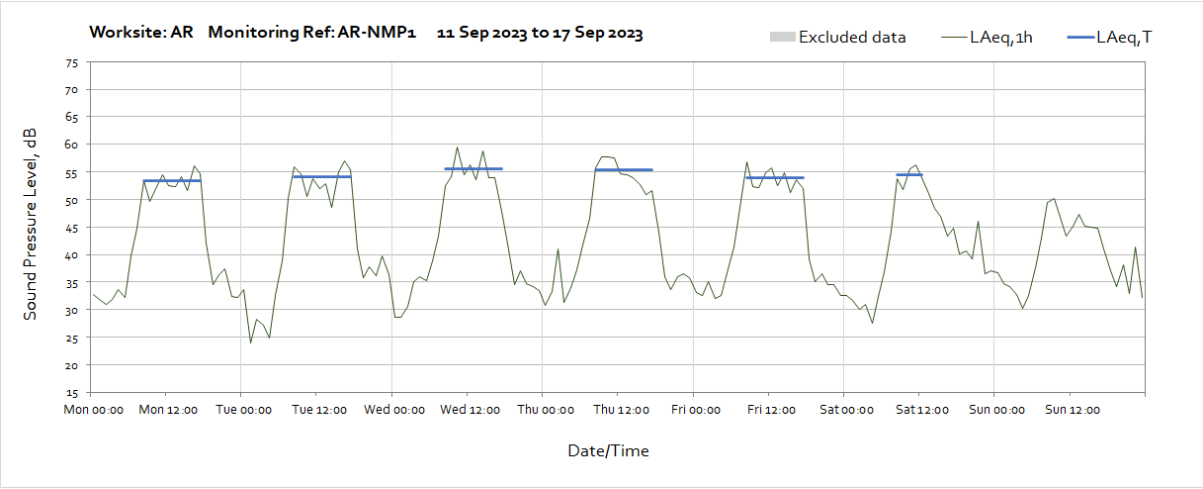
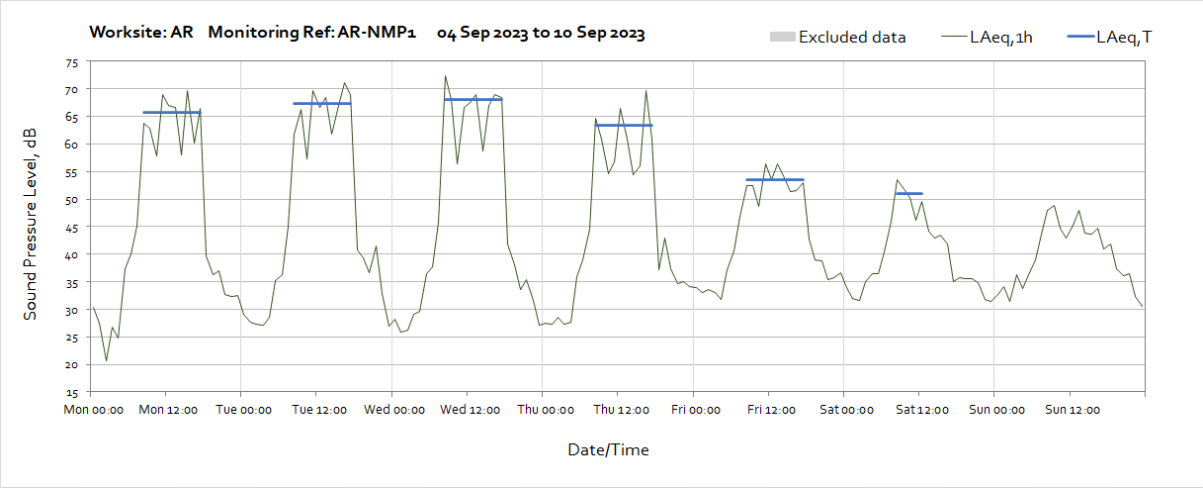
## Worksite: WSO – Monitoring Ref: WSO-NMP1

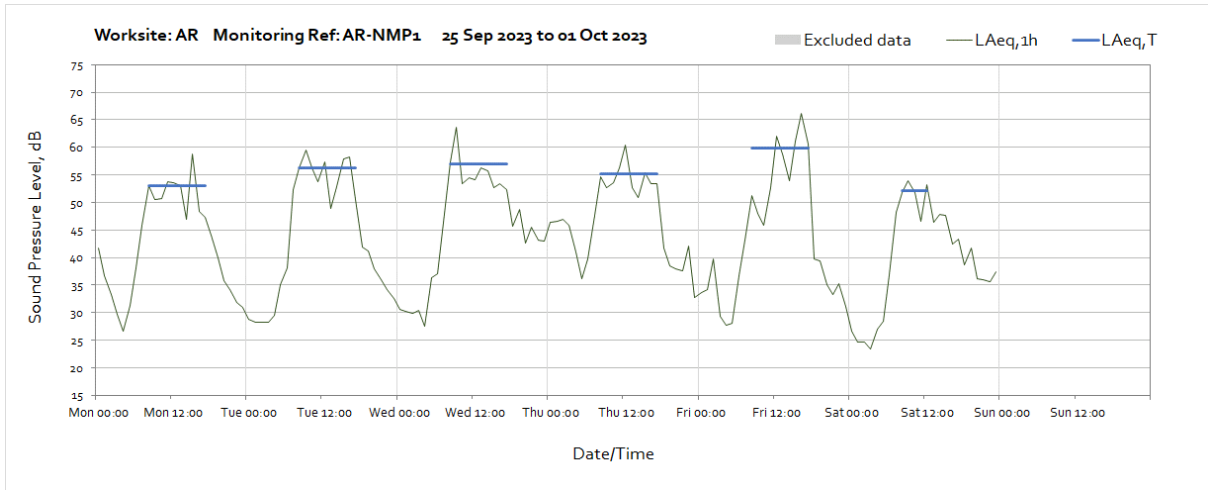




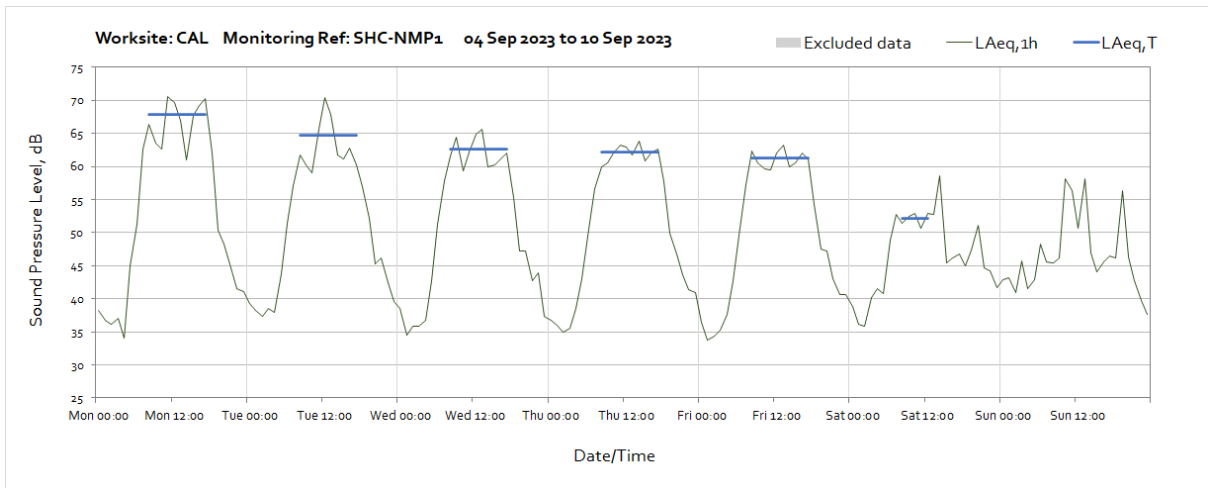
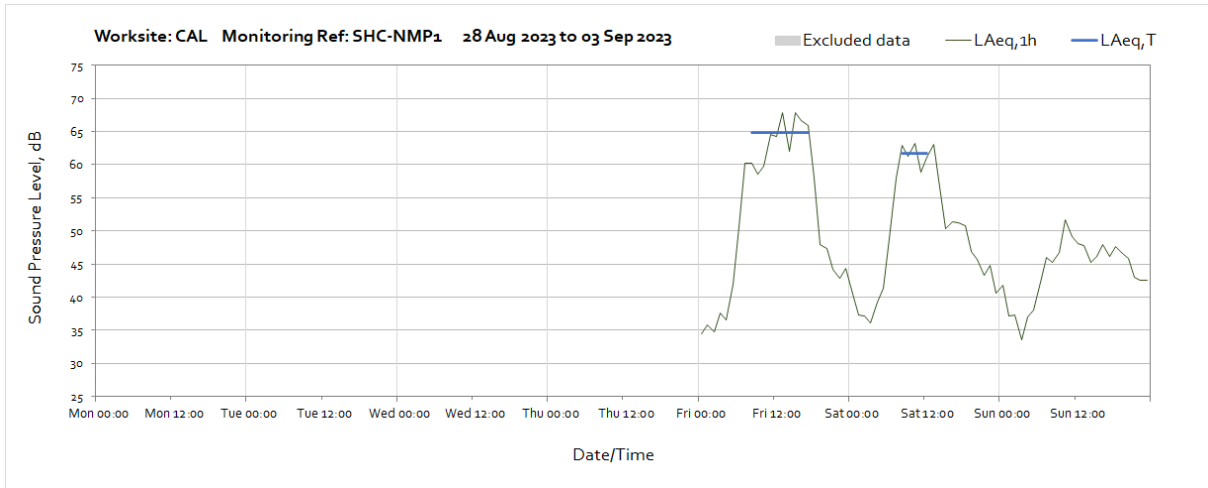
**Worksite: AR – Monitoring Ref: AR-NMP1**



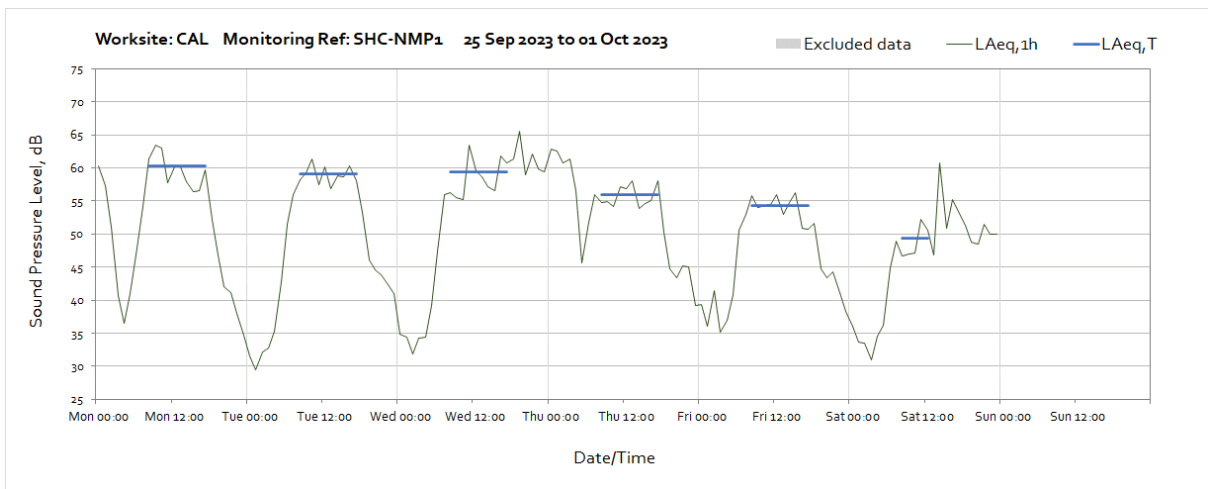
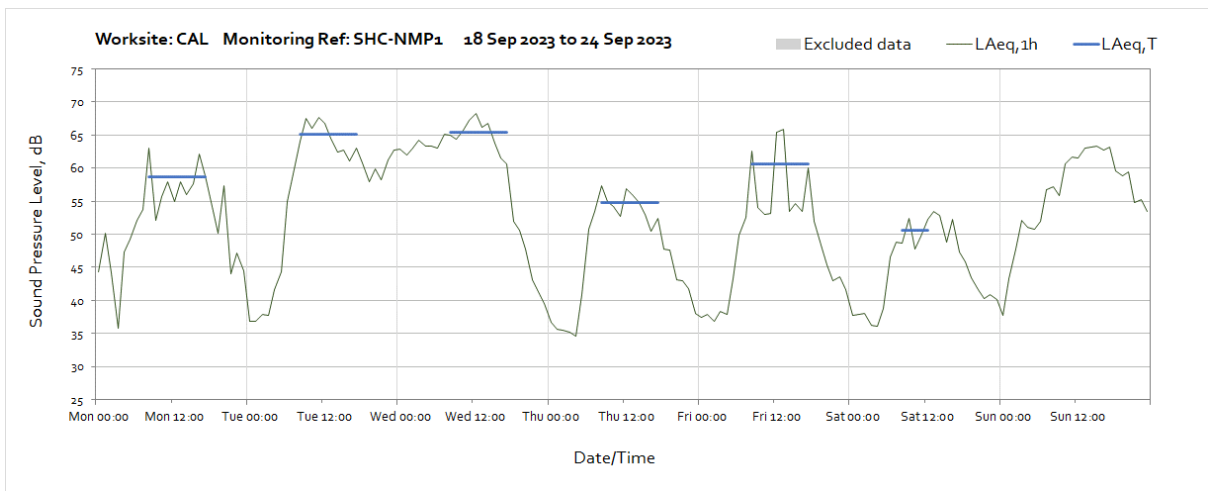
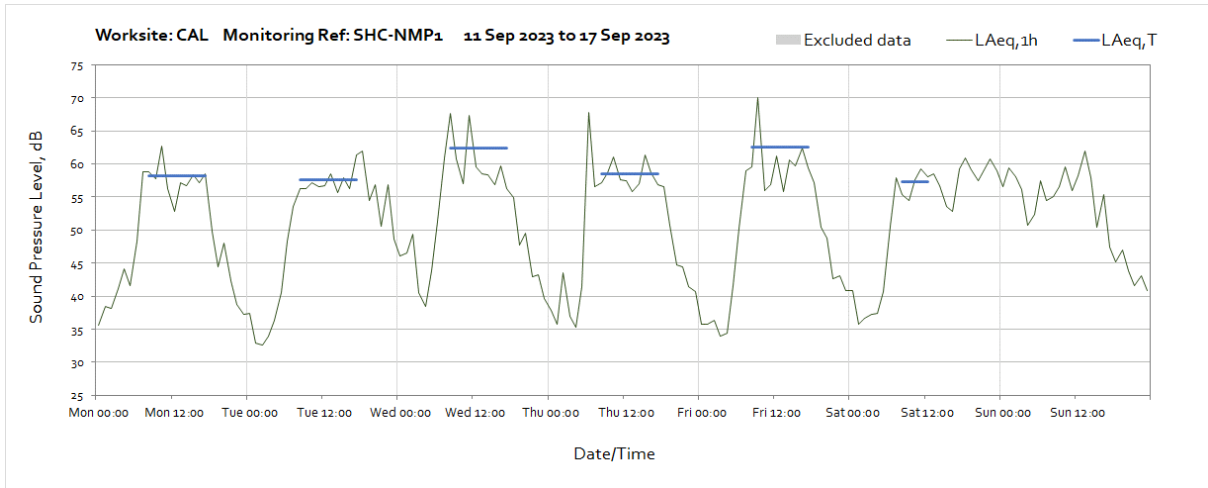




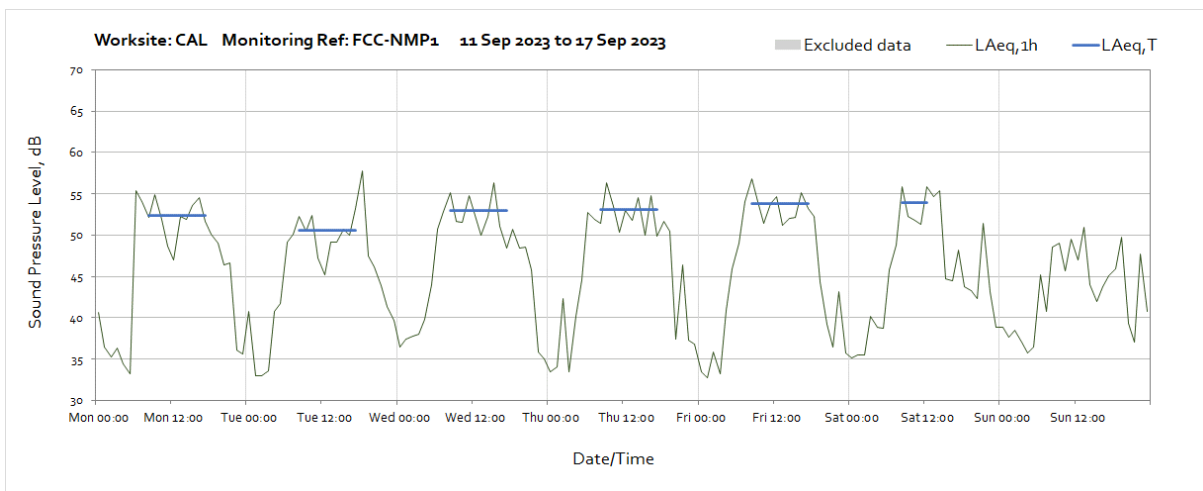
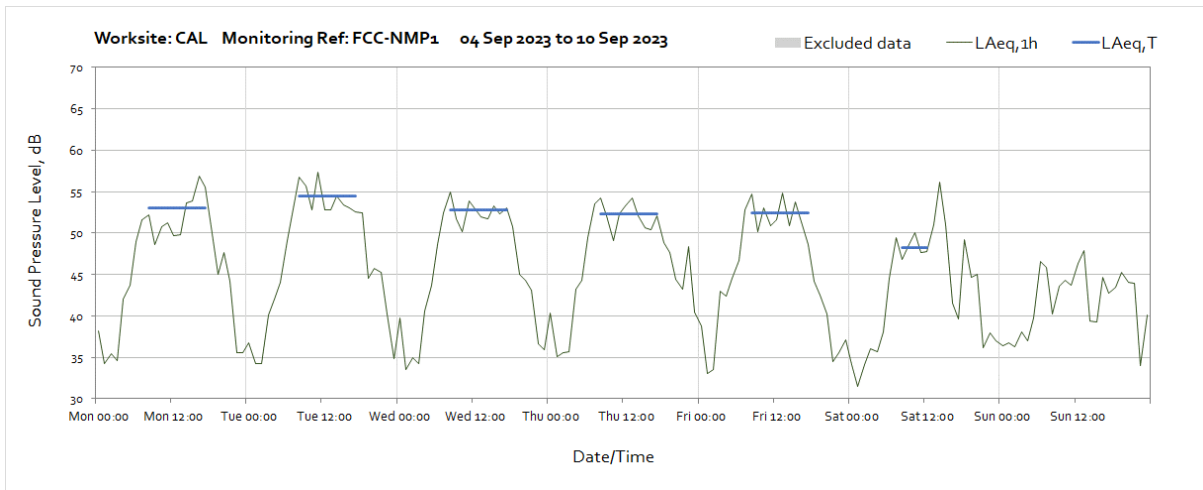
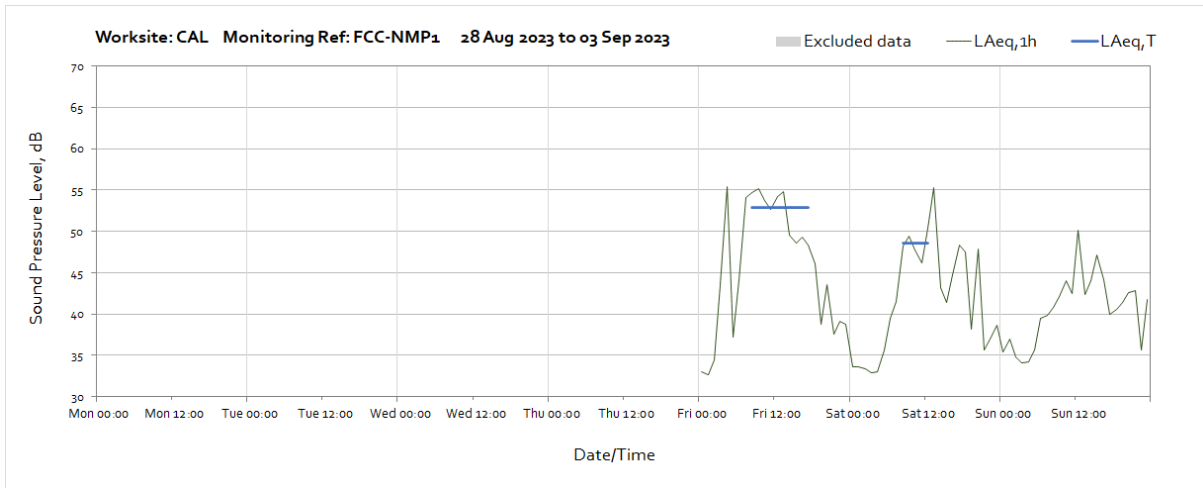
**Worksite: CAL – Monitoring Ref: SHC-NMP1**

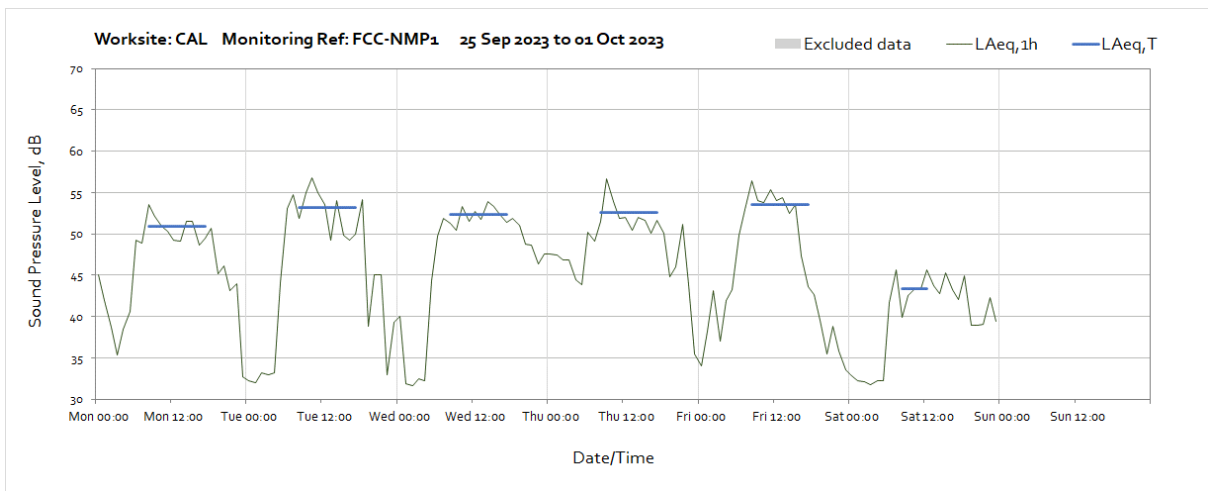
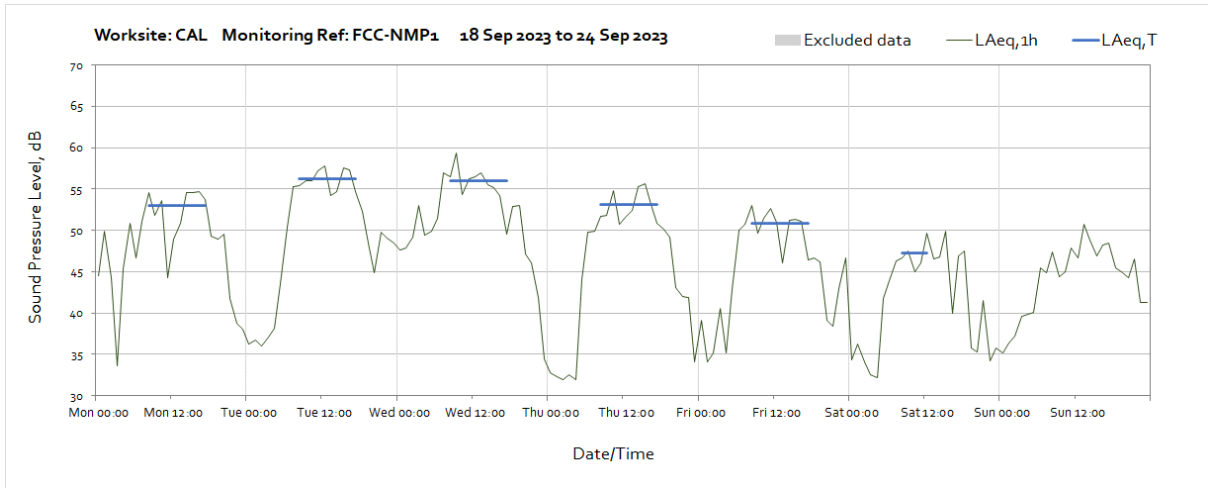




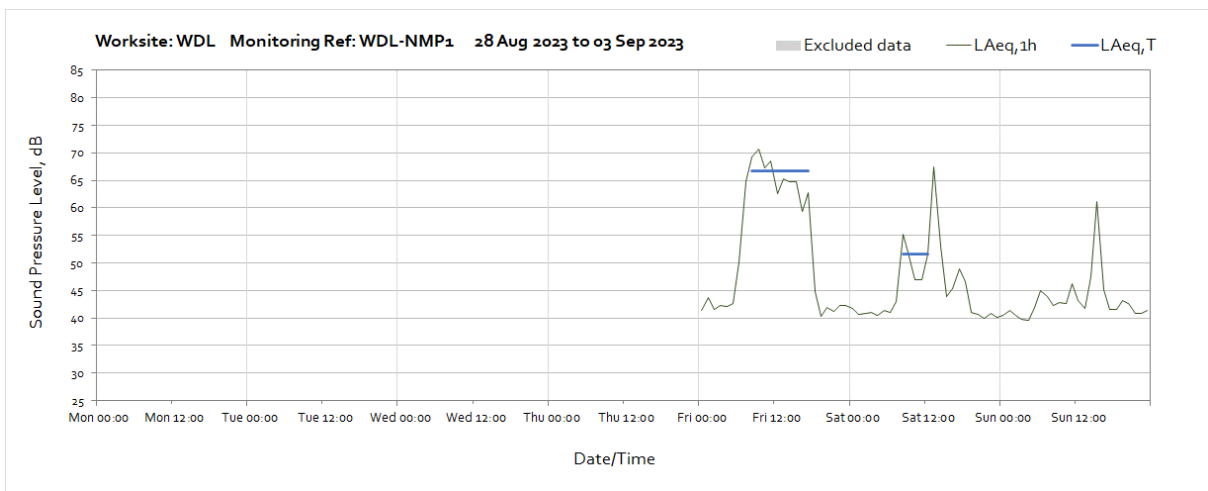


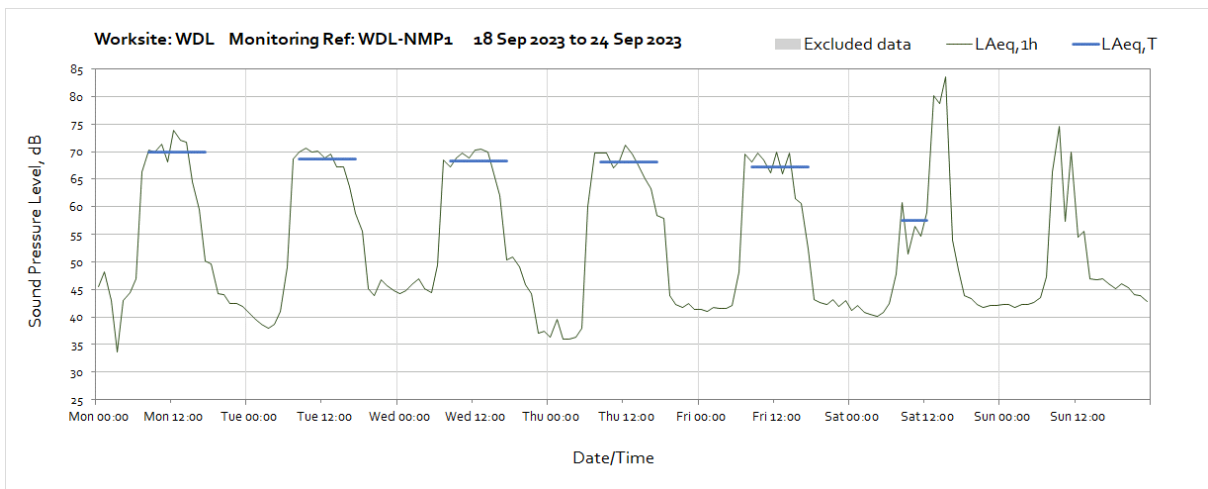
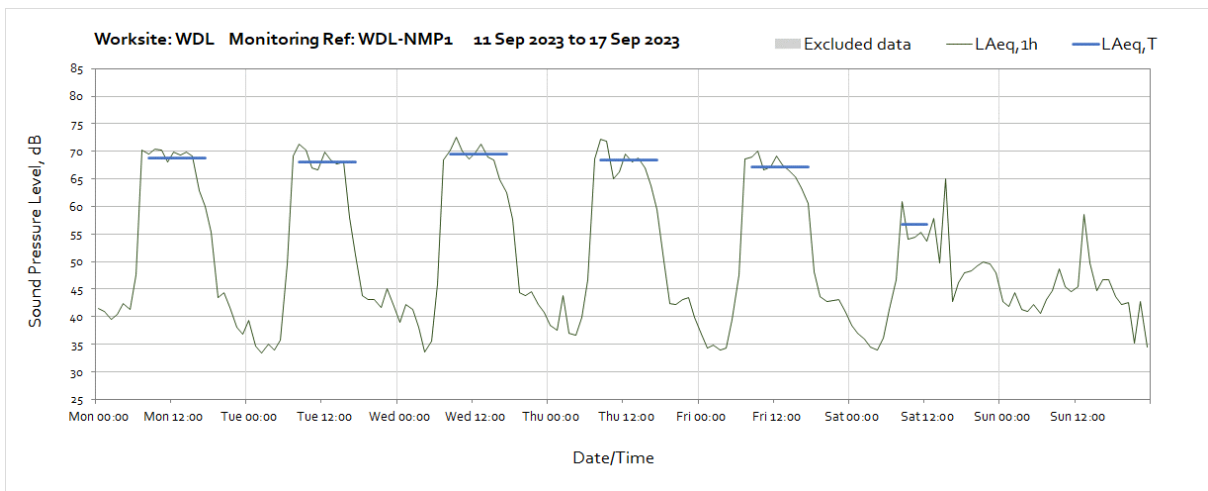
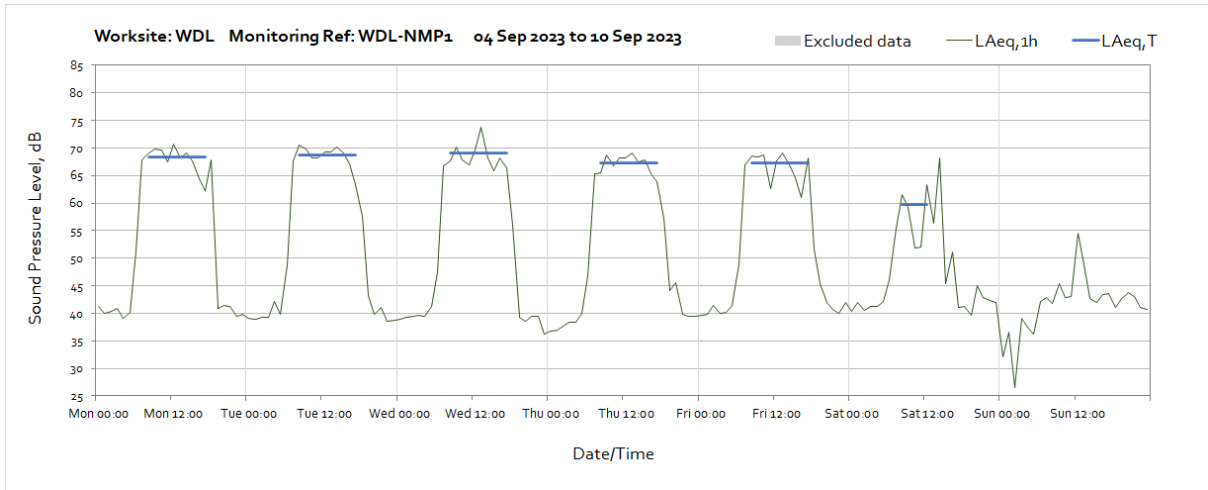
## Worksite: CAL – Monitoring Re: FCC-NMP1

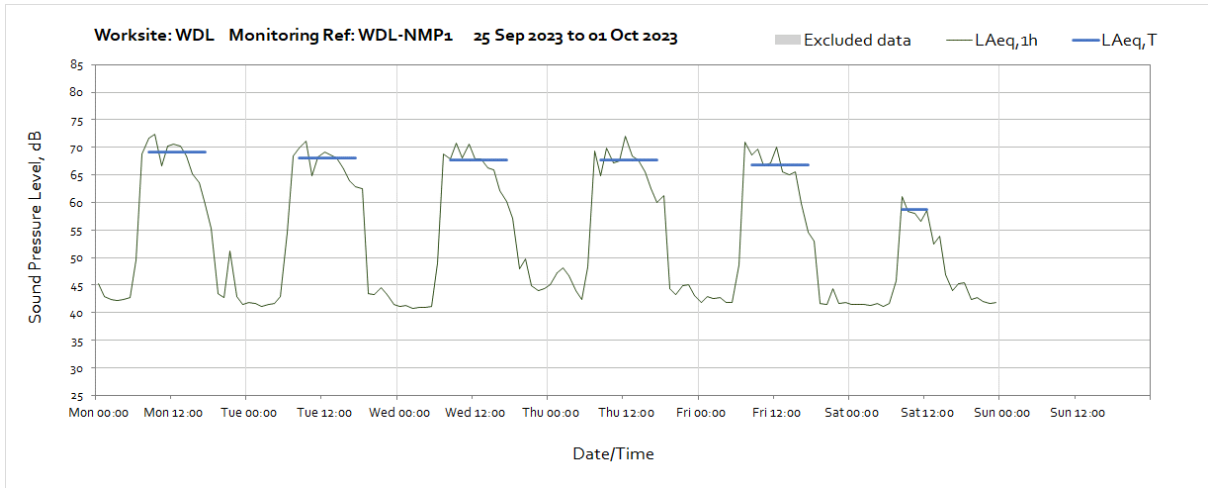




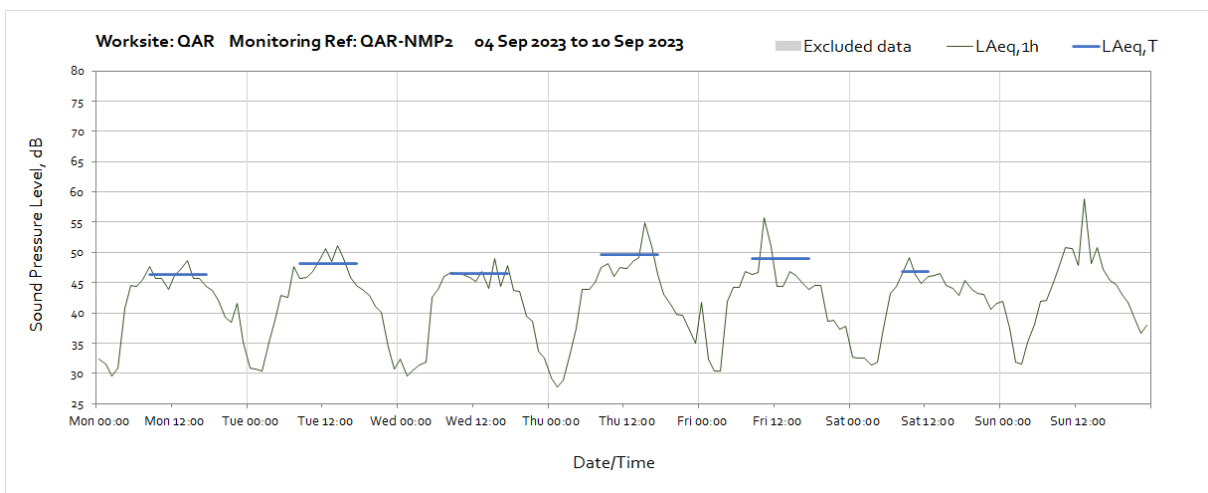
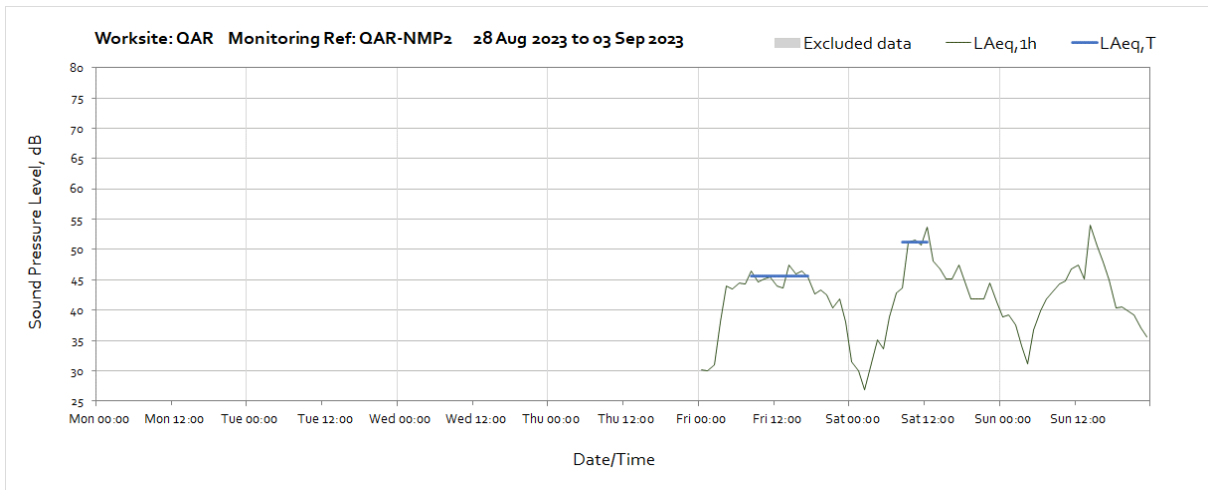
**Worksite: WDL - Monitoring Ref: WDL-NMP1**

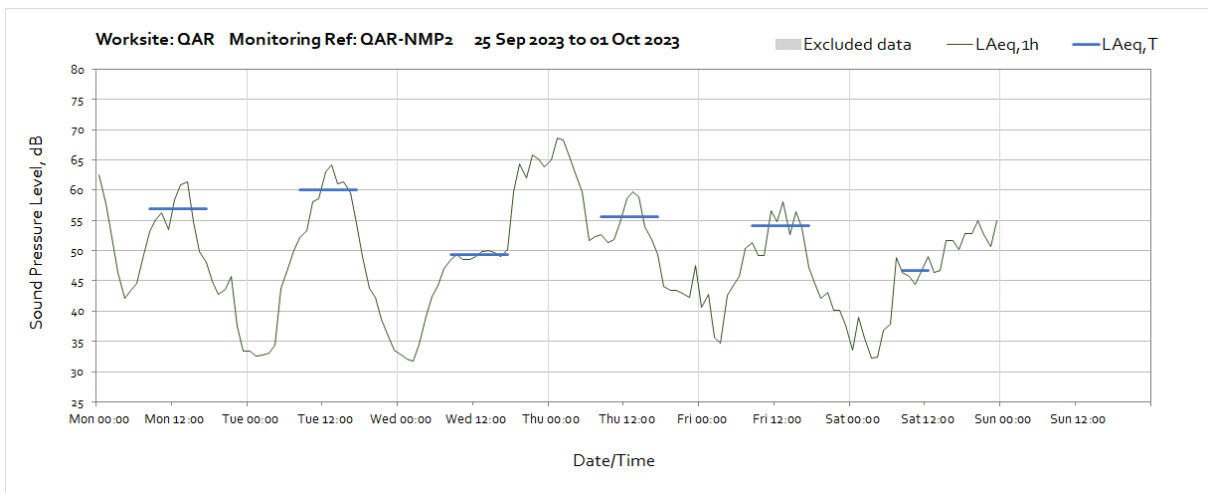
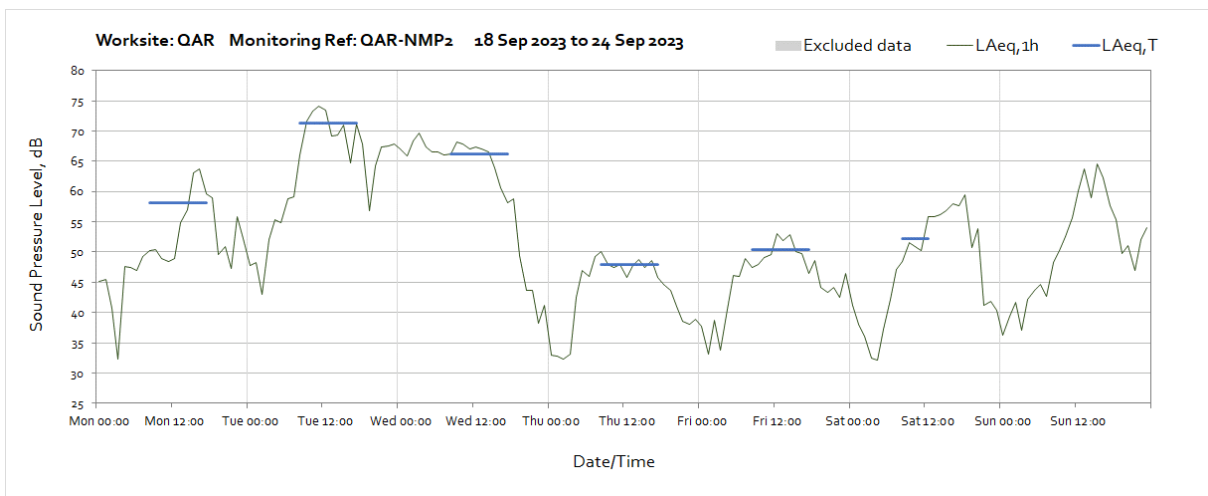
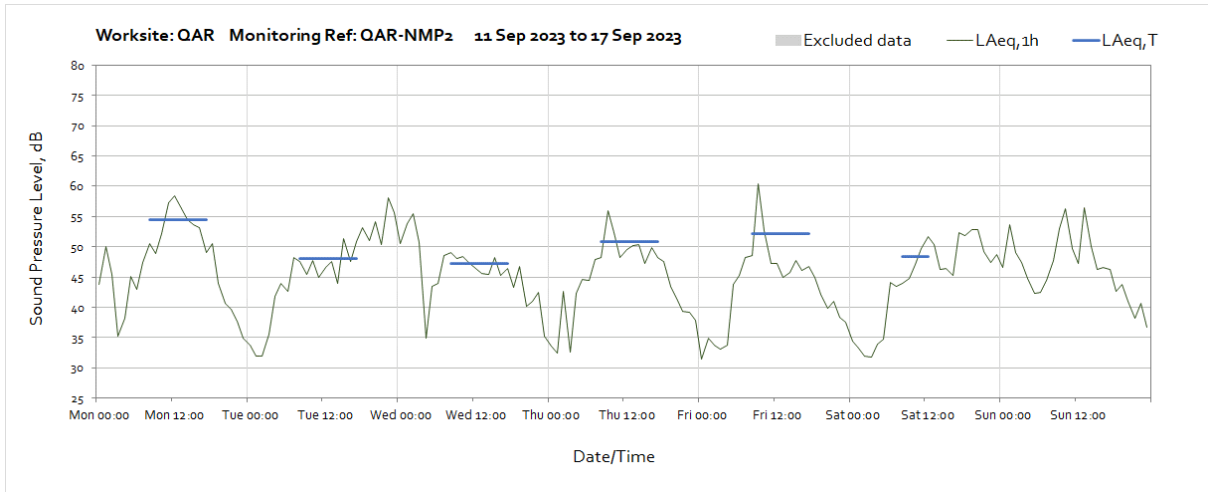




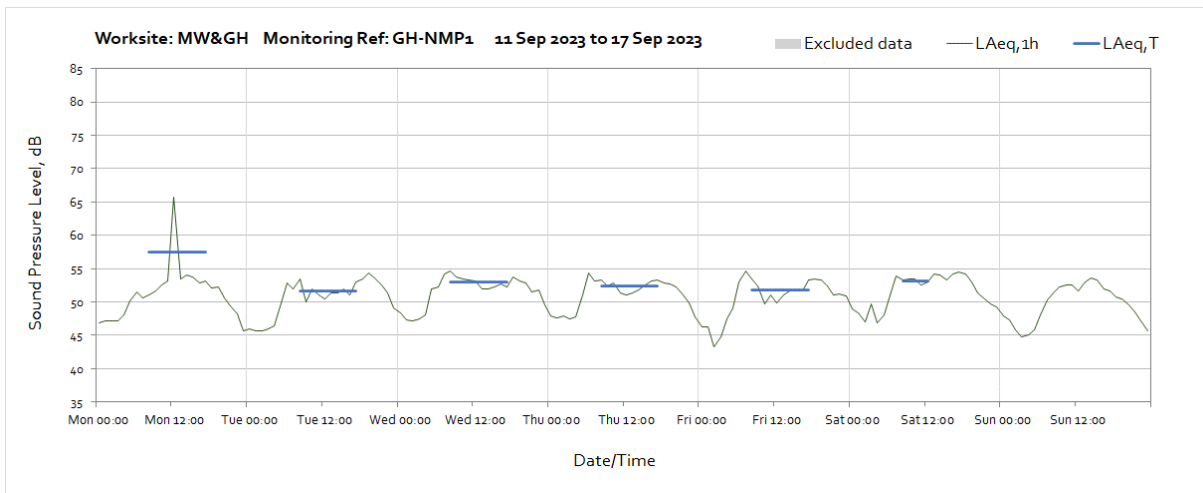
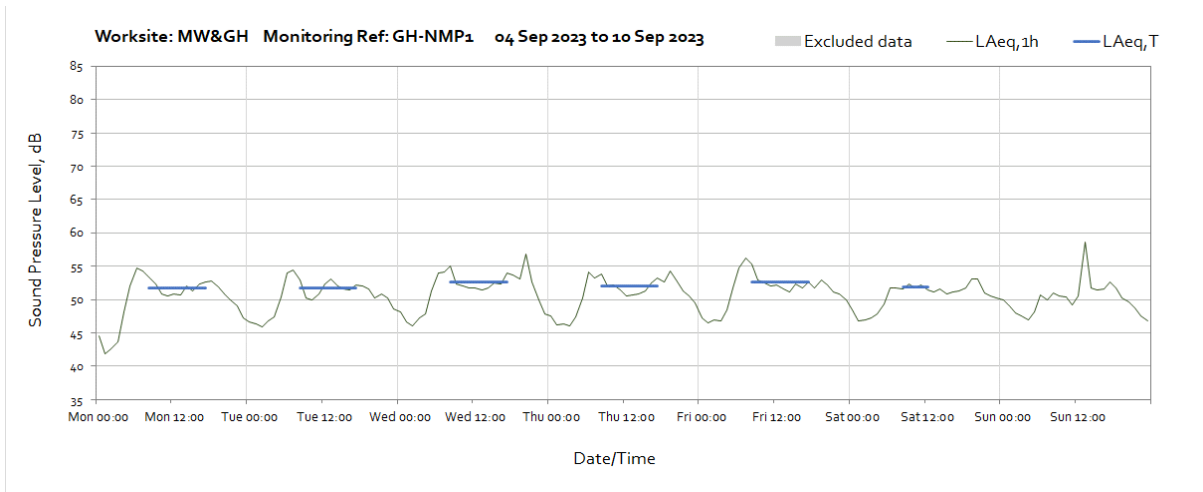
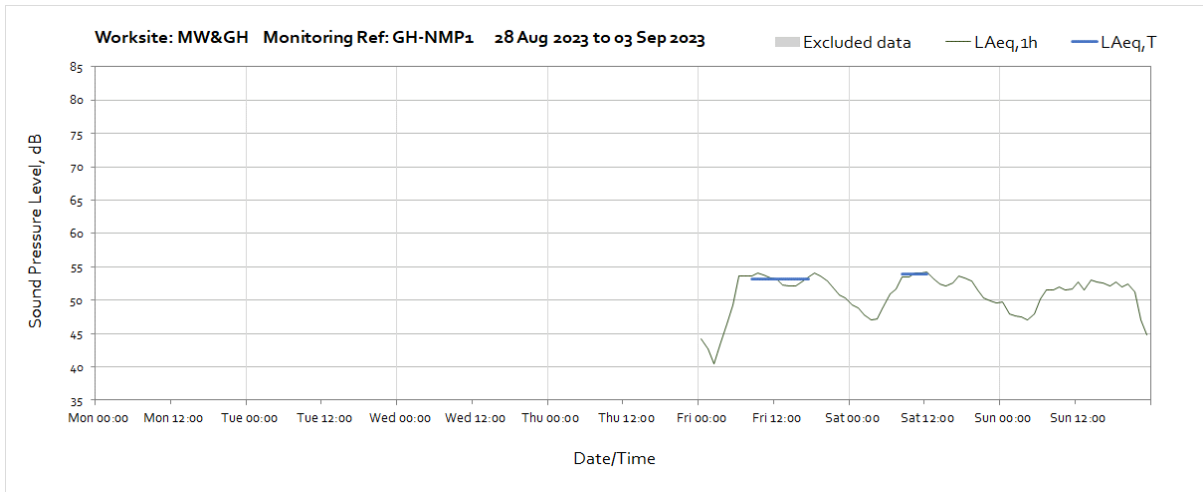


**Worksite: QAR – Monitoring Ref: QAR-NMP2**

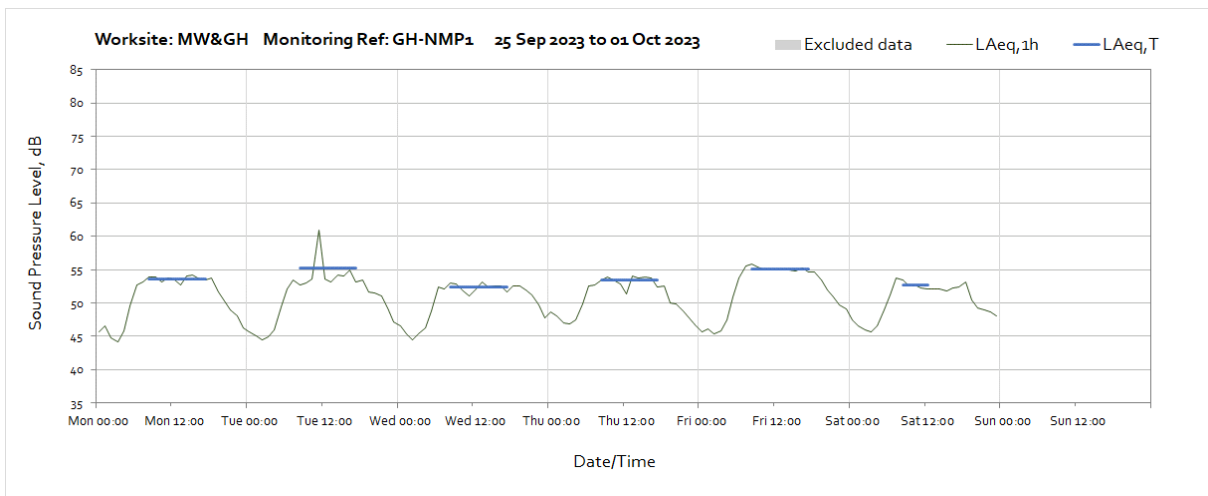
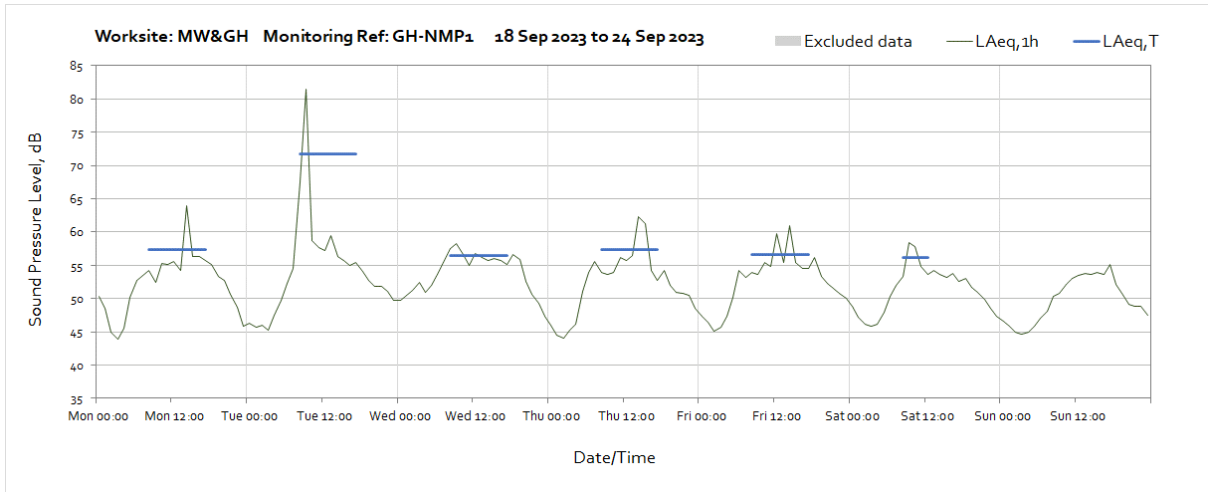




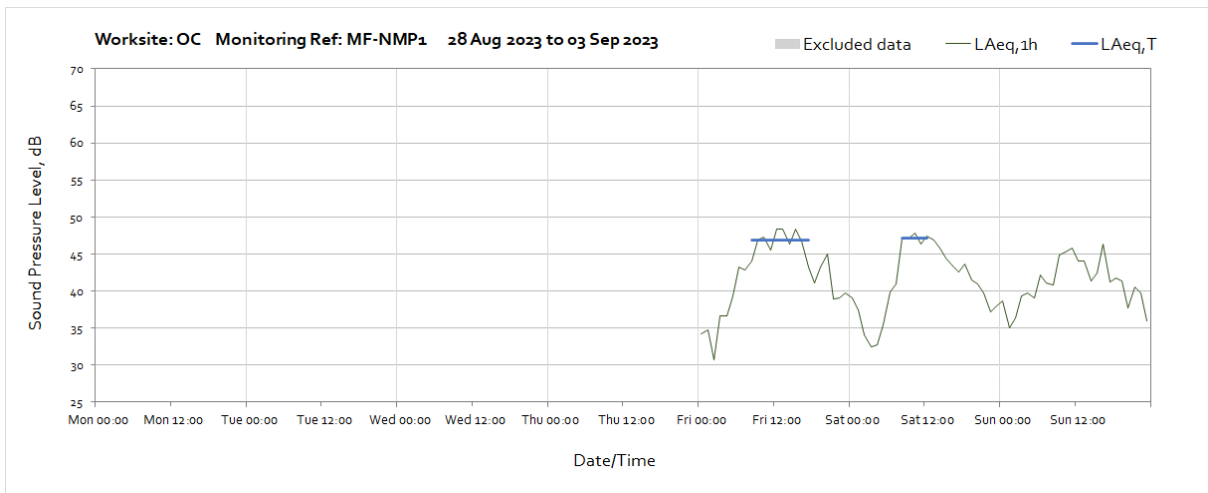
## Worksite: MW&GH – Monitoring Ref: GH-NMP1

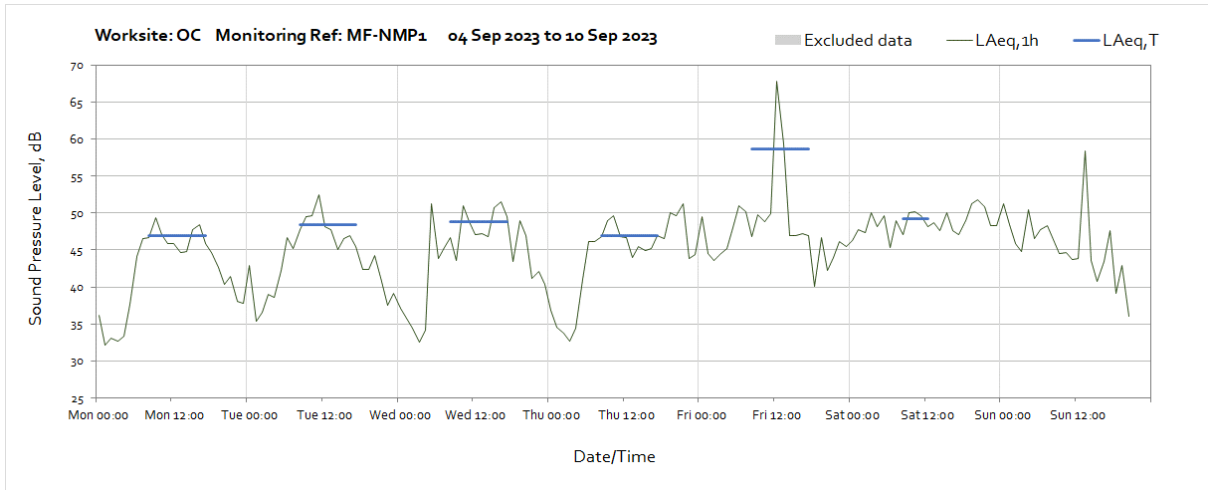




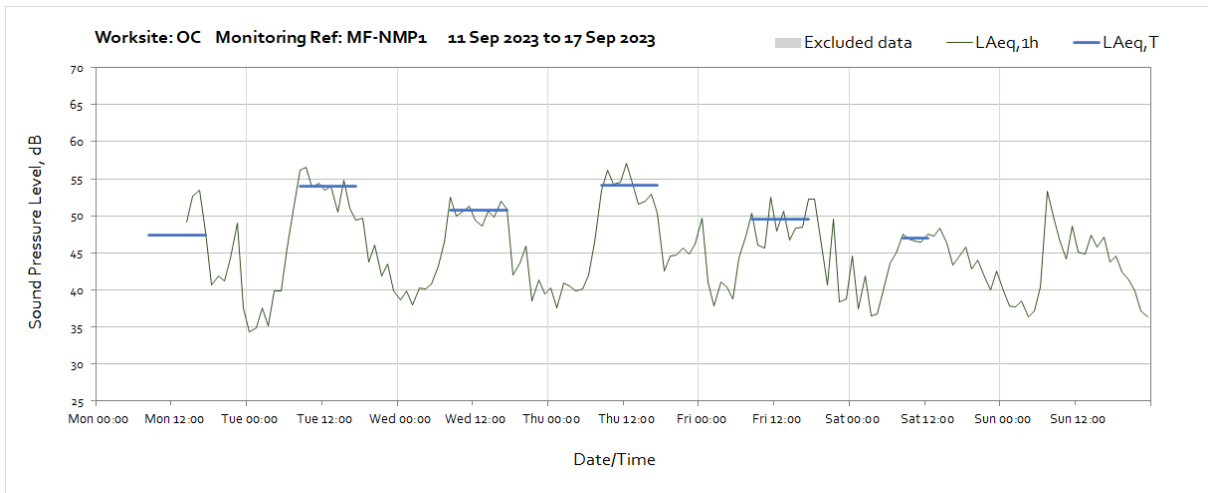


**Worksite: OC - Monitoring Ref: MF-NMP1**

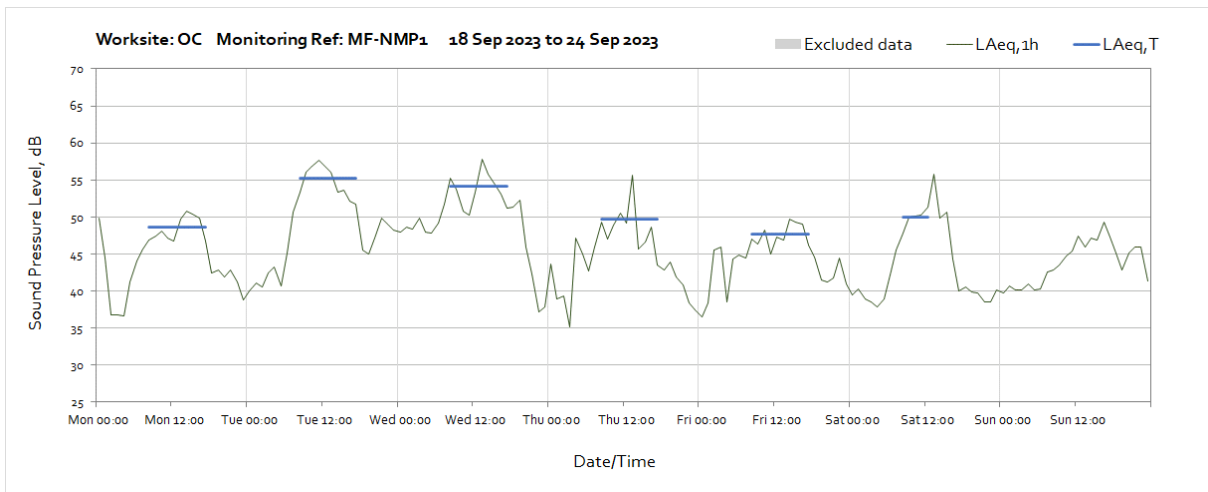


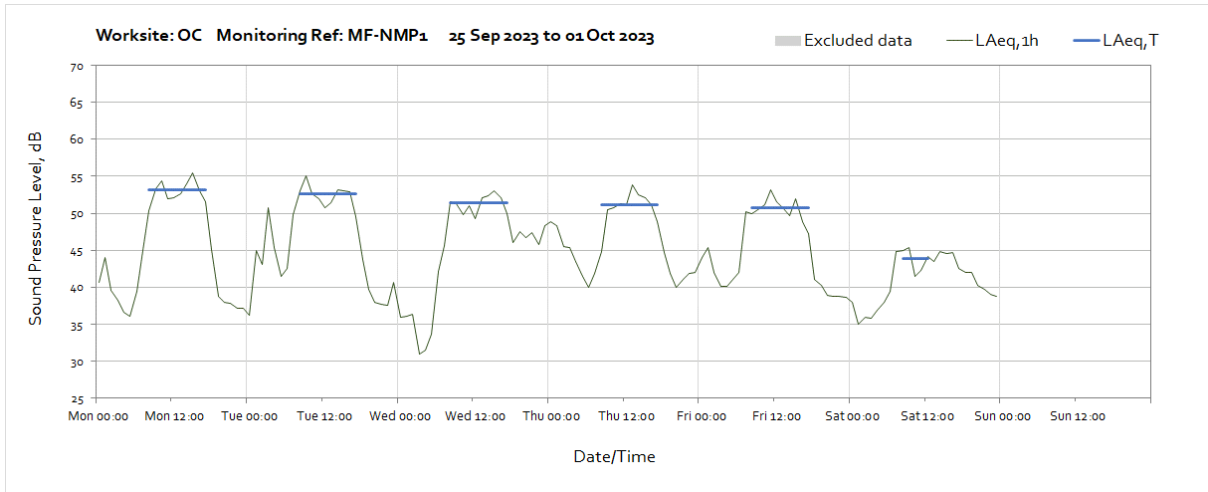


Note: Missing data from 21:00 on Sunday 10<sup>th</sup> September until 14:00 on Monday 11<sup>th</sup> September was due to loss of monitor battery power.

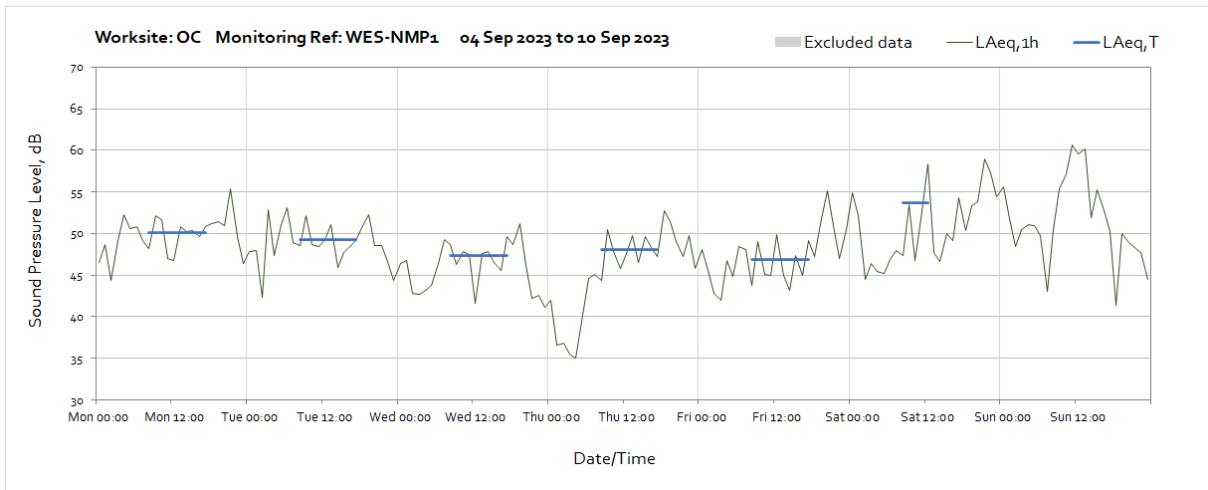
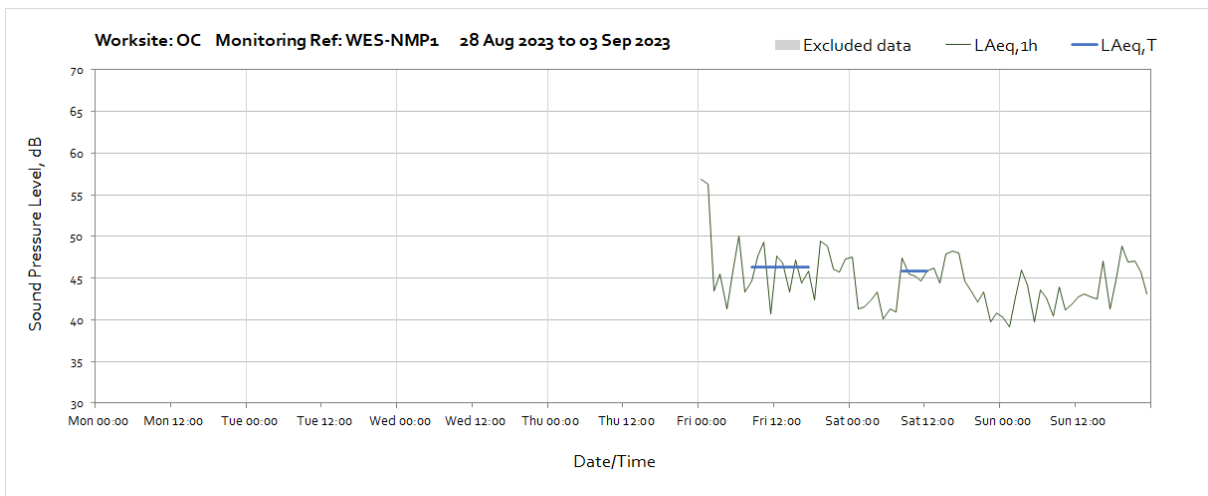


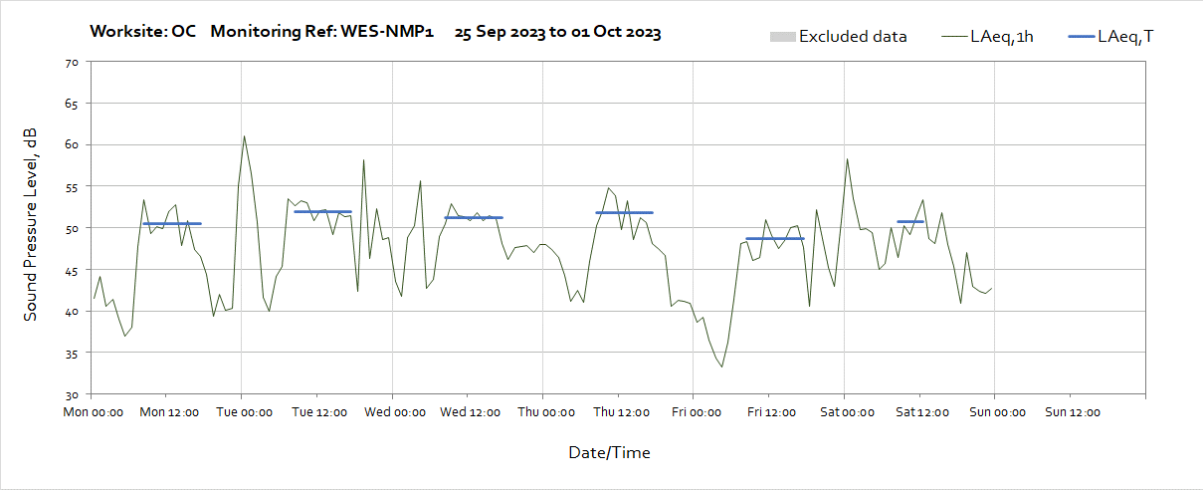
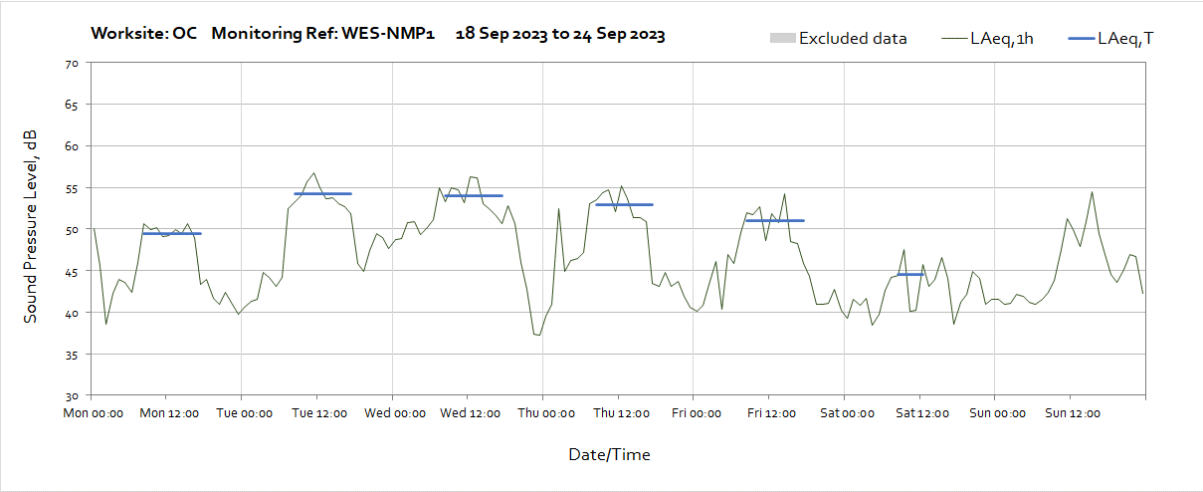
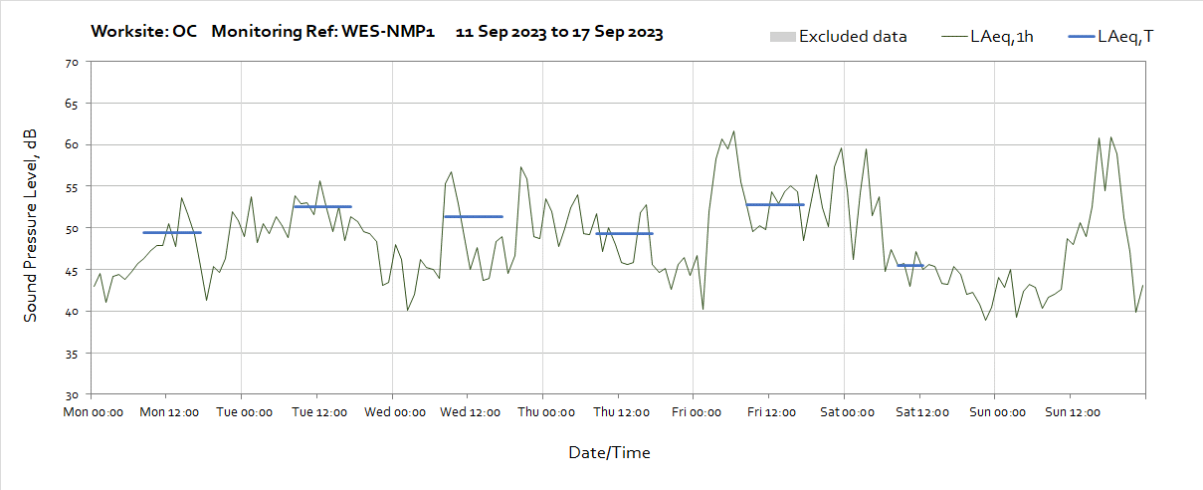
Note: Missing data between 21:00 on Sunday 10<sup>th</sup> September and 14:00 on Monday 11<sup>th</sup> September was due to loss of monitor battery power.



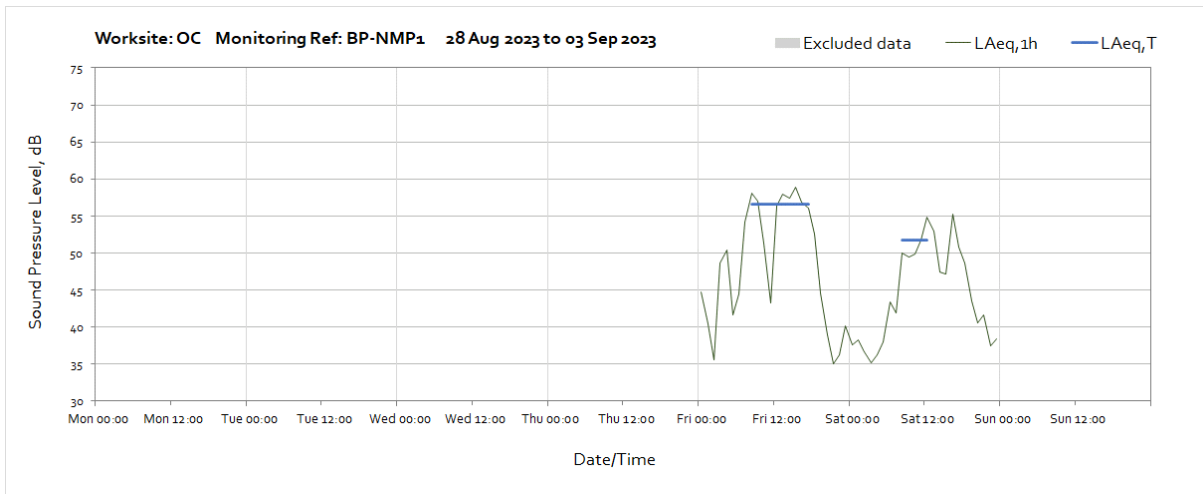


**Worksite: OC - Monitoring Ref: WES-NMP1**

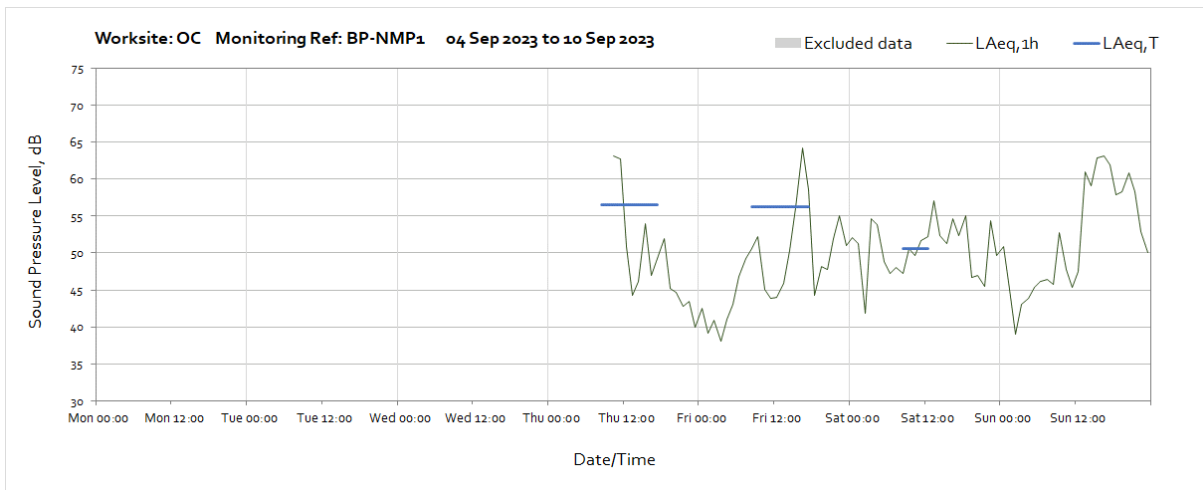




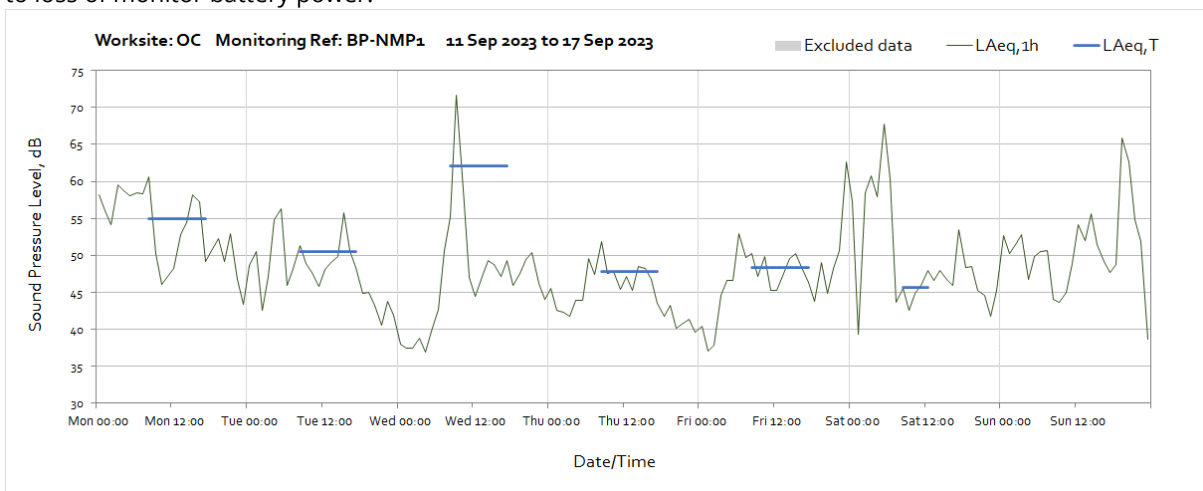
## Worksite: OC – Monitoring Ref: BP-NMP1



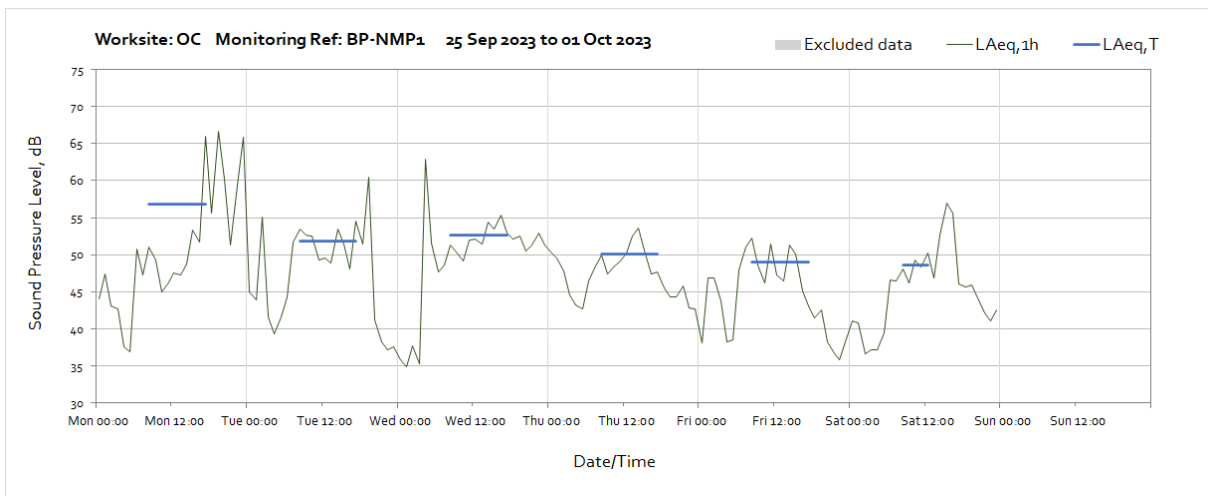
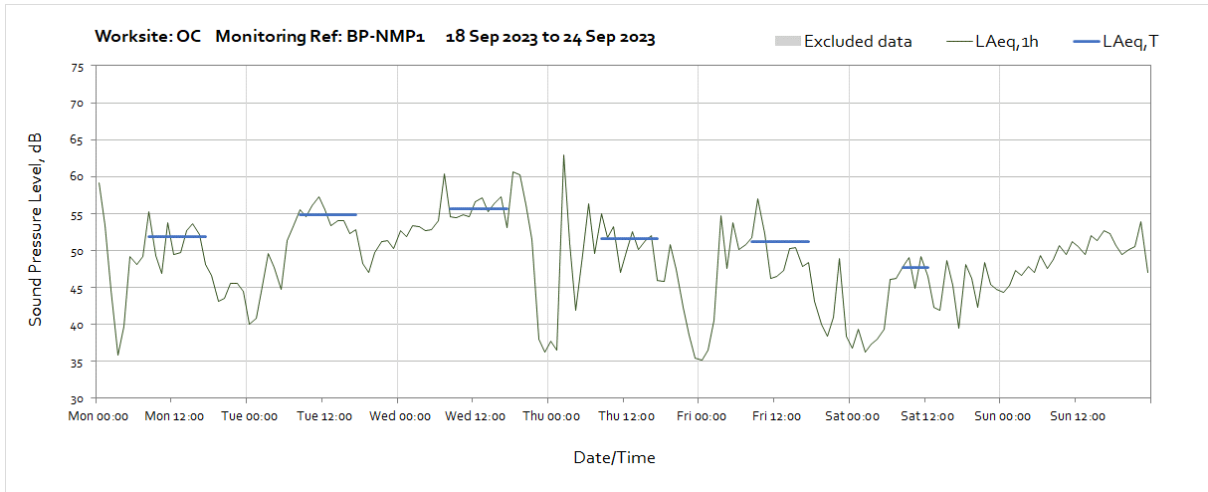
Note: Missing data between 00:00 on Sunday 3<sup>rd</sup> September and 10:00 on Thursday 7<sup>th</sup> September was due to loss of monitor battery power.



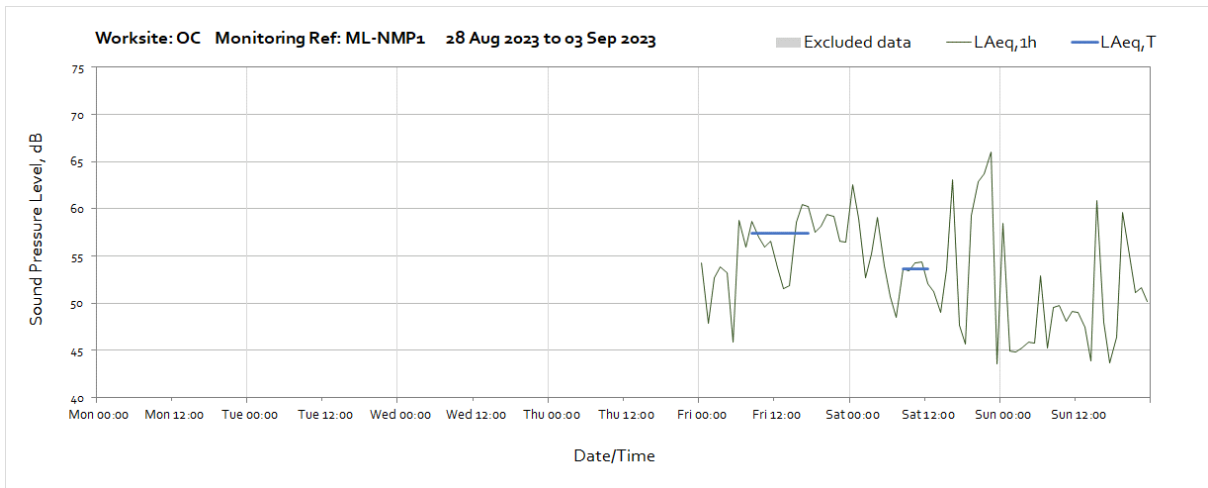
Note: Missing data between 00:00 on Sunday 3<sup>rd</sup> September and 10:00 on Thursday 7<sup>th</sup> September was due to loss of monitor battery power.

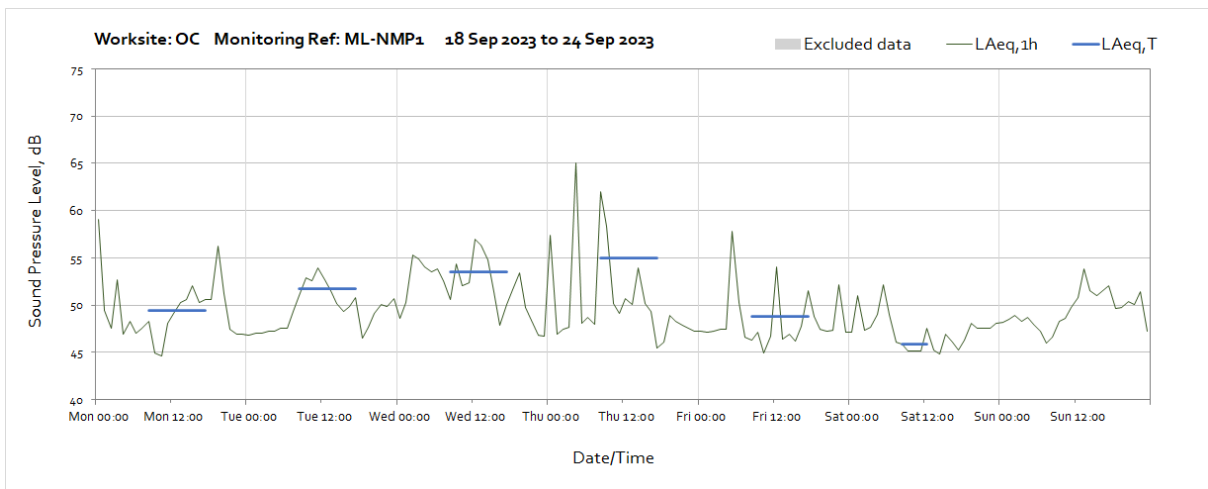
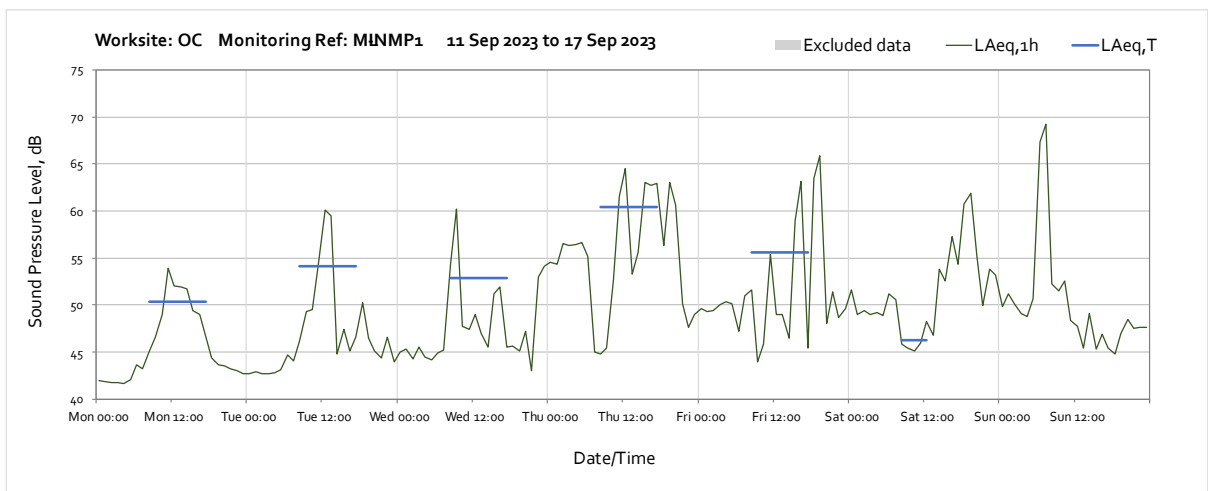
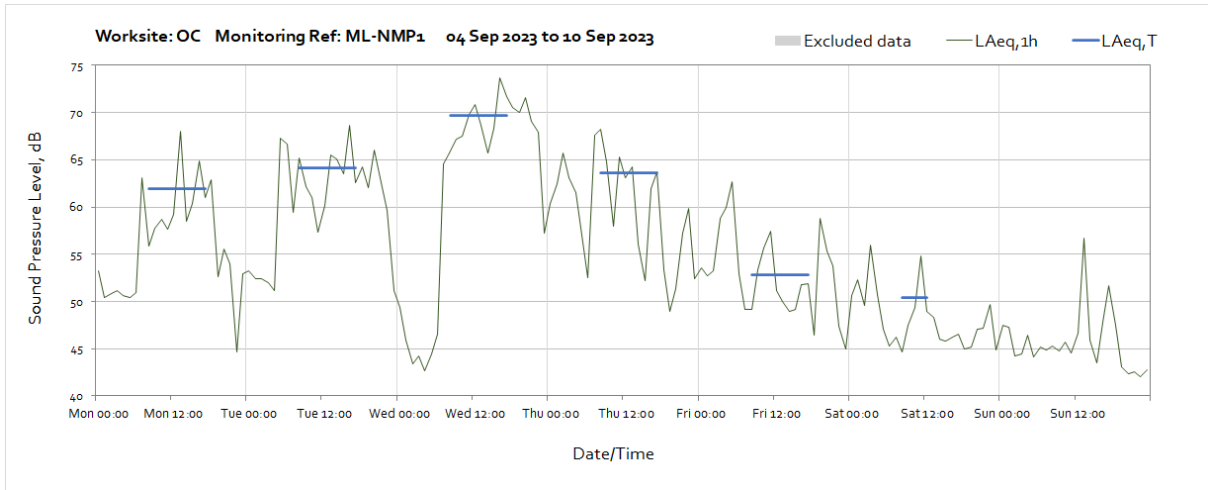


OFFICIAL

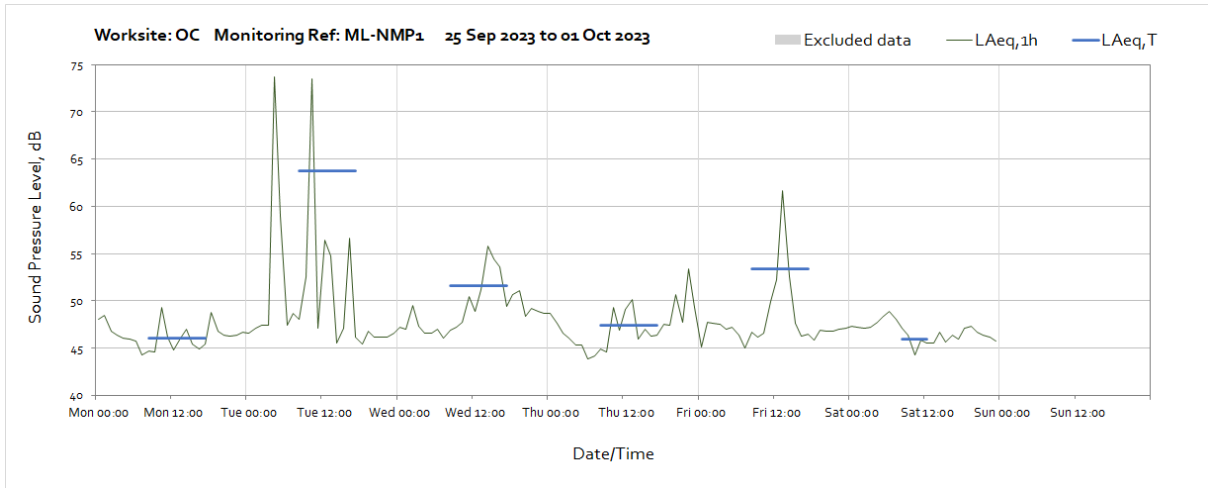


**Worksite: OC - Monitoring Ref: ML-NMP1**

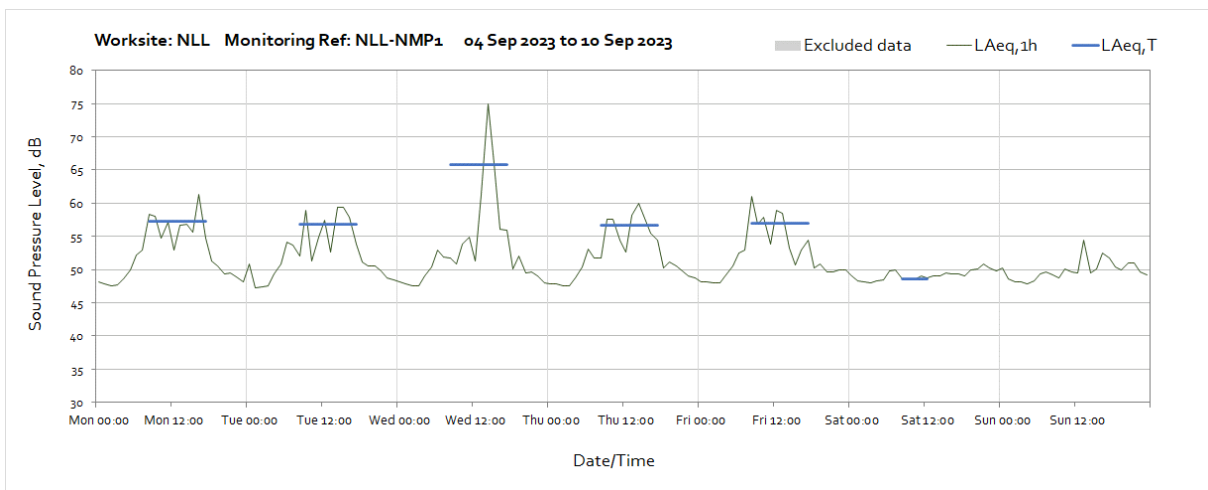
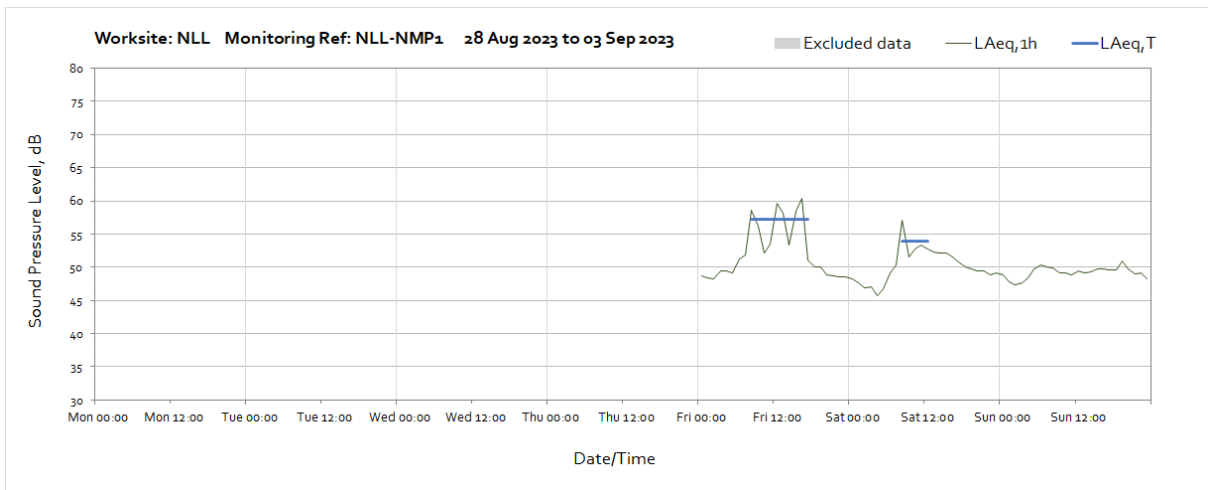


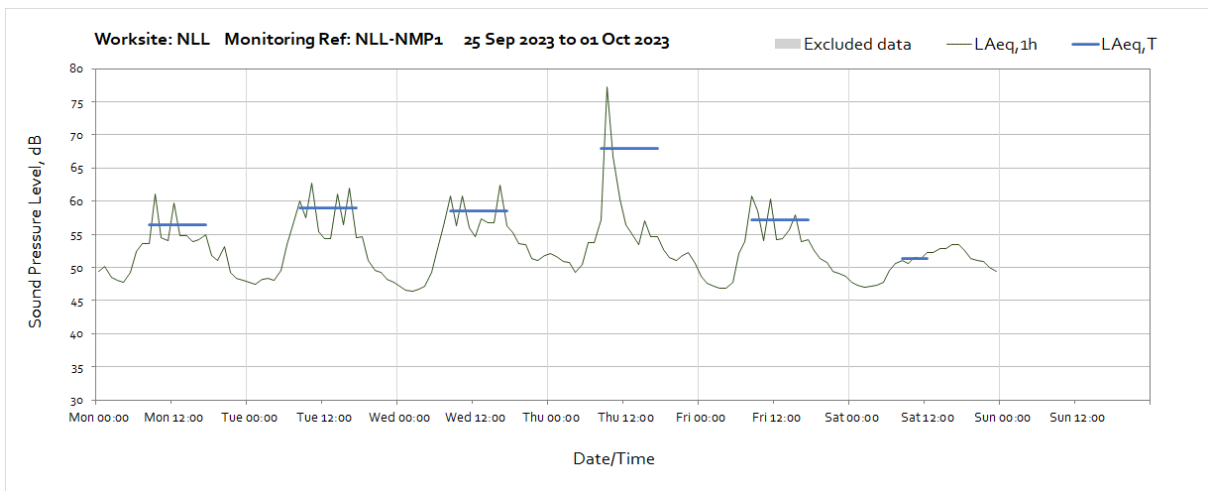
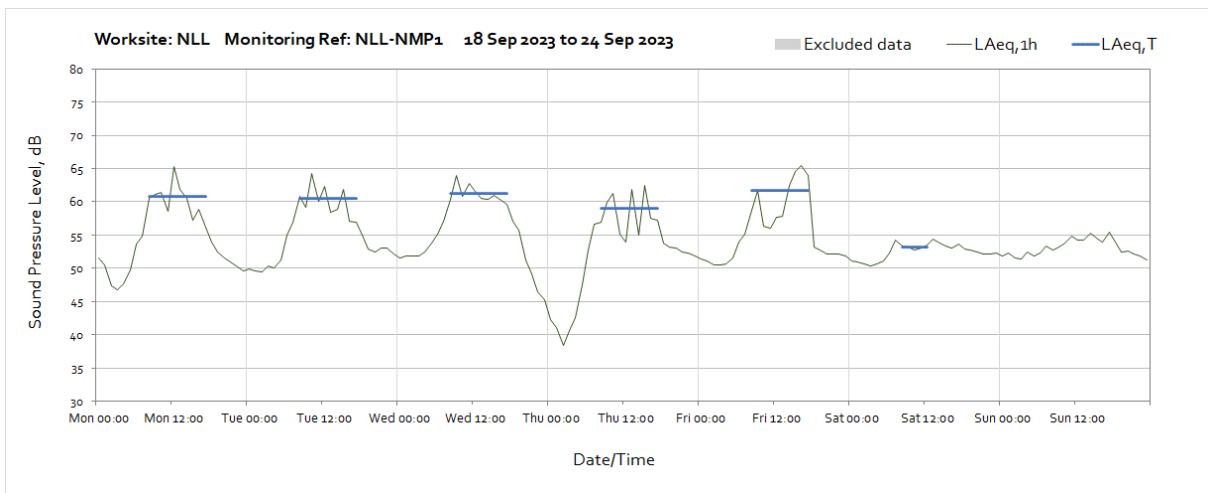
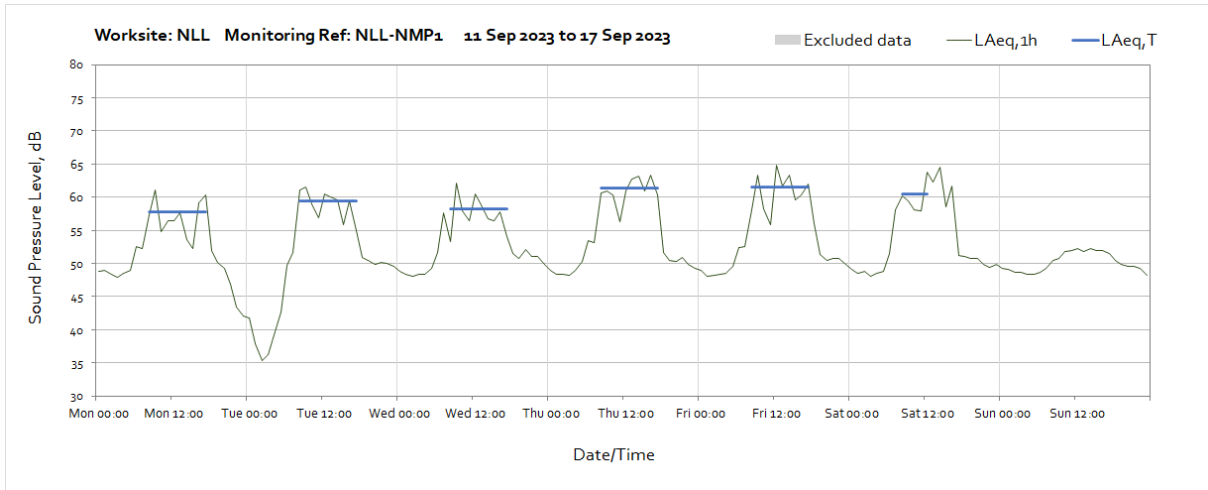




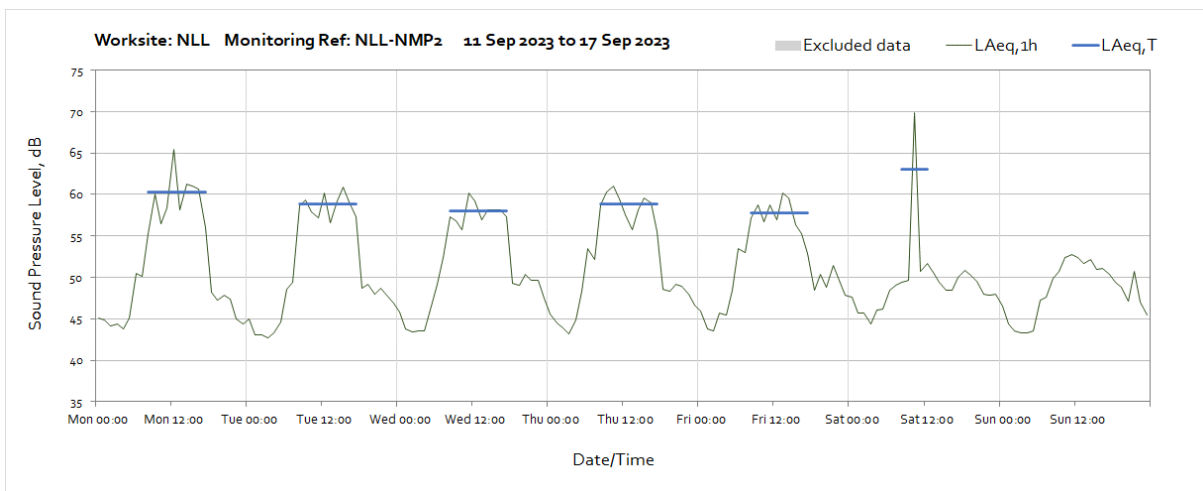
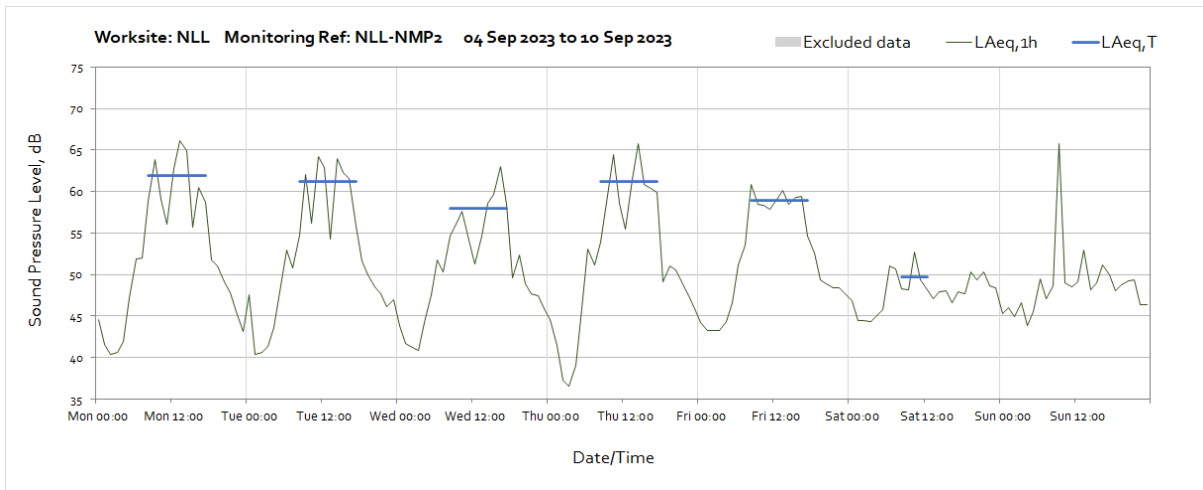
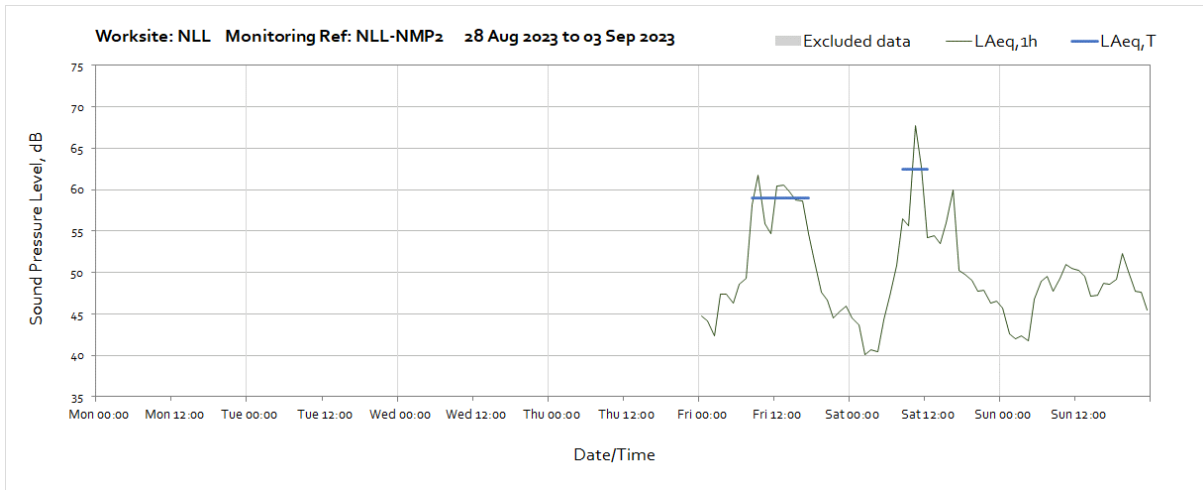


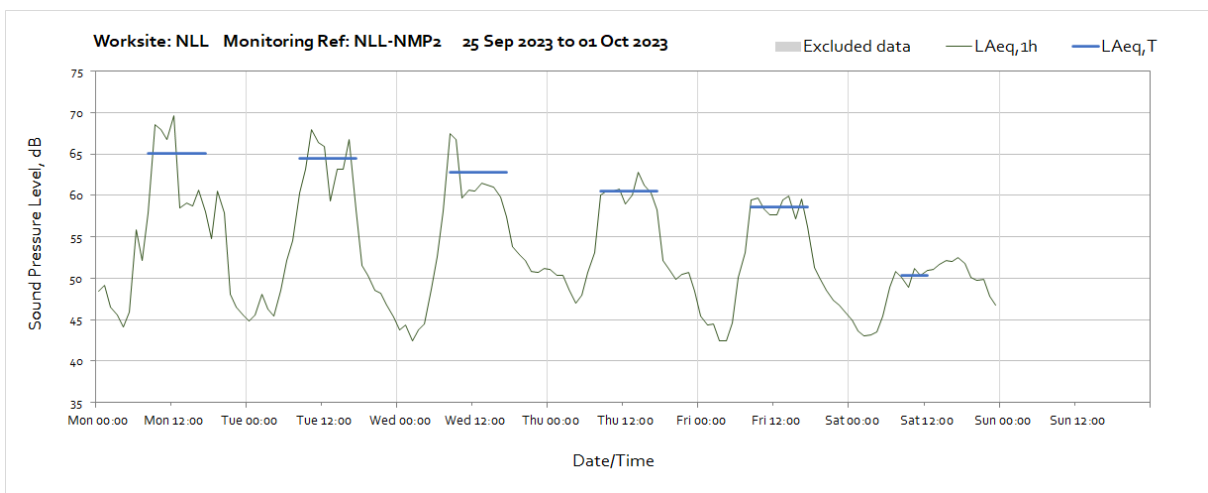
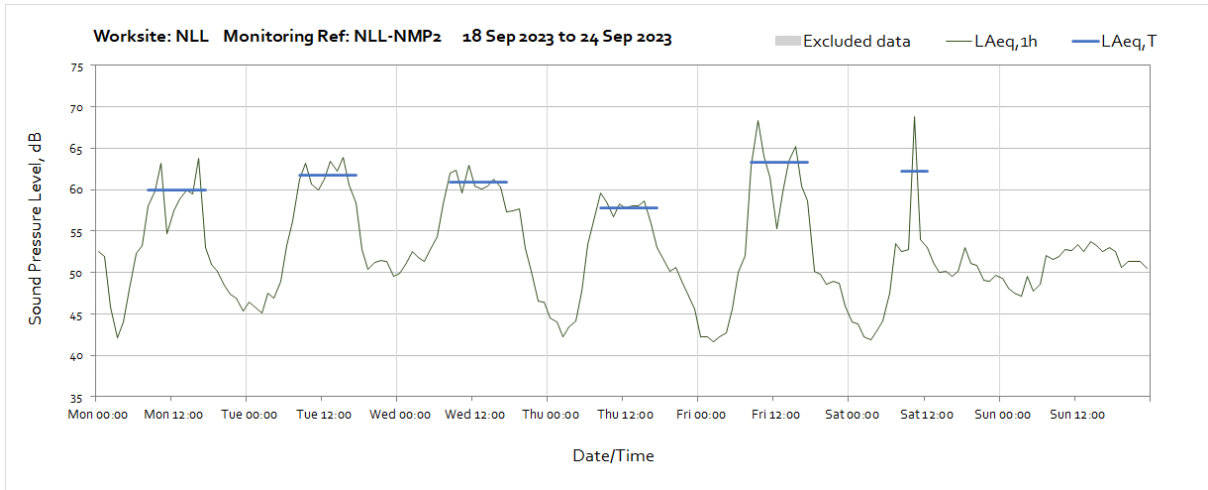
**Worksite: NLL – Monitoring Ref: NLL-NMP1**



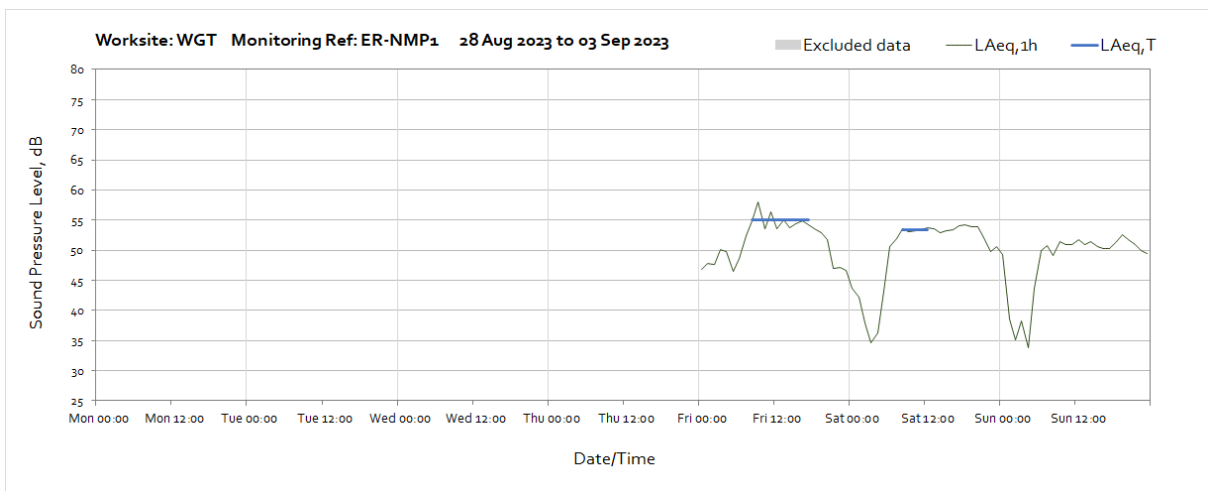


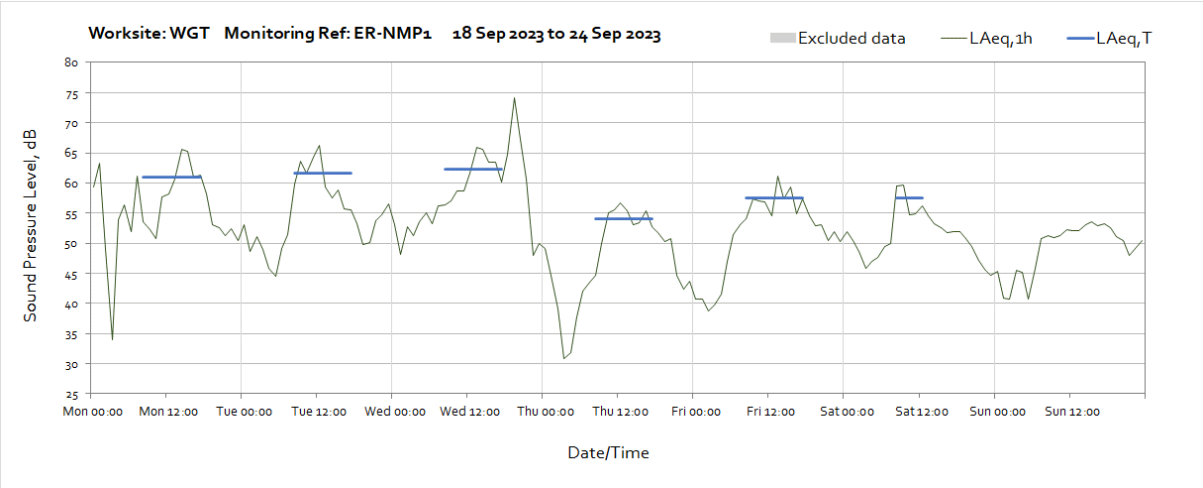
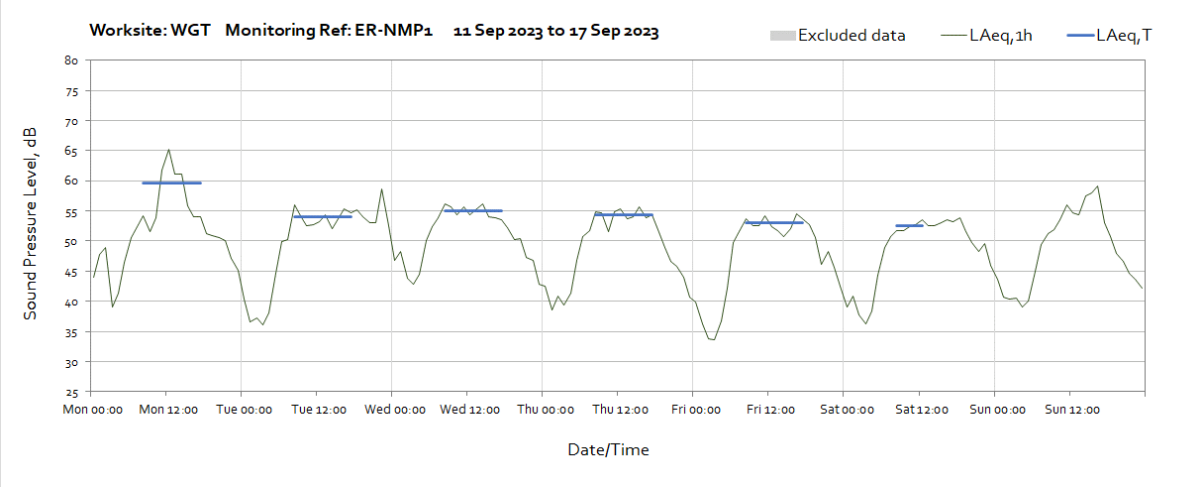
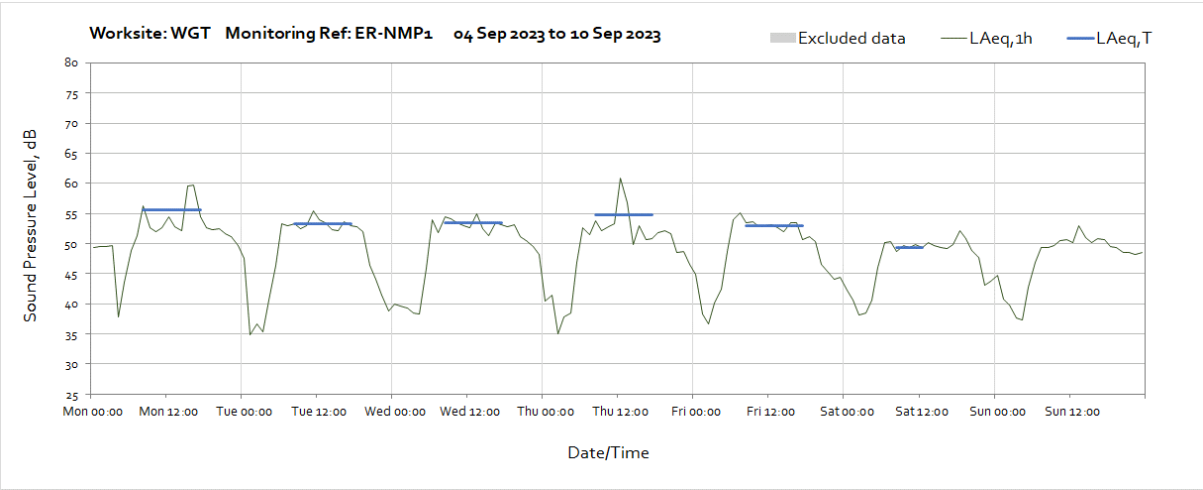
## Worksite: NLL – Monitoring Ref: NLL-NMP2

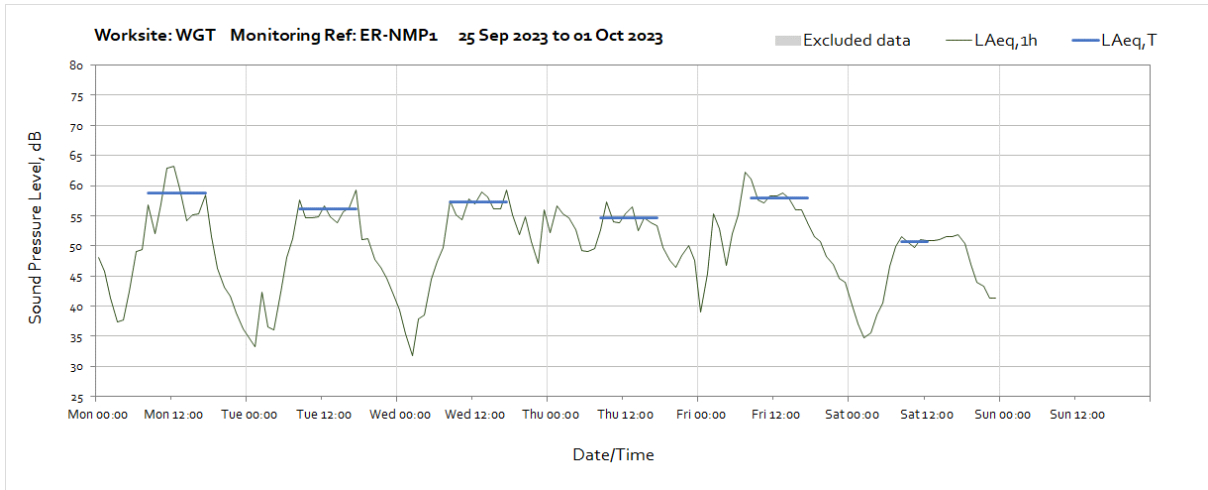




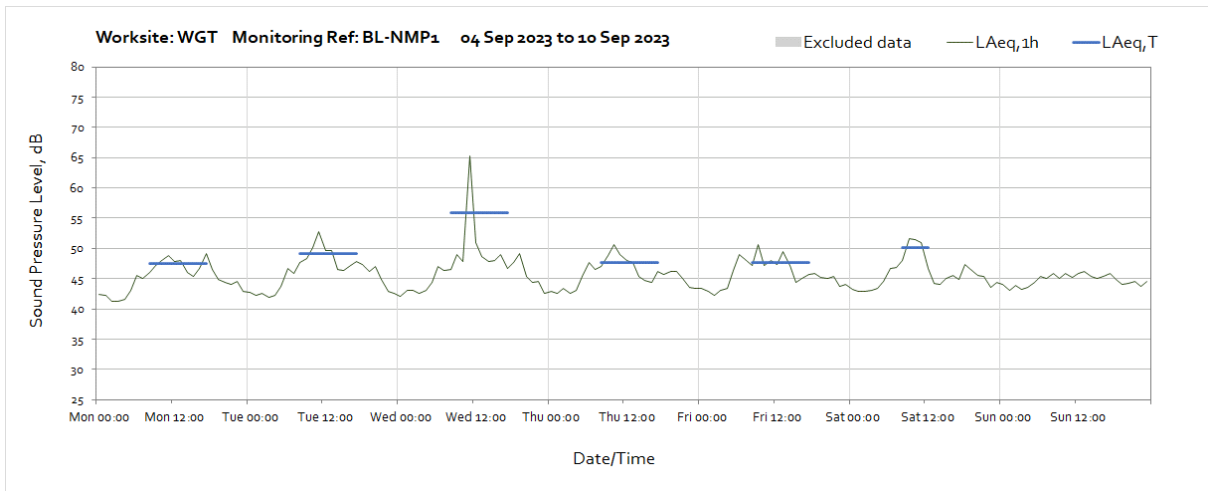
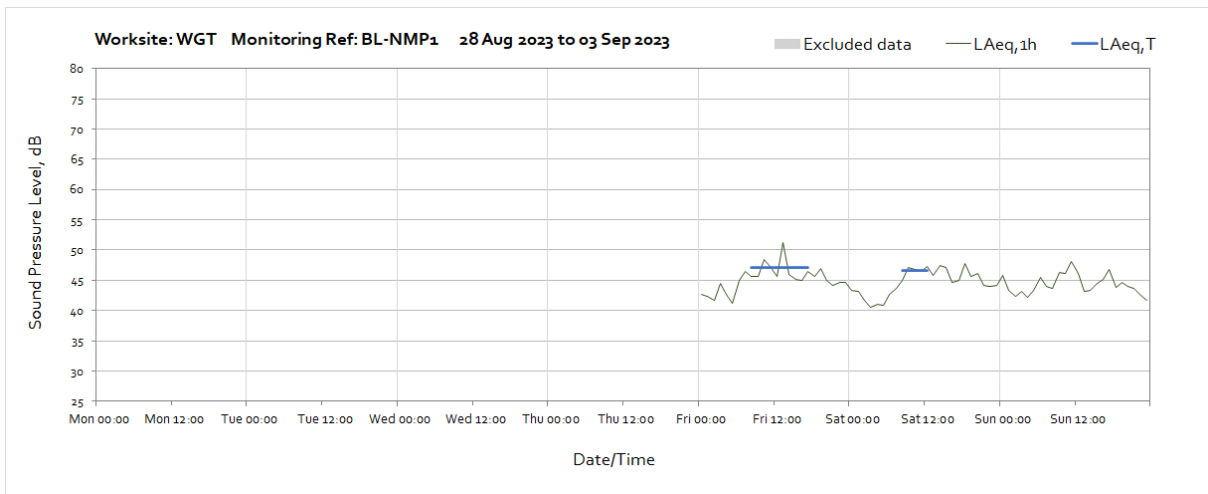
**Worksite: WGT – Monitoring Ref: ER-NMP1**

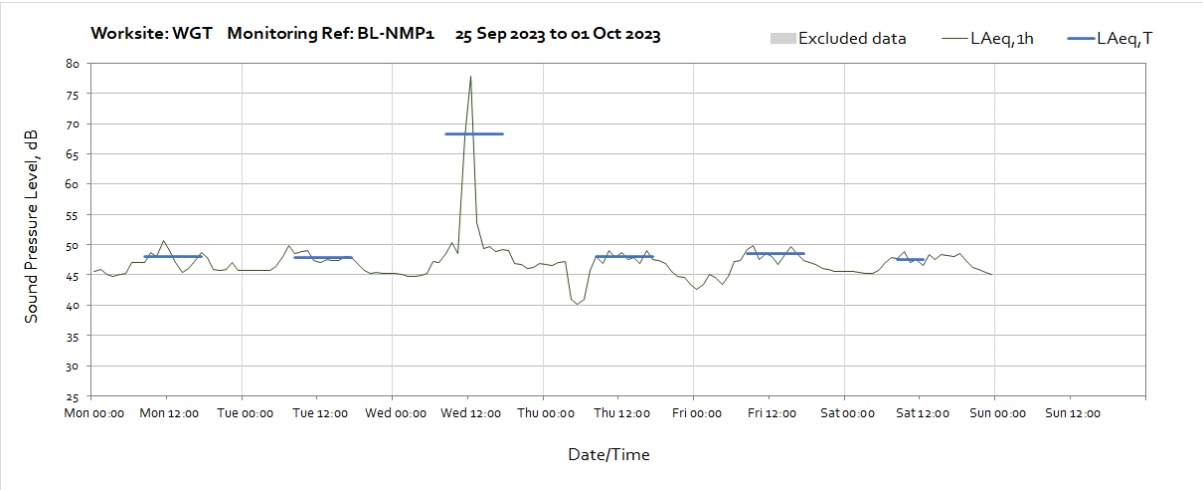
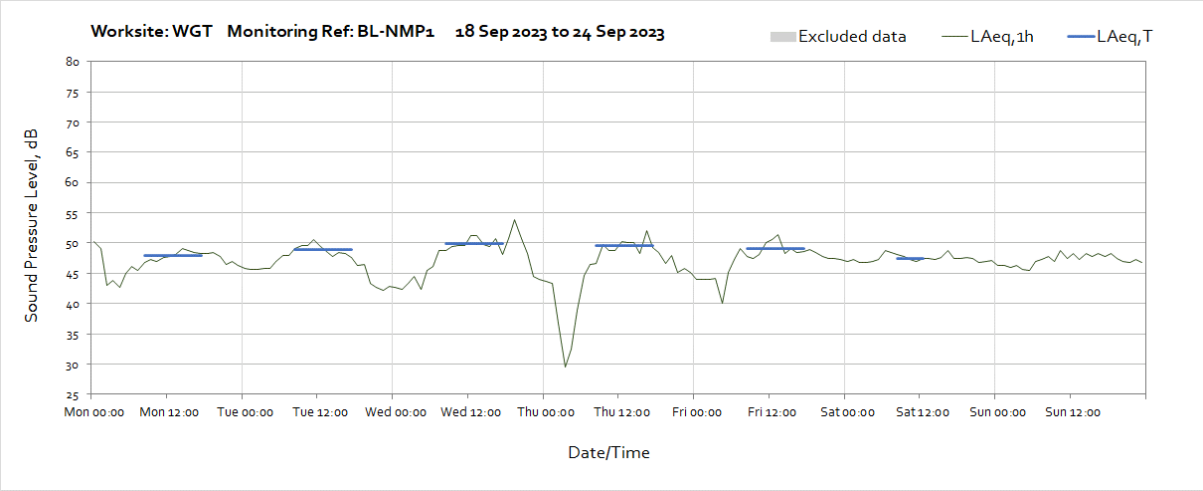
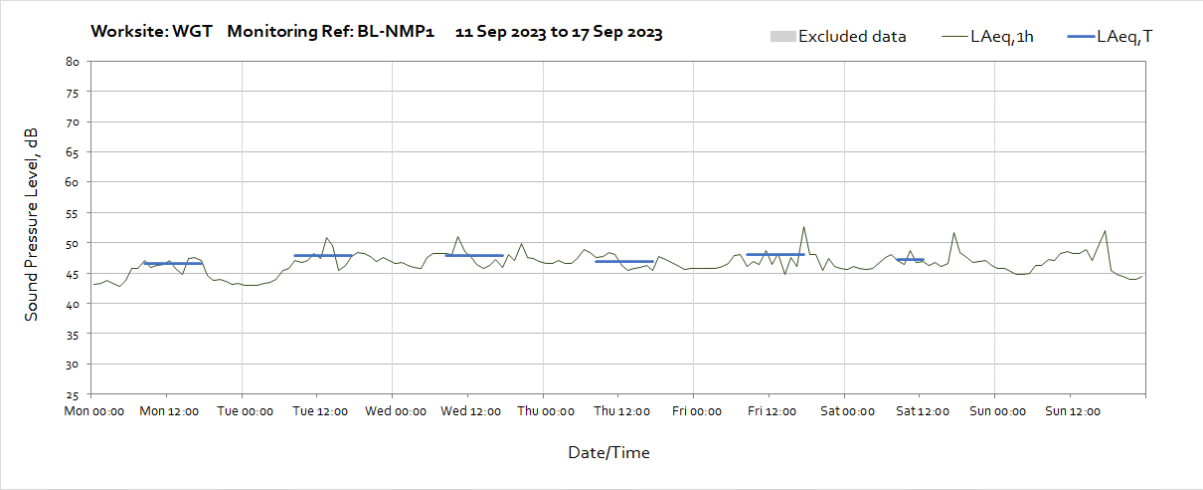






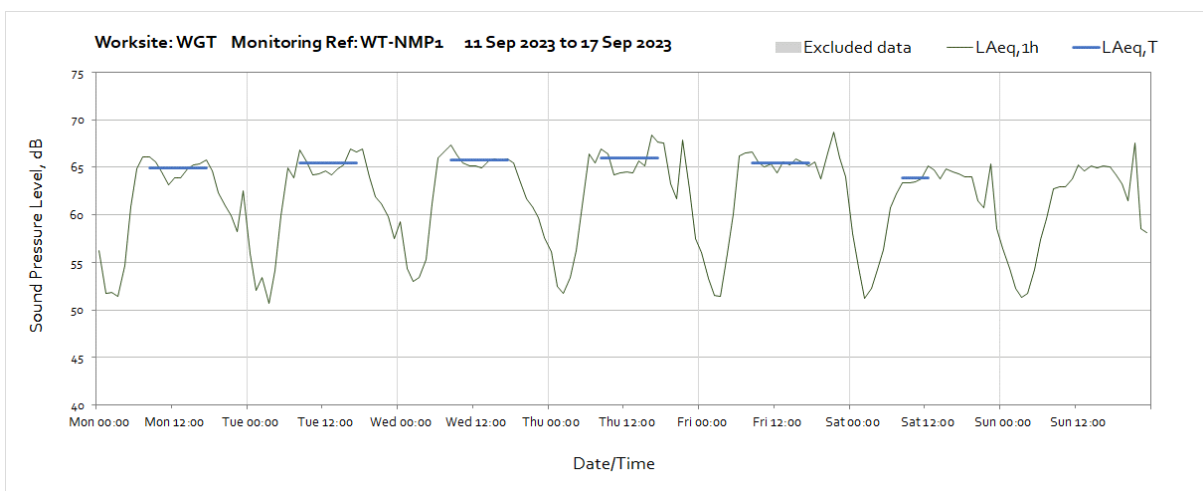
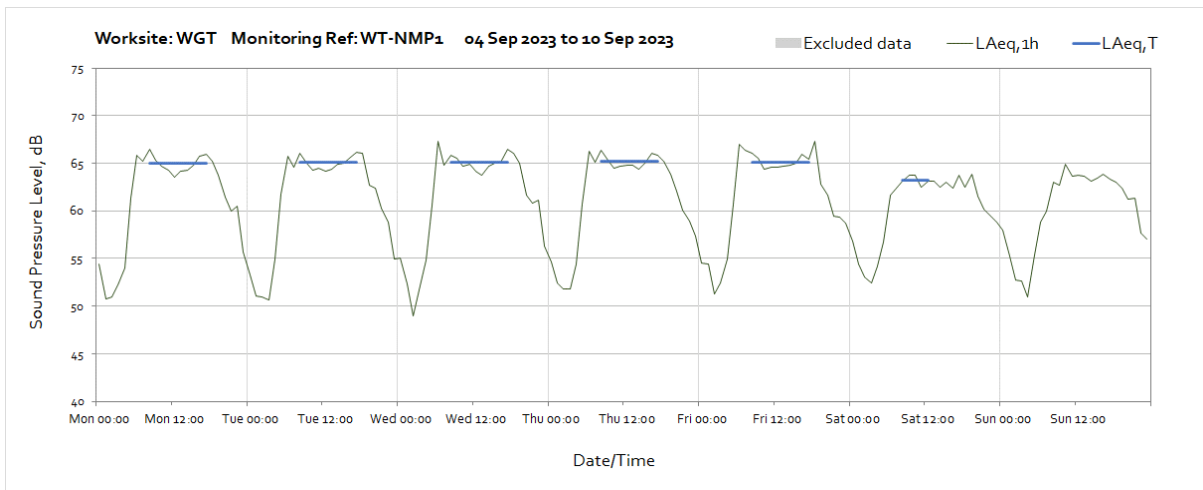
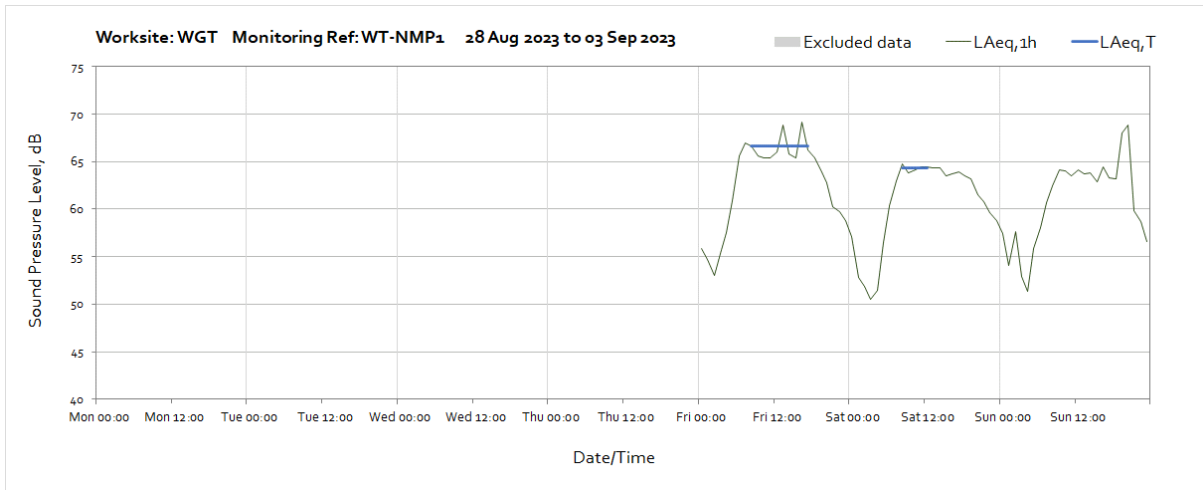
**Worksite: WGT - Monitoring Ref: BL-NMP1**



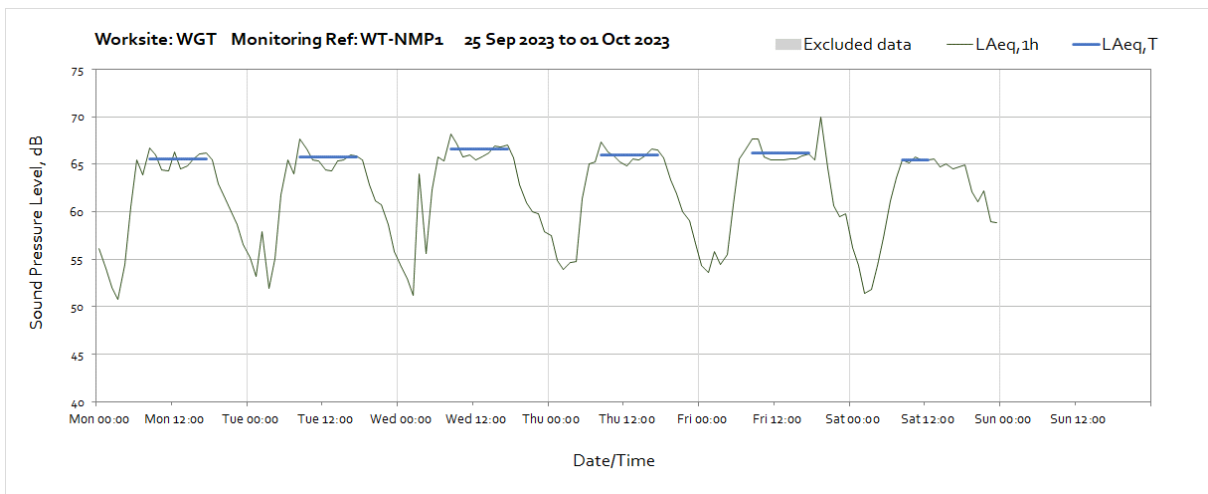
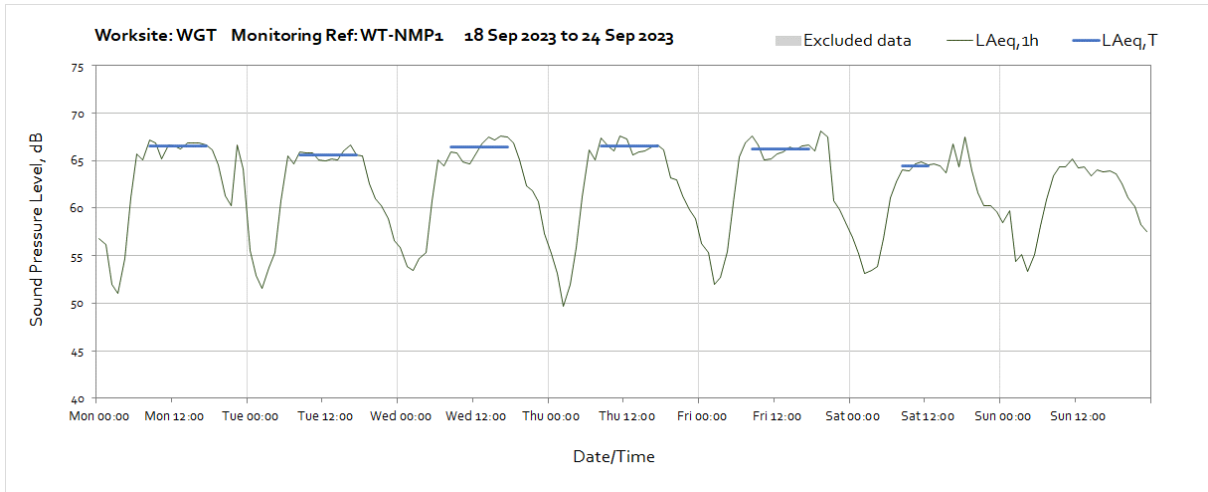




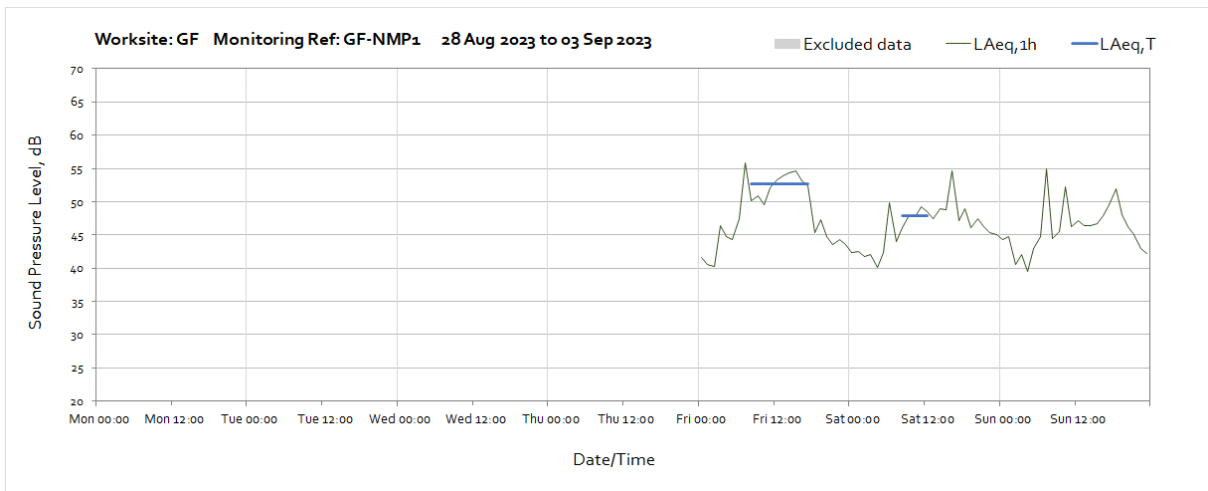
## Worksite: WGT – Monitoring Ref: WT-NMP1

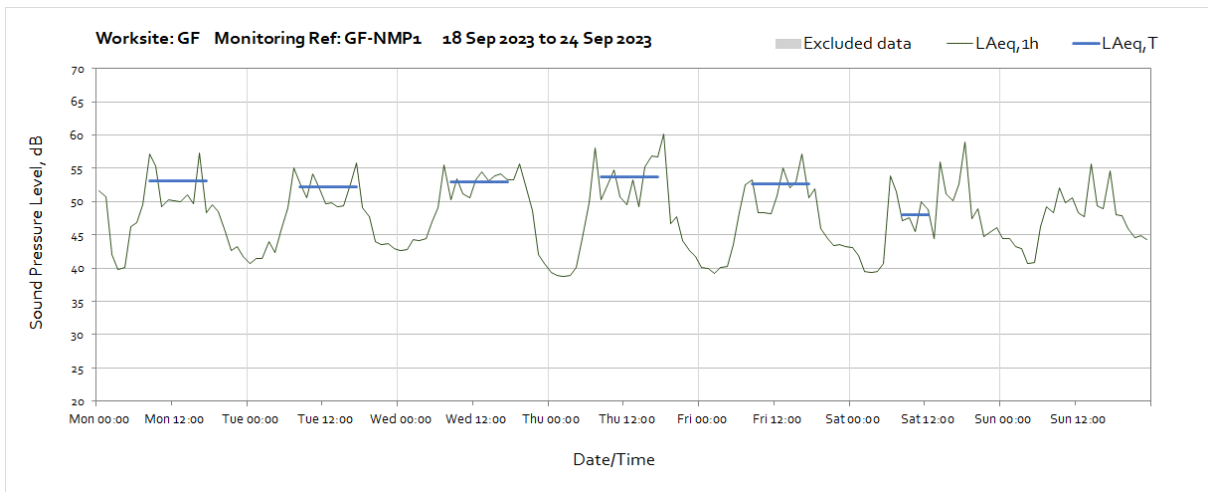
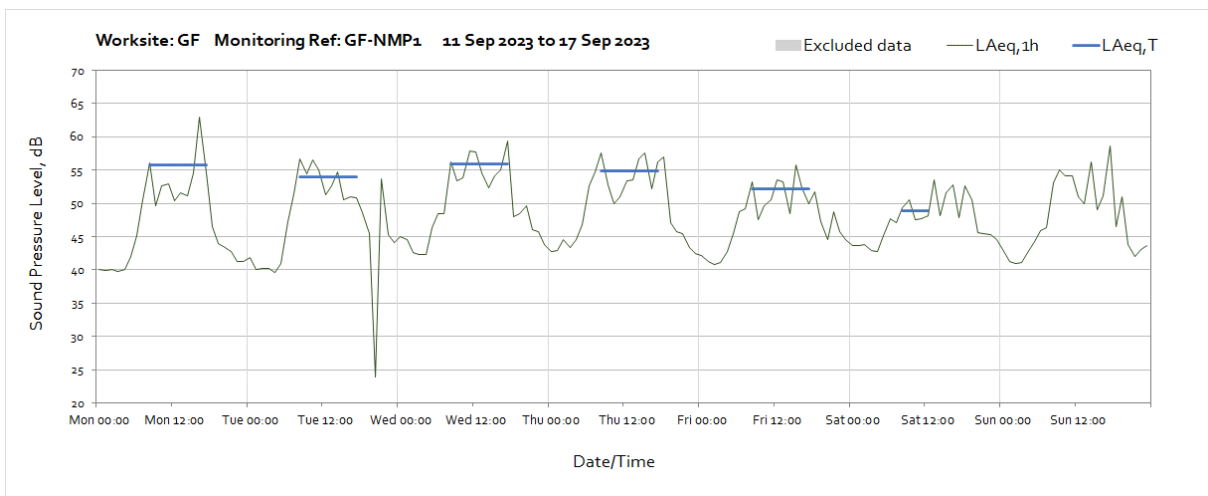
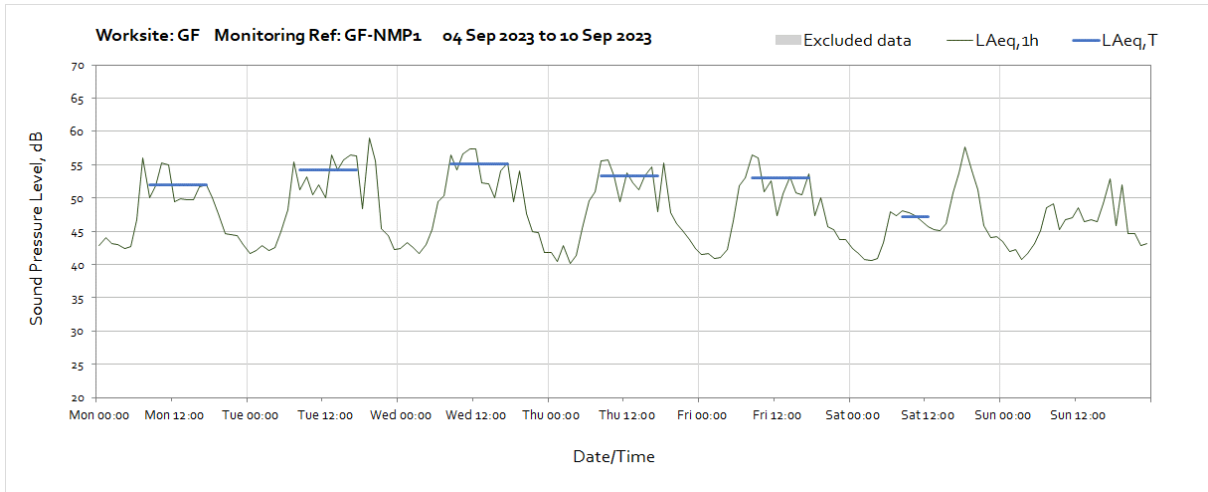


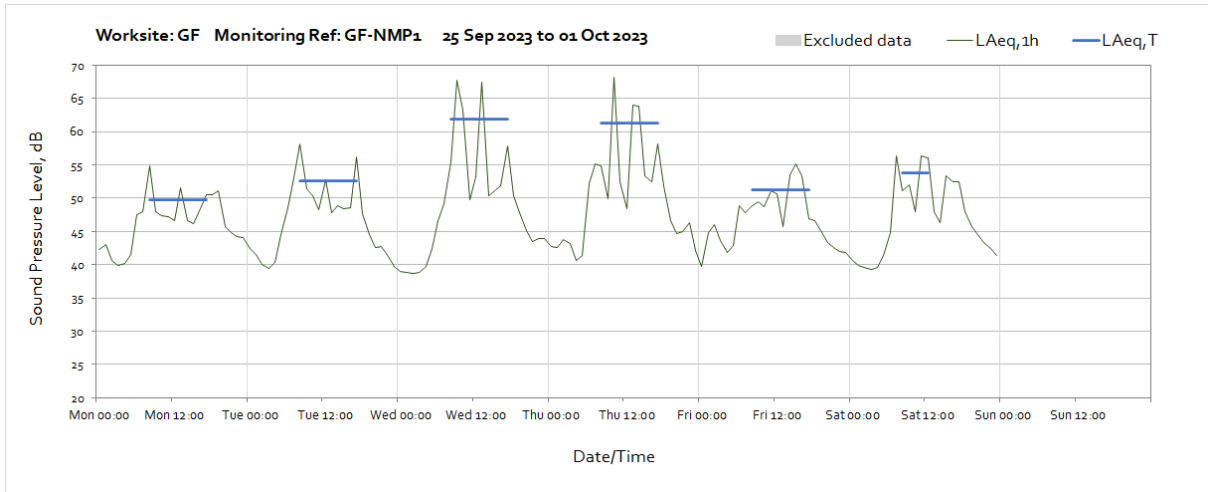
OFFICIAL



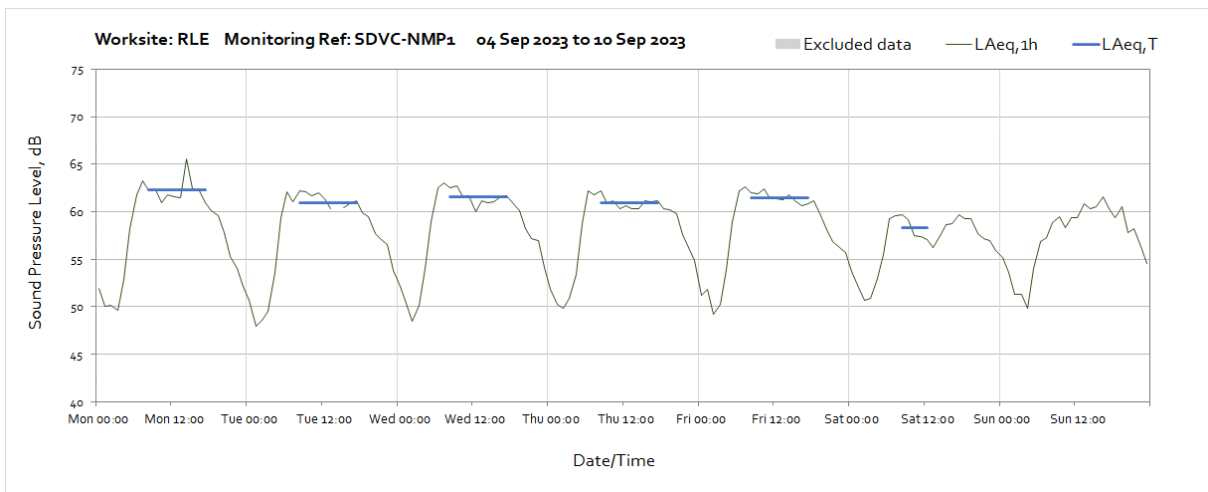
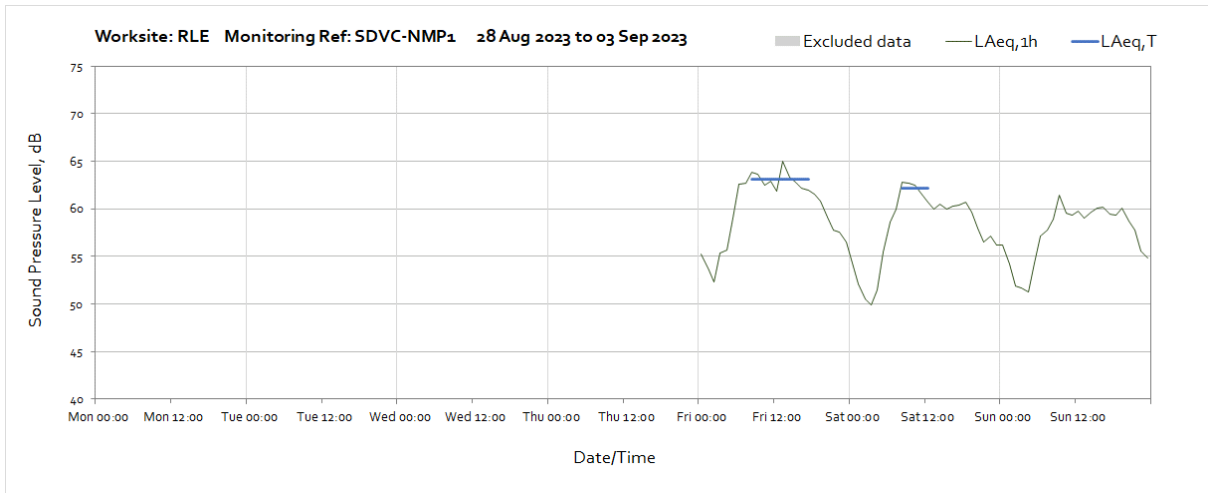
**Worksite: GF – Monitoring Ref: GF-NMP1**



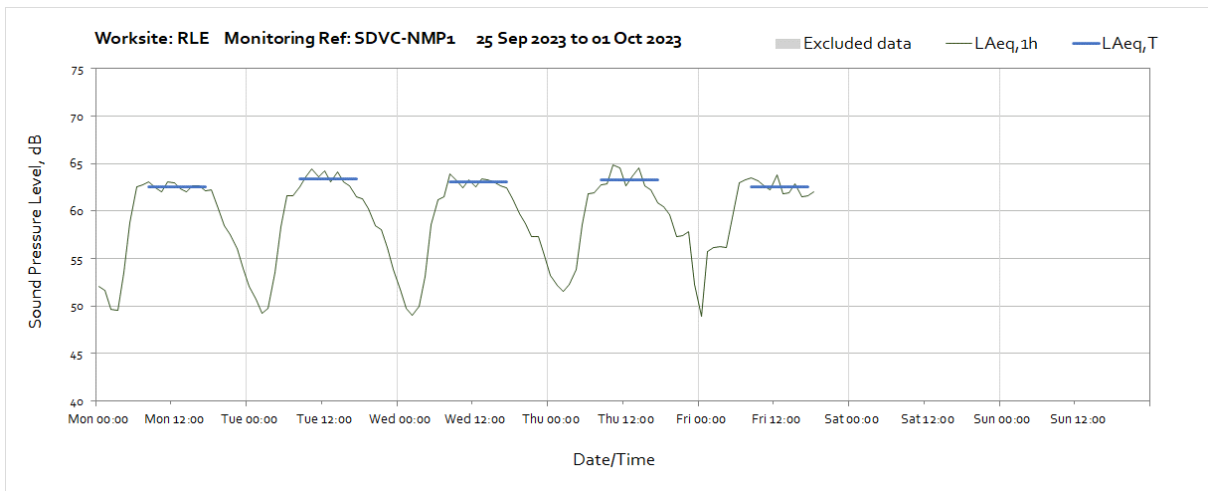
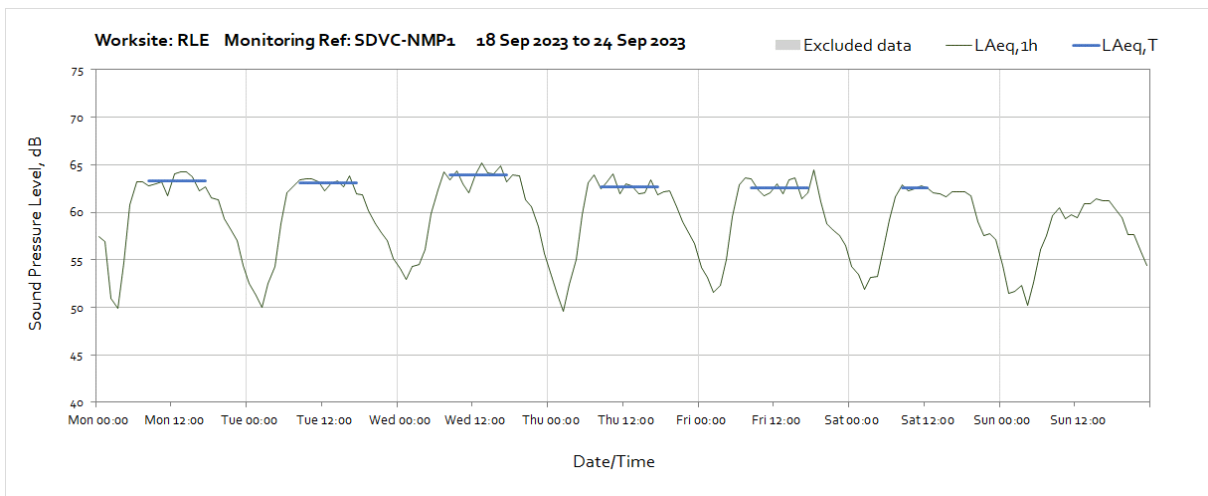
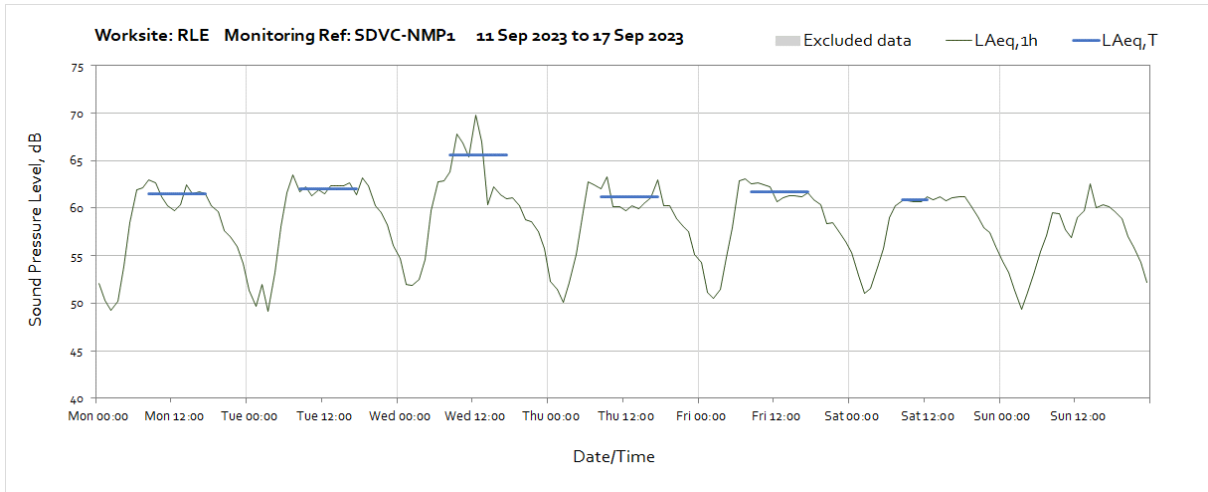




**Worksite: RLE – Monitoring Ref: SDVC-NMP1**

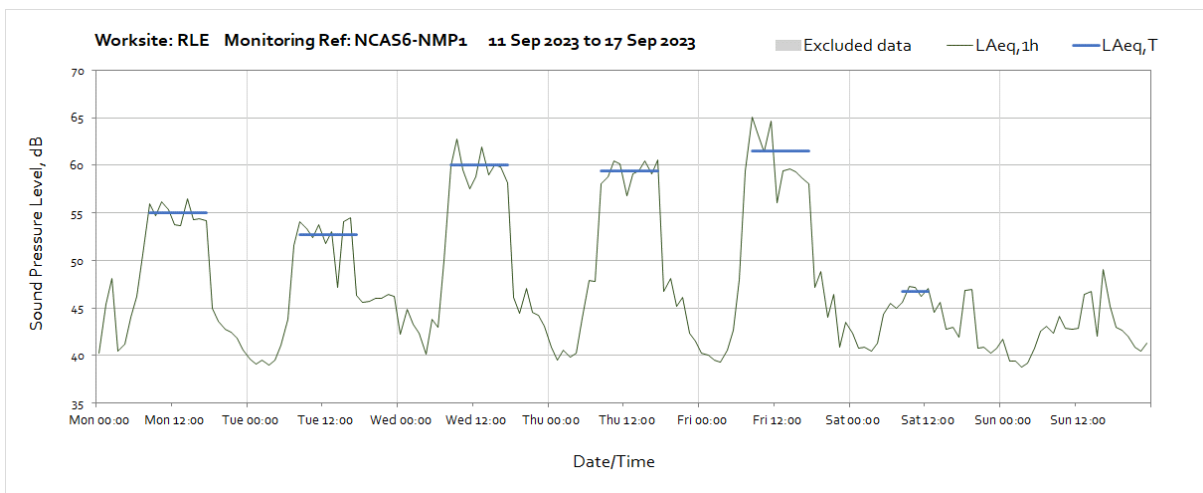
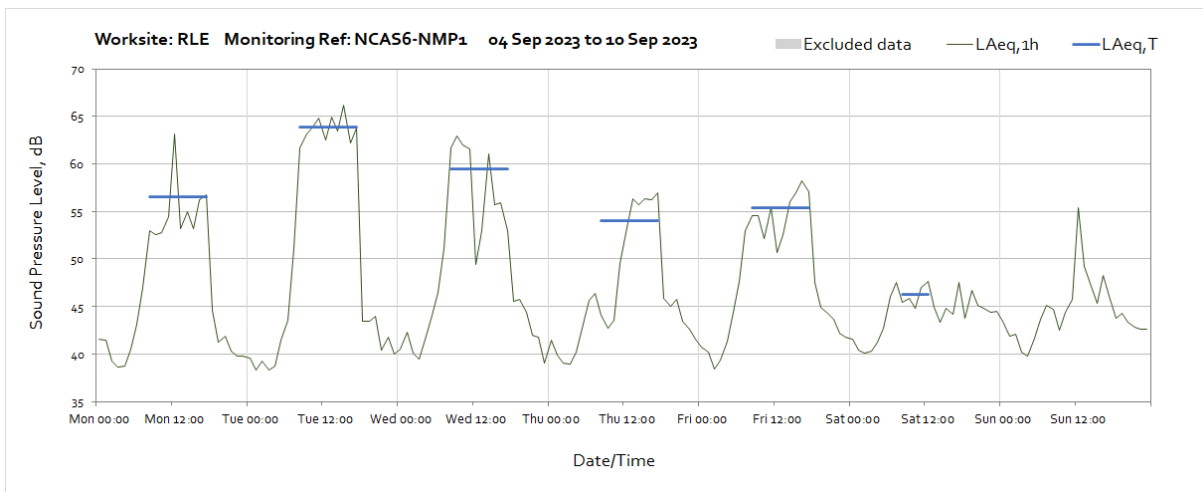
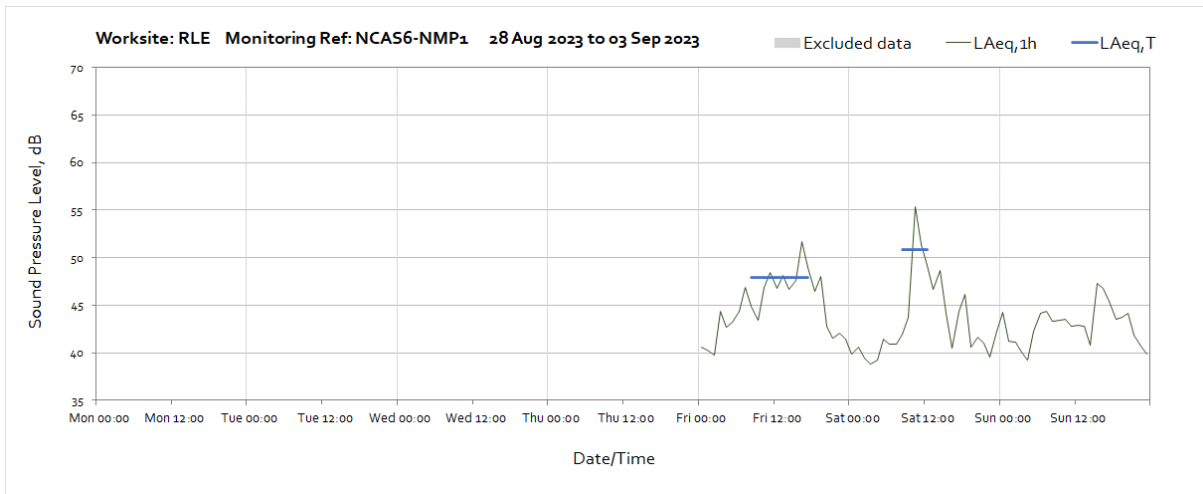


Note: Missing data between 14:00 and 15:00 on Tuesday 5<sup>th</sup> September was due to monitor maintenance.

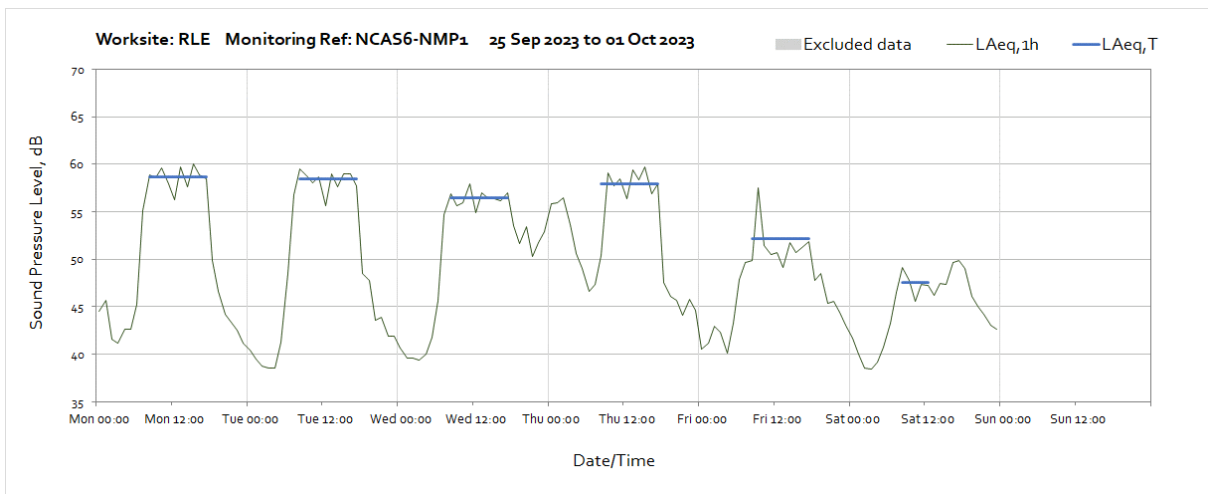
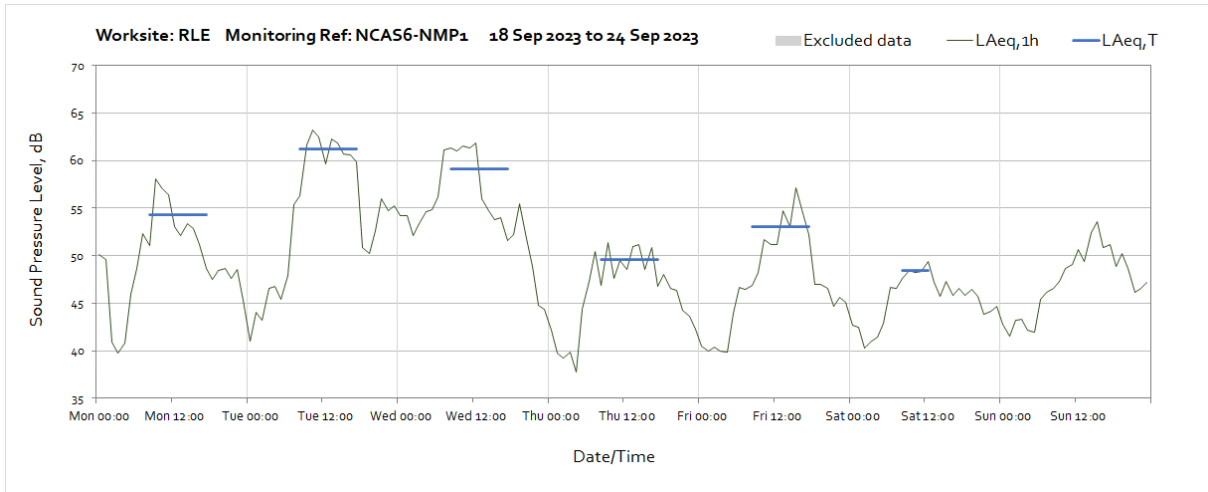


Note: Missing data from 19:00 on Friday 29<sup>th</sup> September until month end was due to monitor error, monitor has now been replaced.

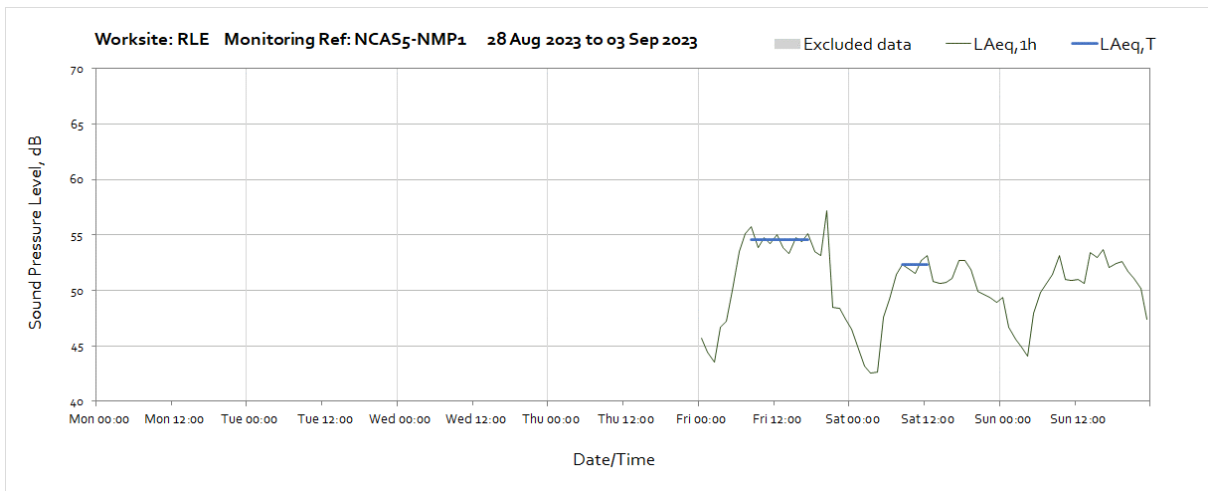
## Worksite: RLE – Monitoring Ref: NCAS6-NMP1



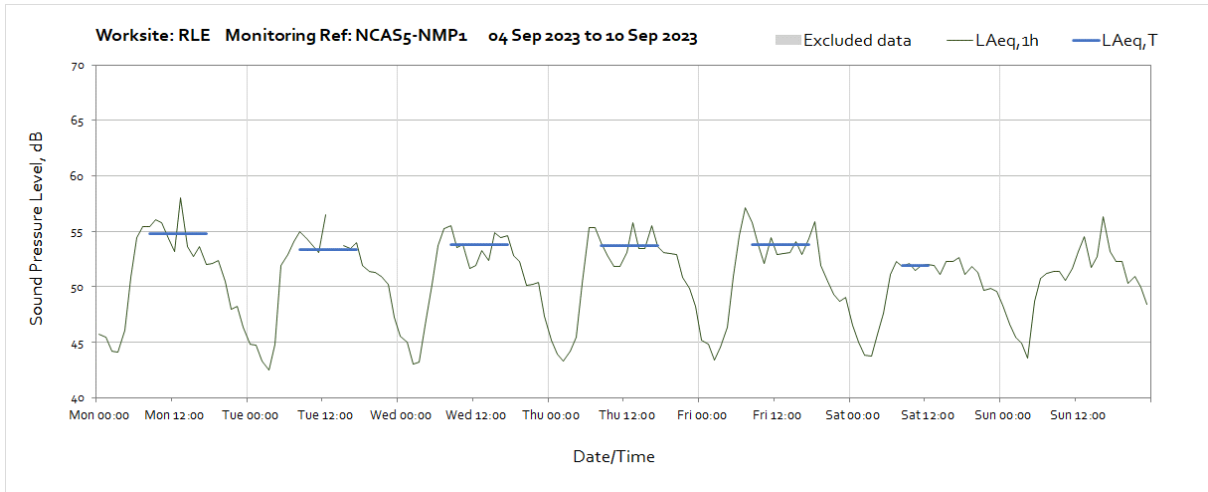
OFFICIAL



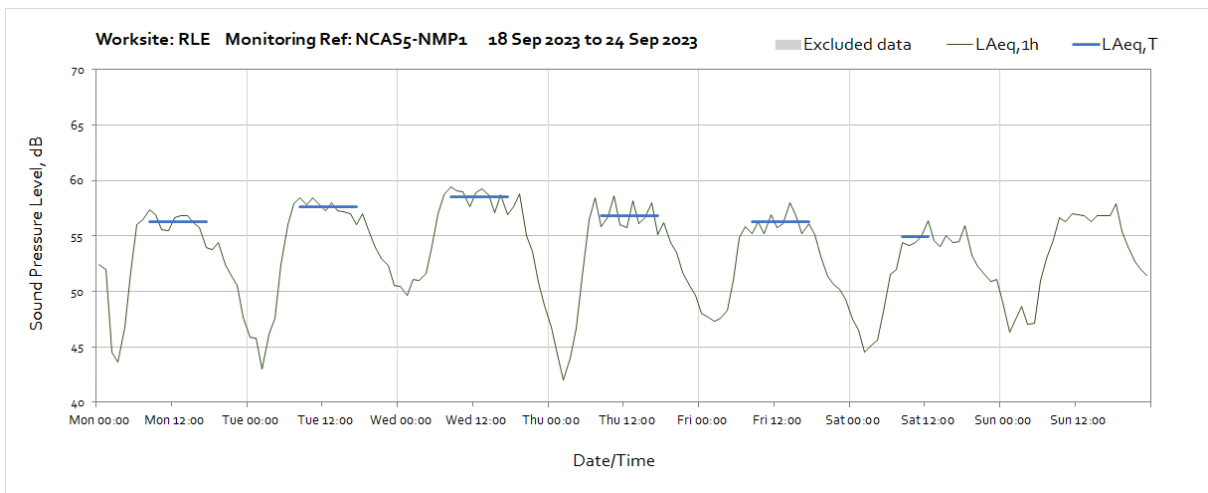
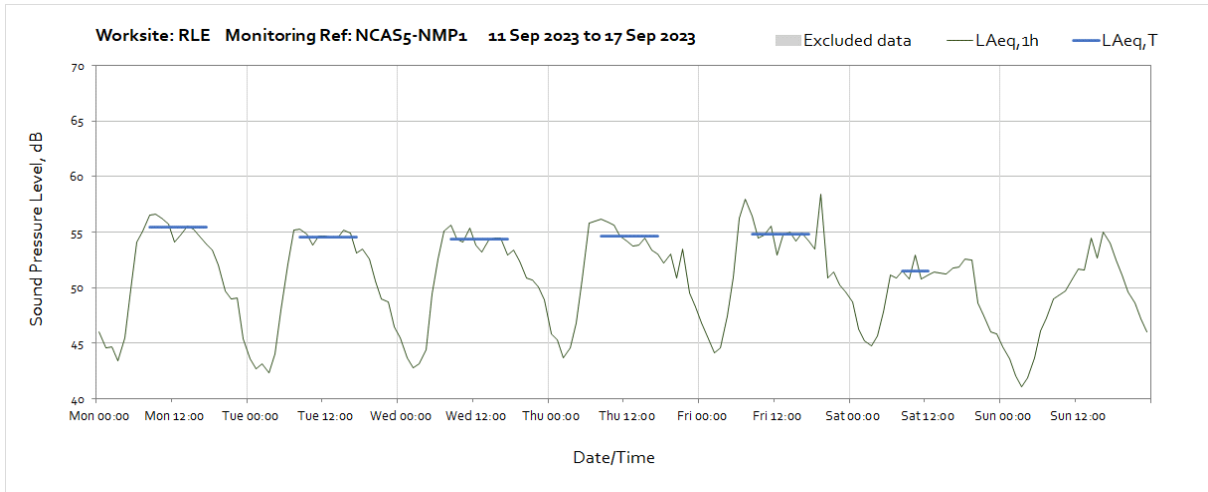
**Worksite: RLE - Monitoring Ref: NCAS5-NMP1**

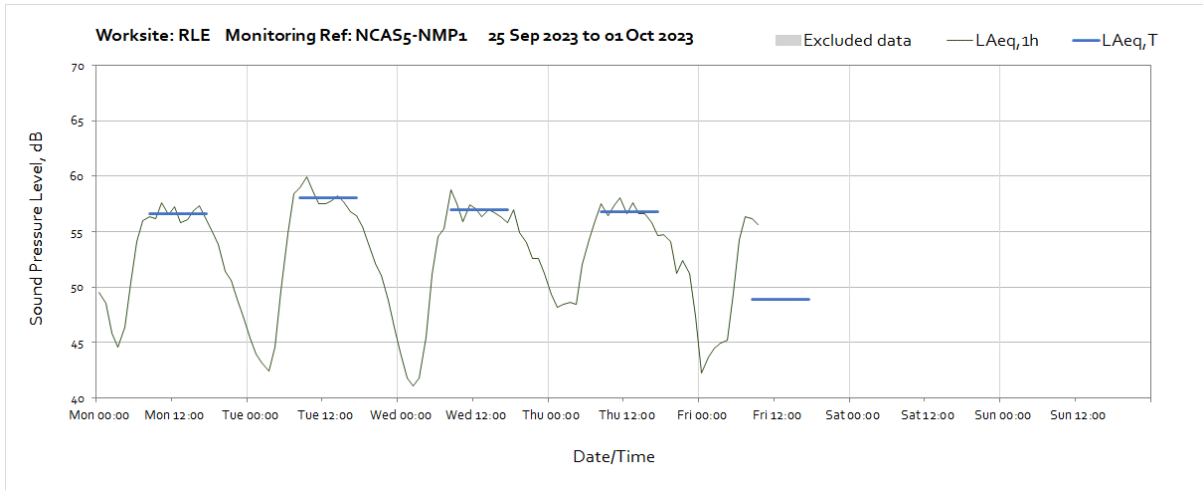






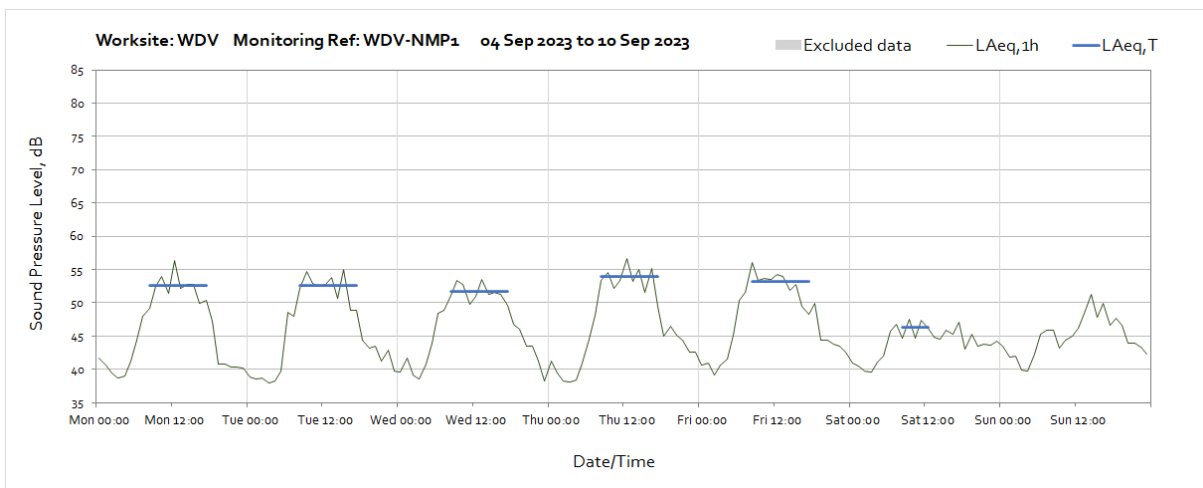
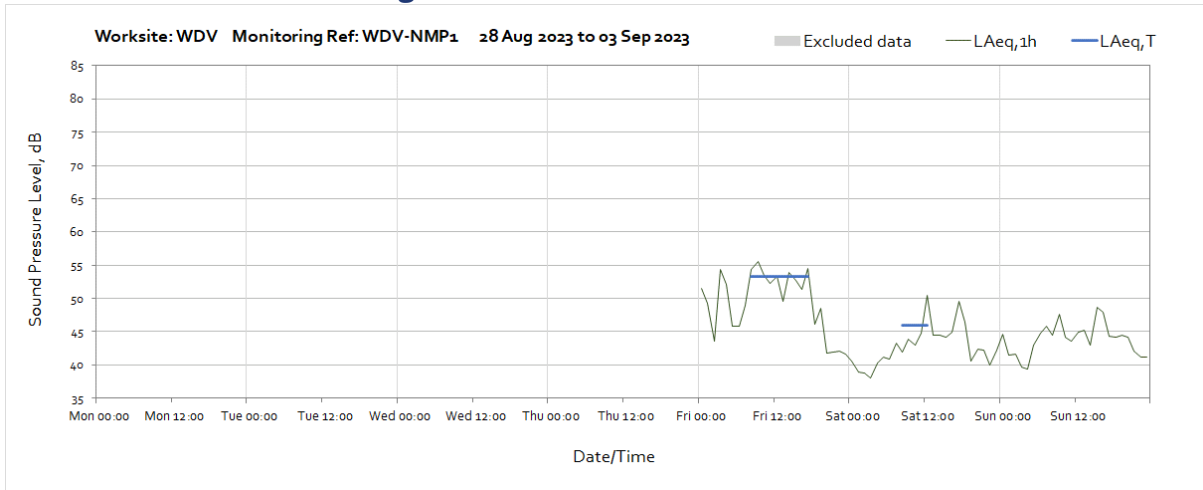
Note: Missing data between 13:00 and 15:00 on Tuesday 5<sup>th</sup> September was due to monitor maintenance.

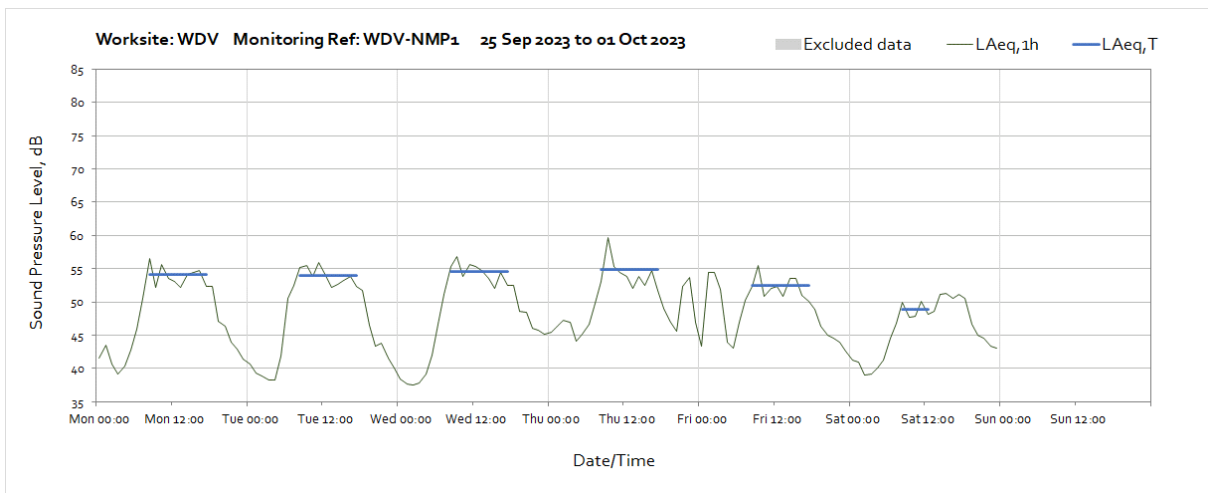
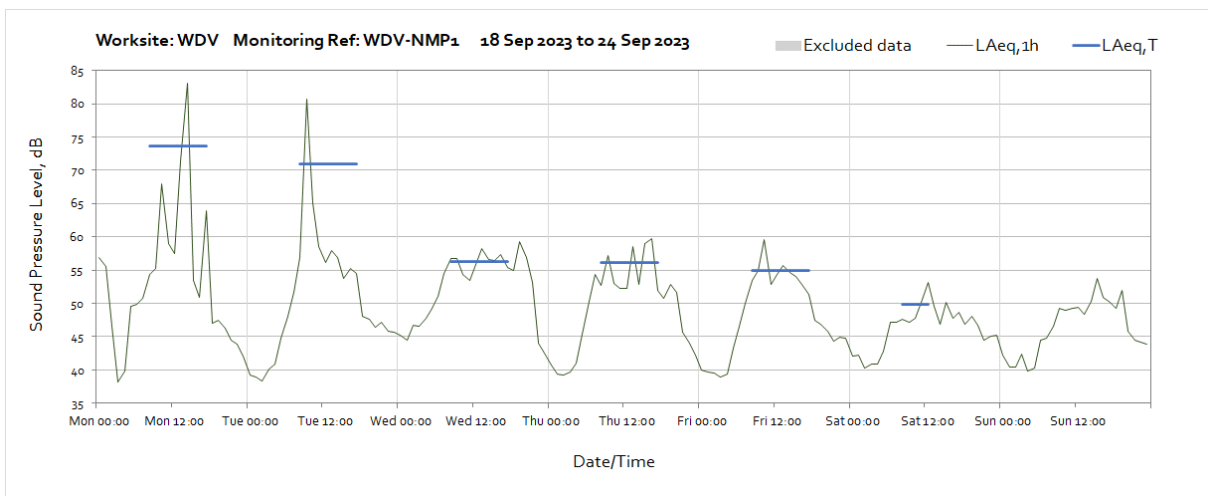
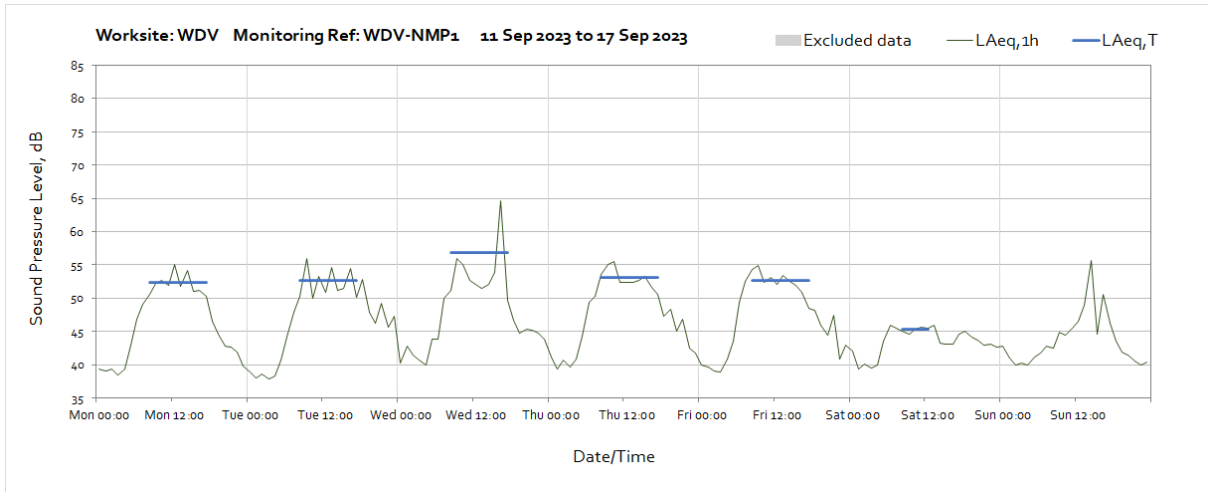




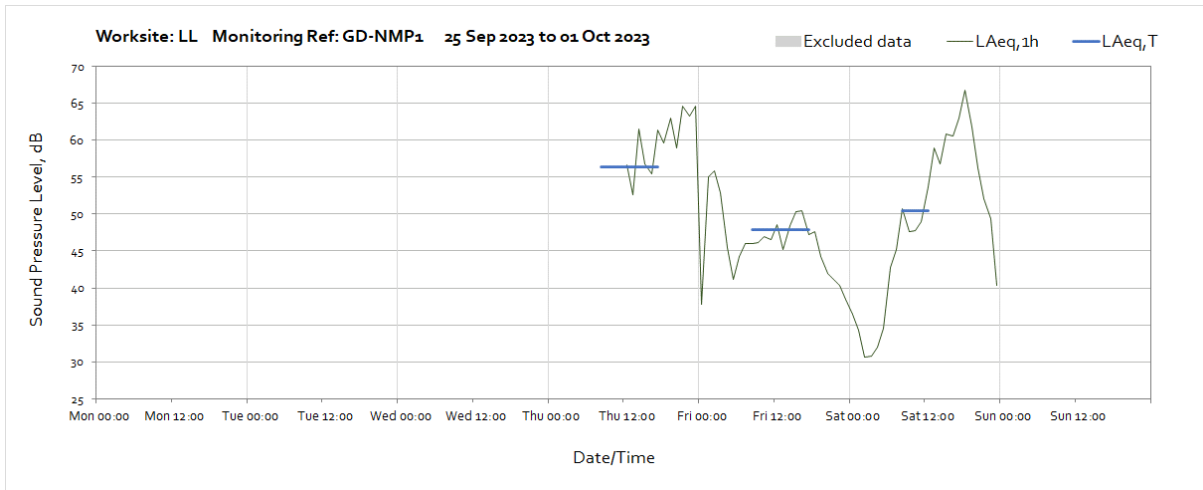
Note: Missing data from 10:00 on Friday 29<sup>th</sup> September until month end was due to monitor fault which is currently under investigation.

### Worksite: WDV – Monitoring Ref: WDV-NMP1



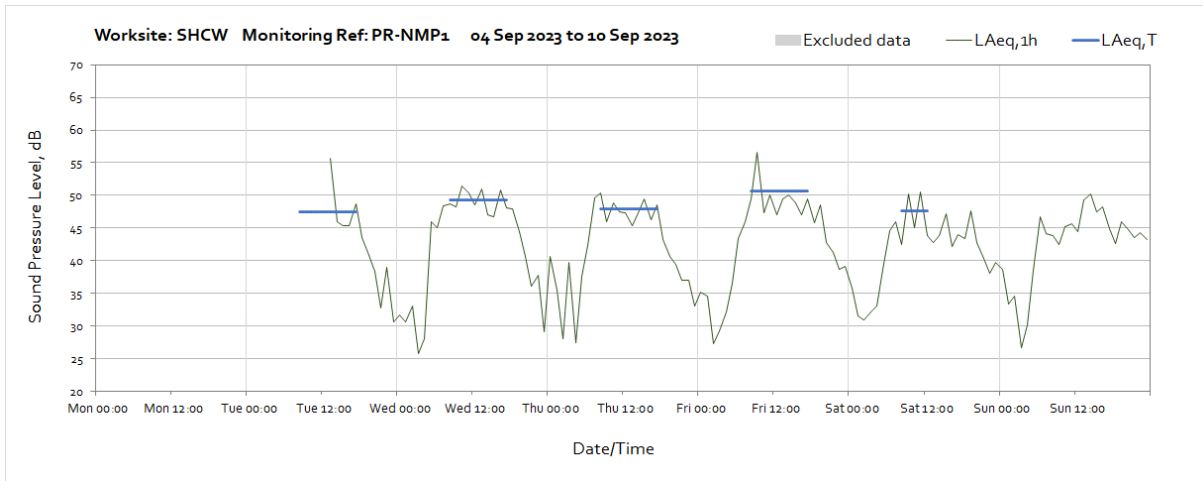


## Worksite: LL – Monitoring Ref: GD-NMP1

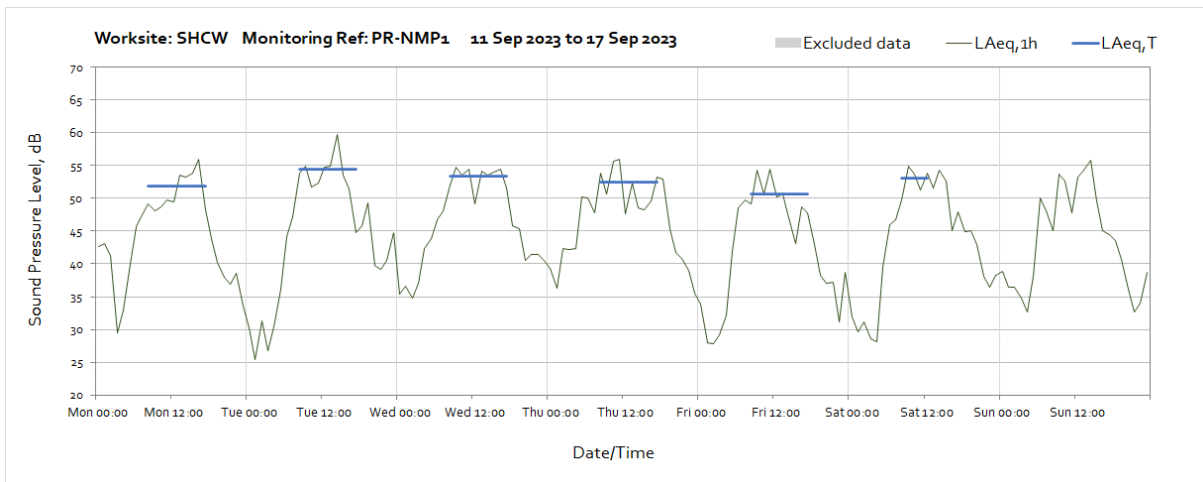


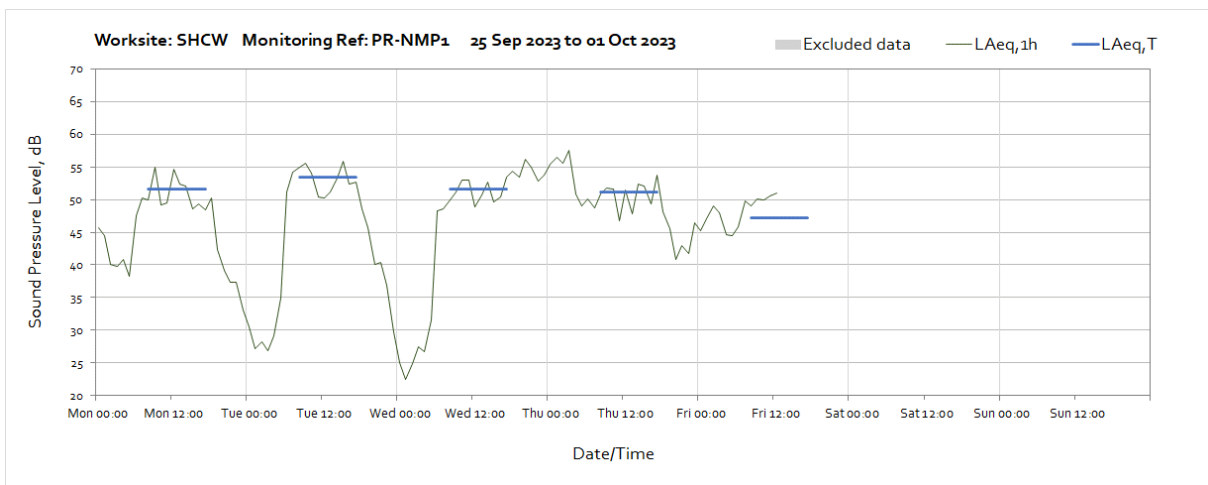
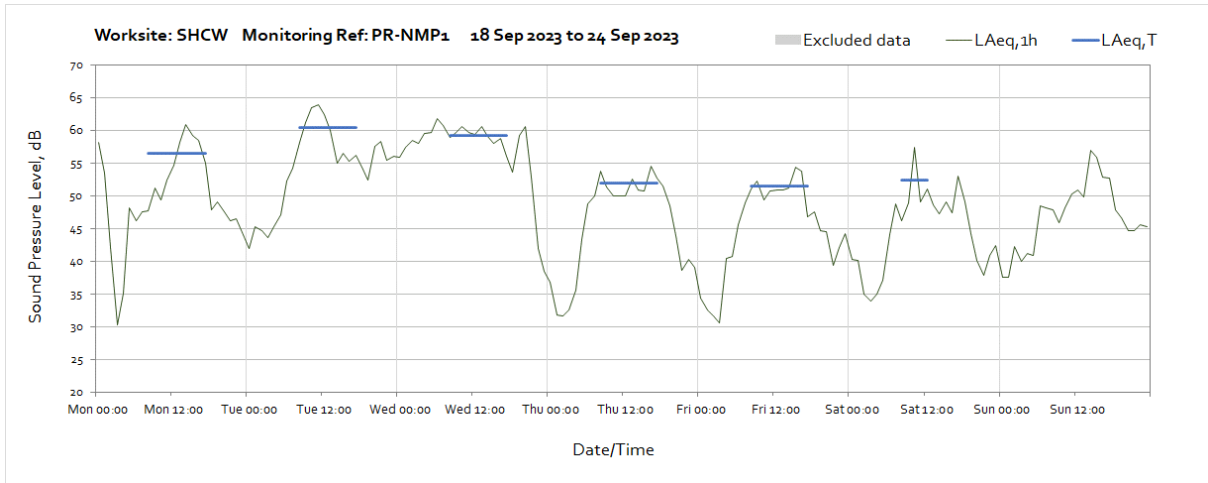
Note: Monitor was re-installed at 12:00 on Thursday 28<sup>th</sup> September.

## Worksite: SHCW – Monitoring Ref: PR-NMP1



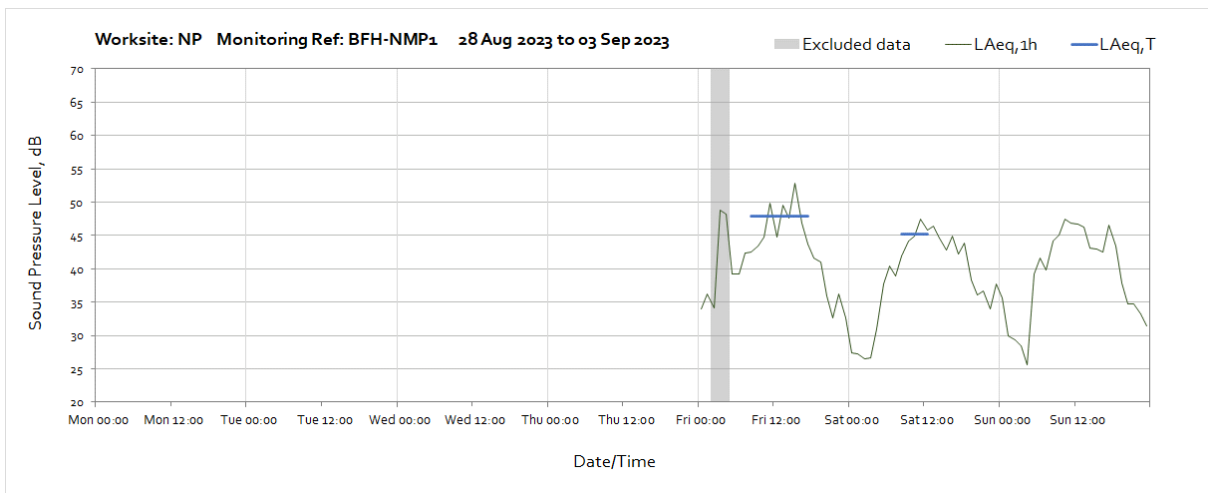
Note: Monitor was re-installed at 13:00 on Tuesday 5<sup>th</sup> September.

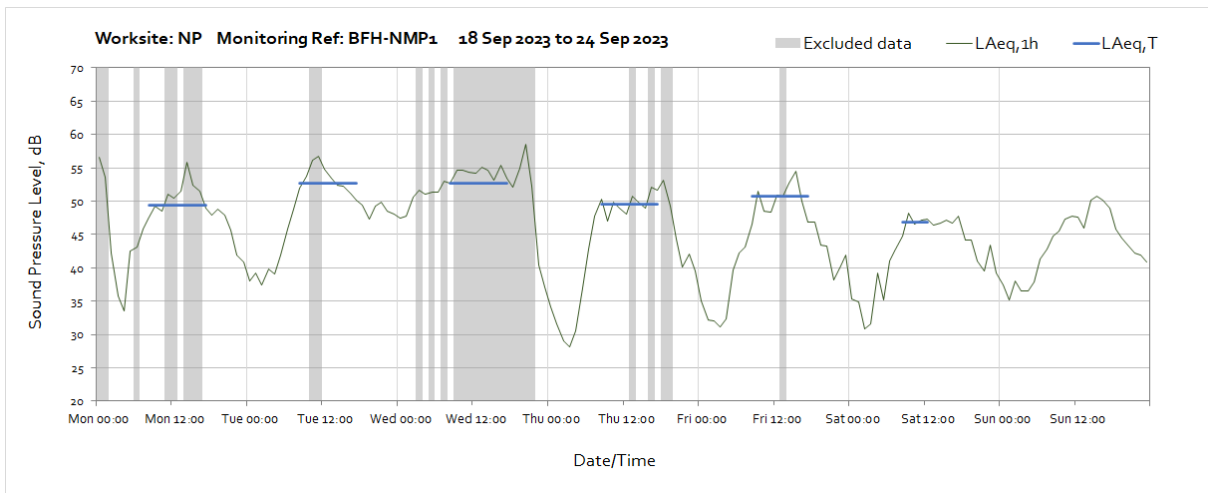
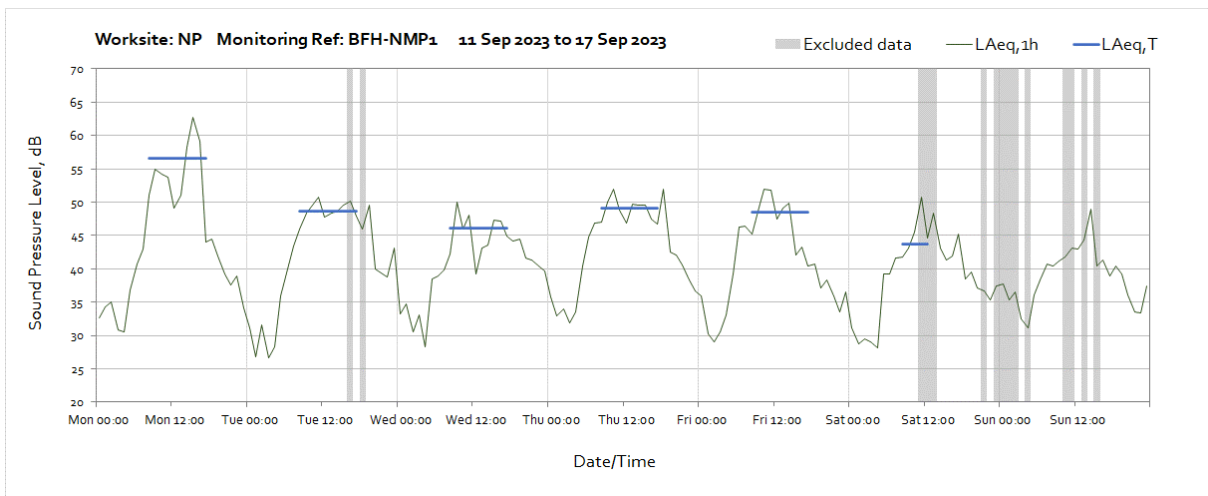
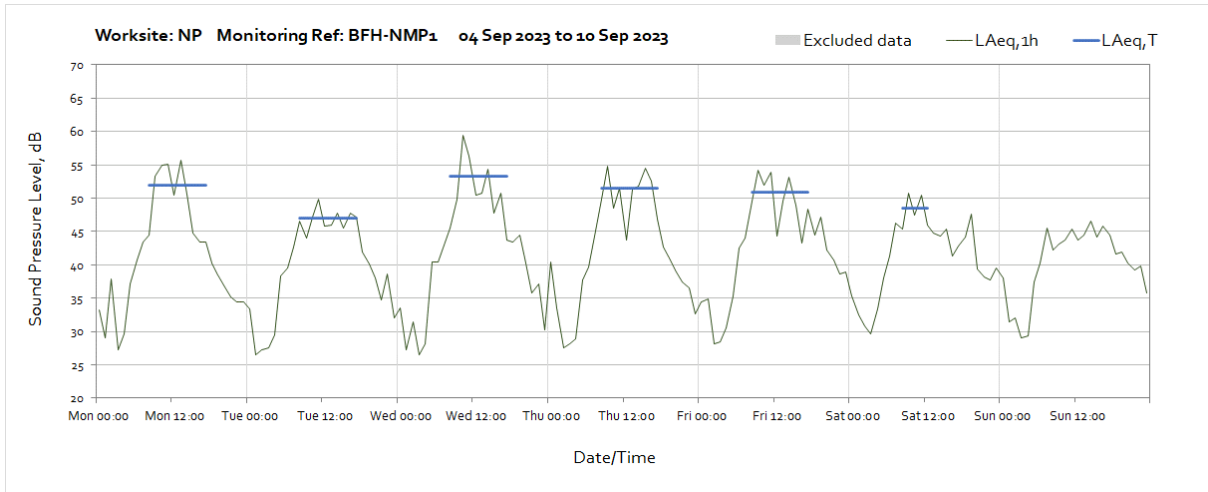


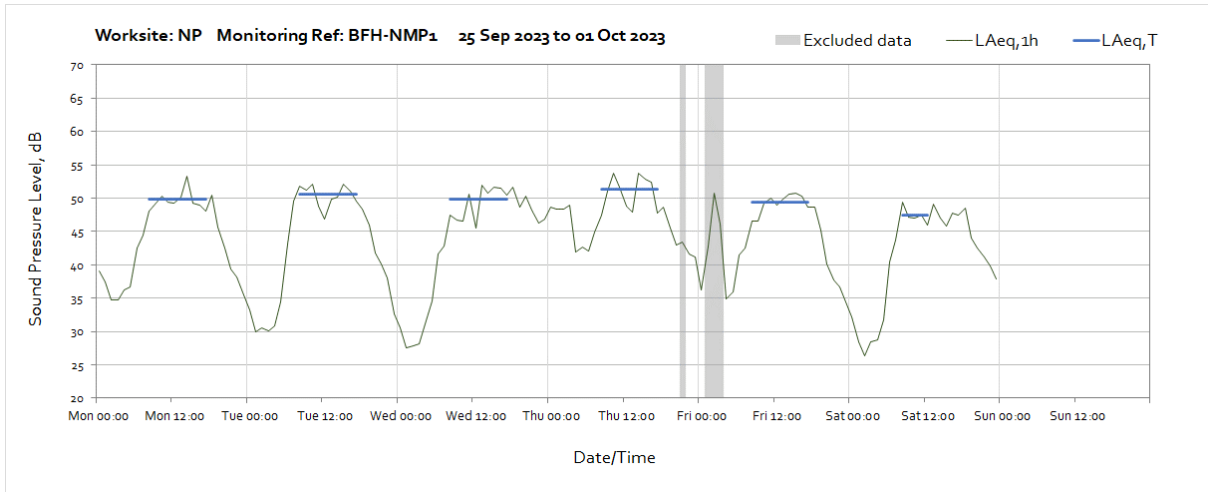


Note: Missing data from 13:00 on Friday 29<sup>th</sup> September until month end was due to a fault detected in the monitor which is currently under investigation.

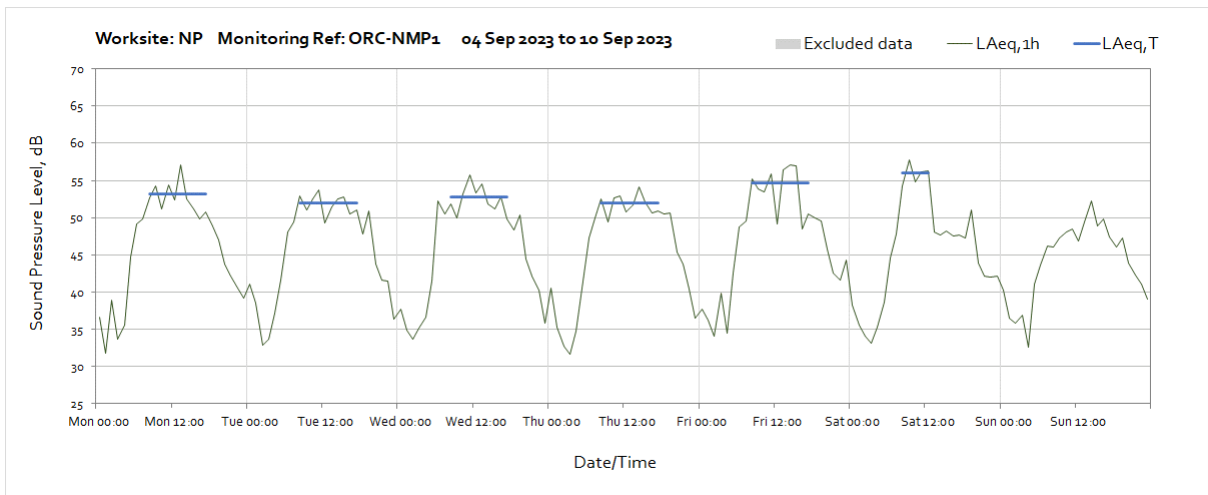
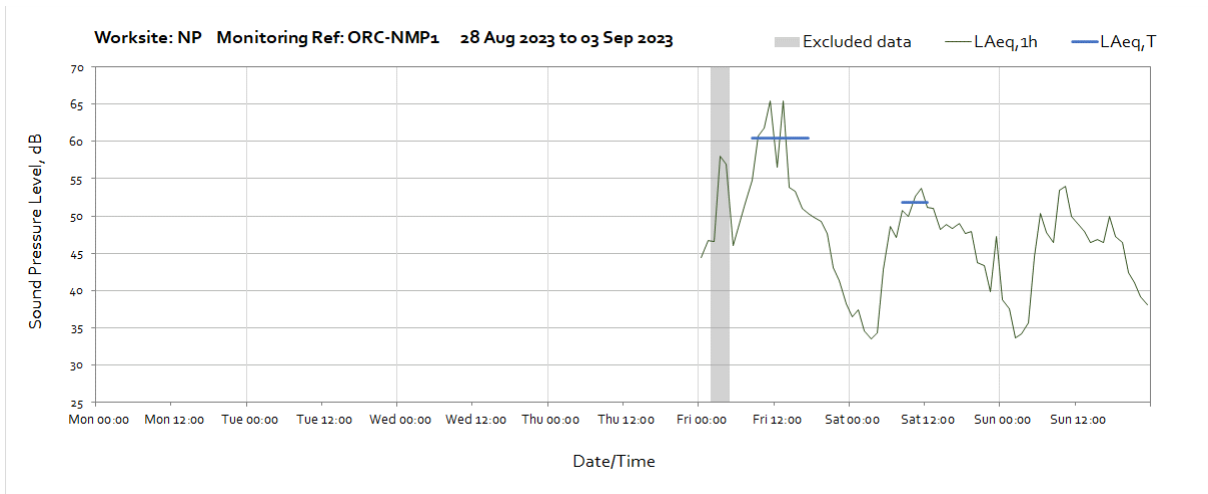
**Worksite: NP – Monitoring Ref: BFH-NMP1**



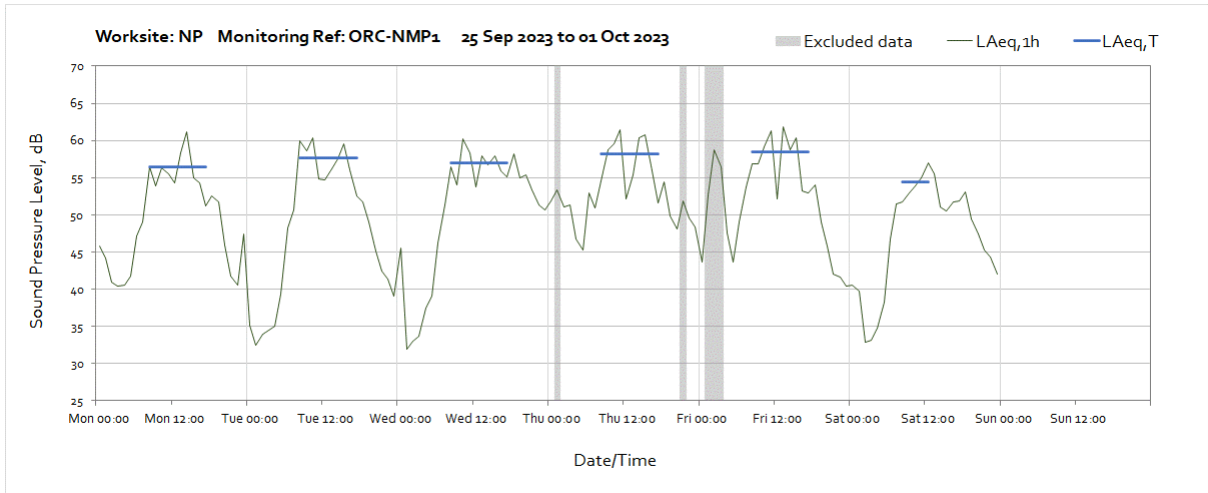
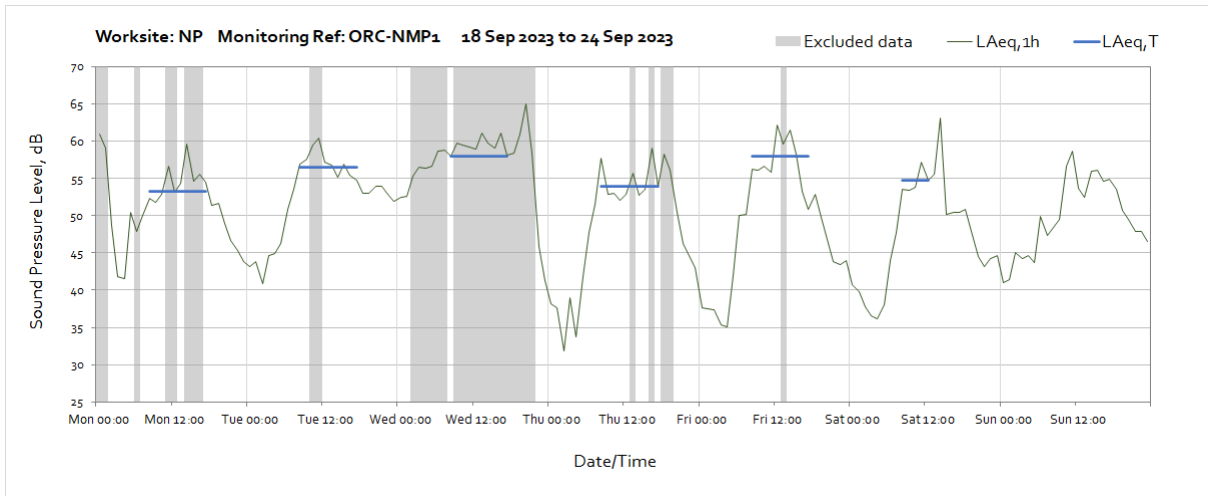
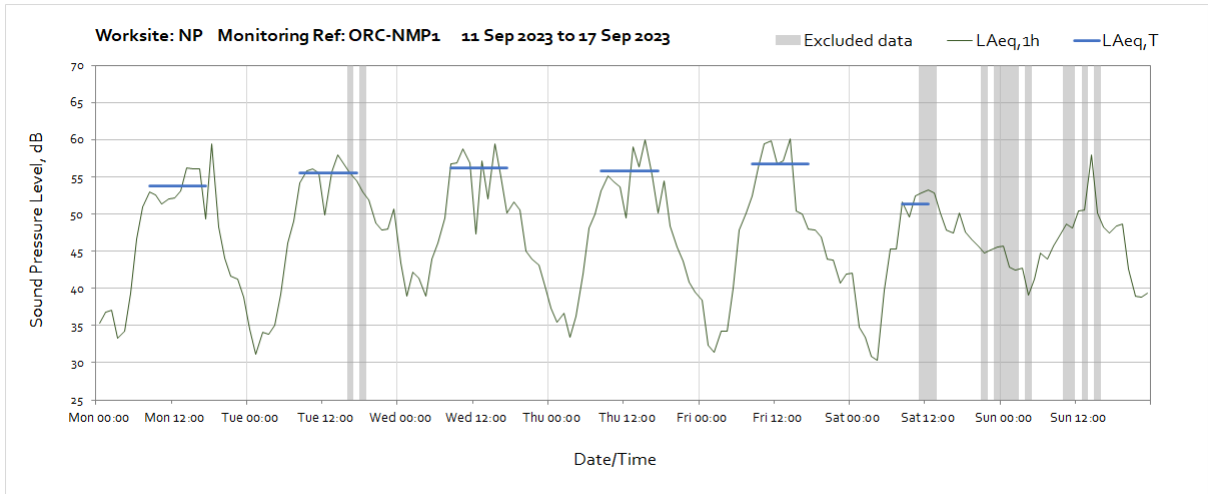




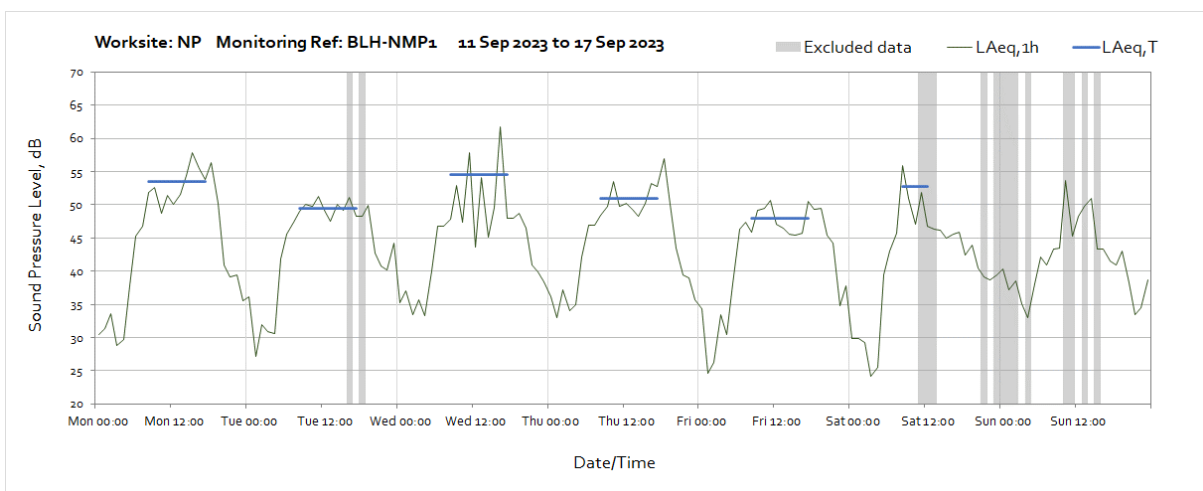
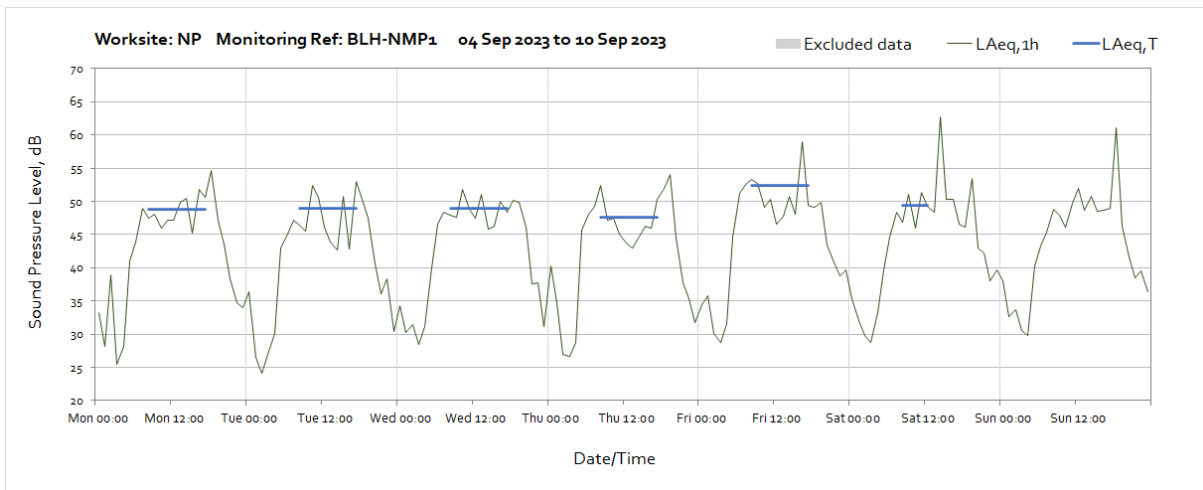
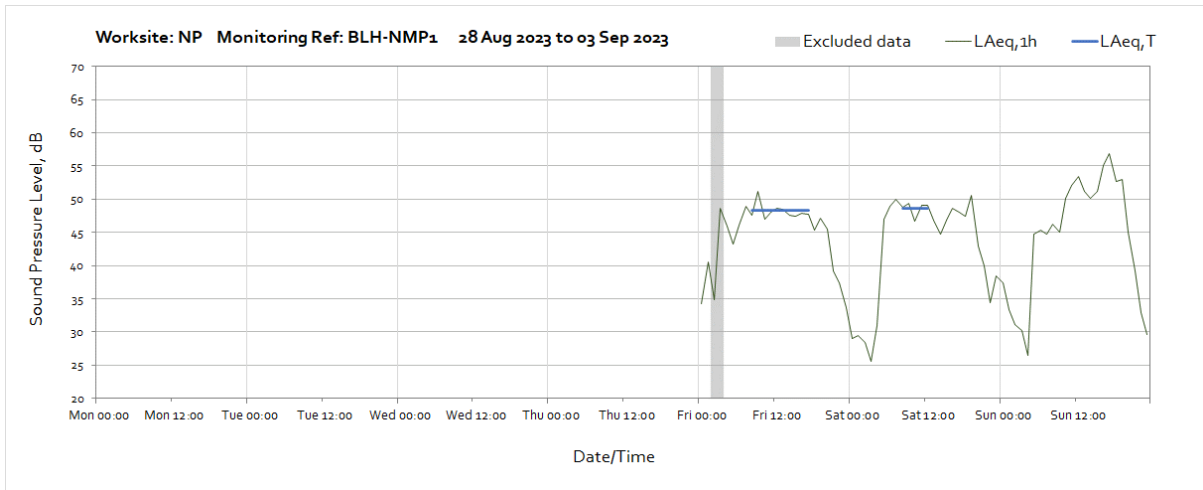
**Worksite: NP - Monitoring Ref: ORC-NMP1**



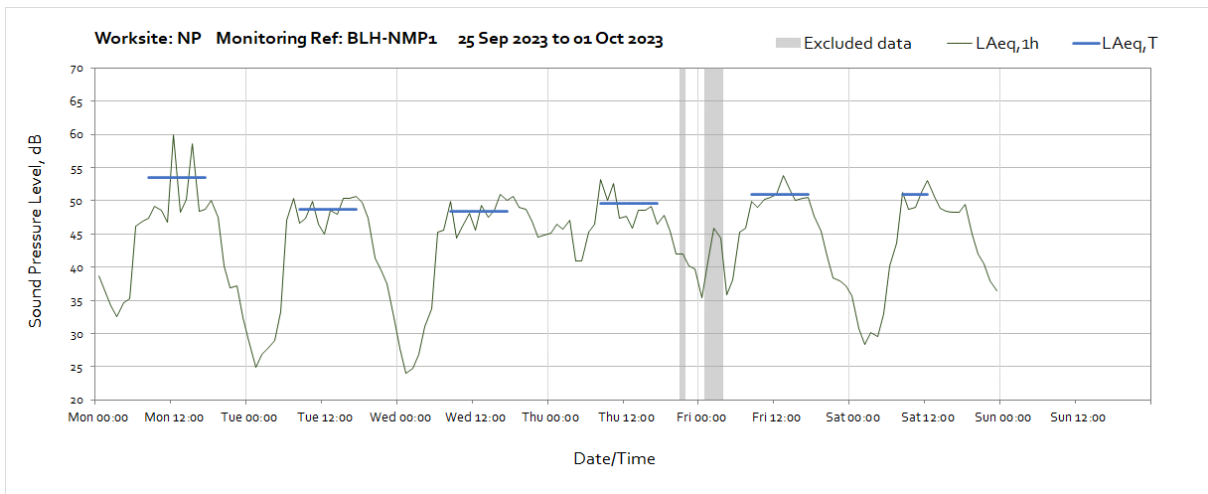
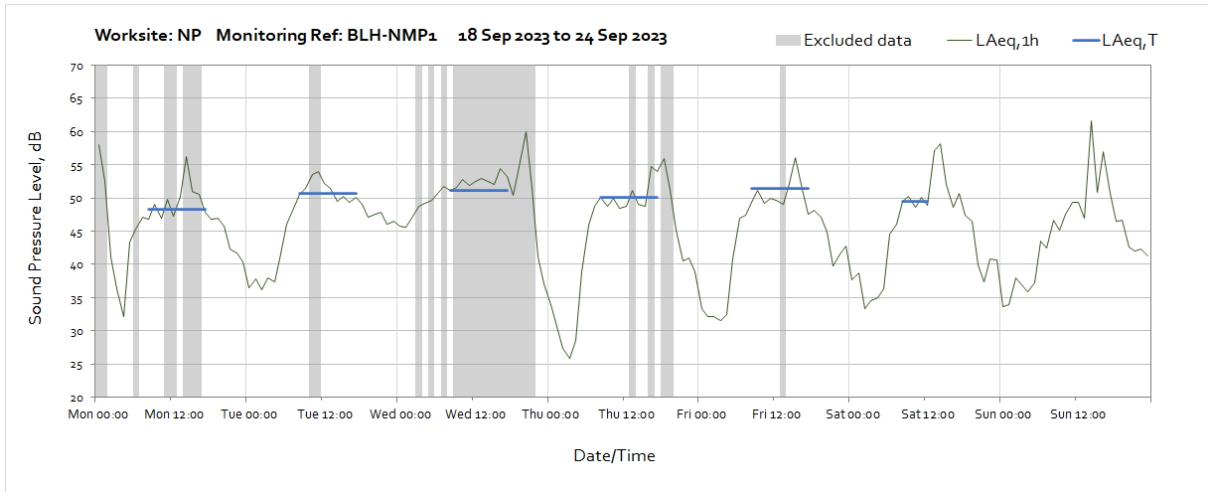




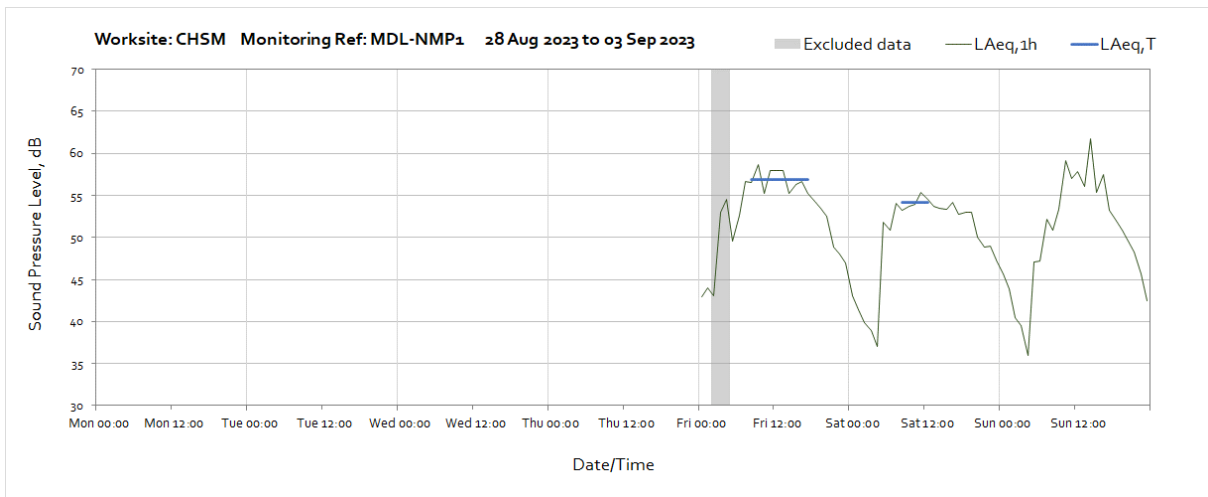
## Worksite: NP – Monitoring Ref: BLH-NMP1

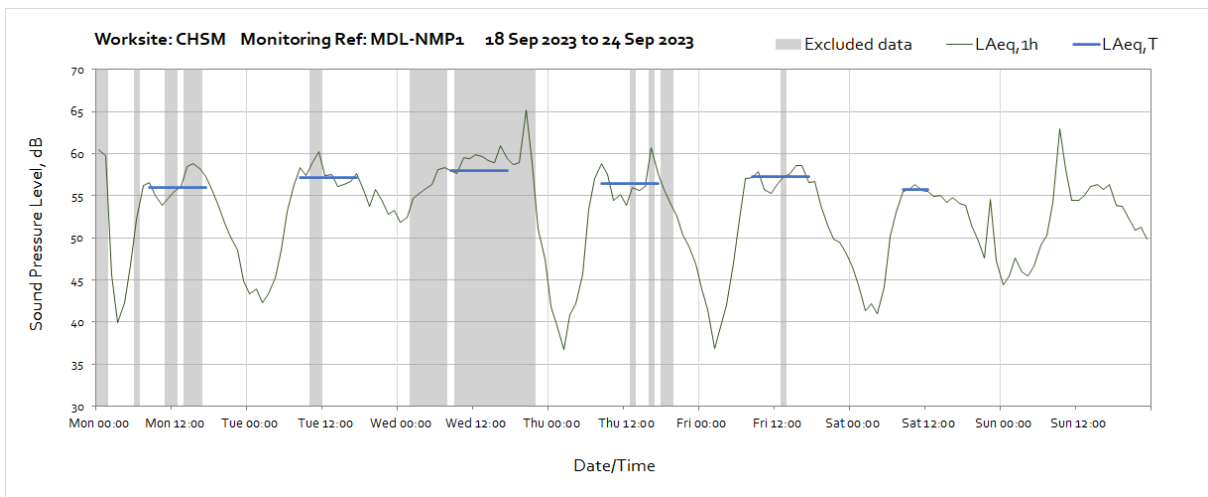
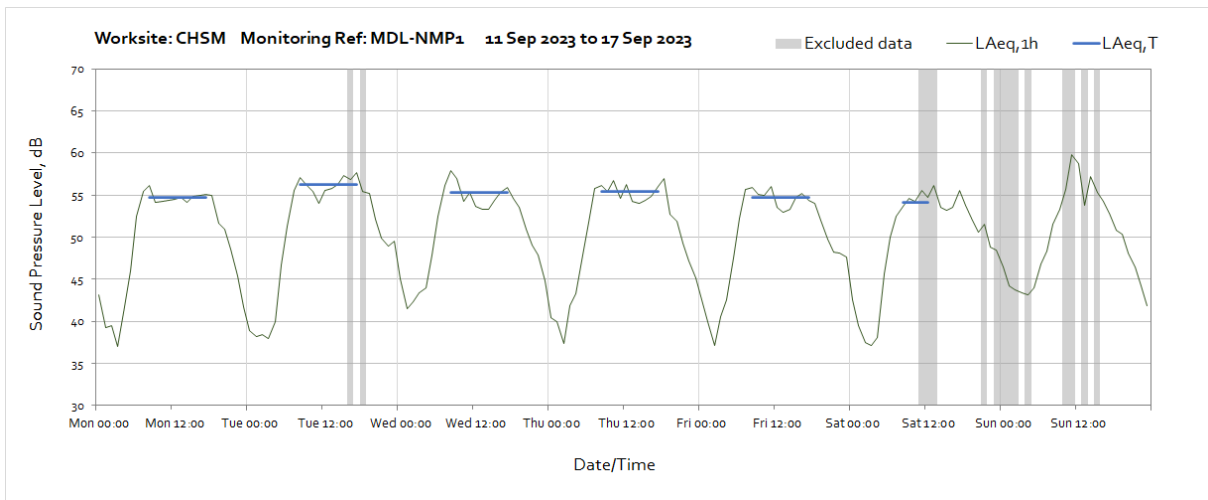
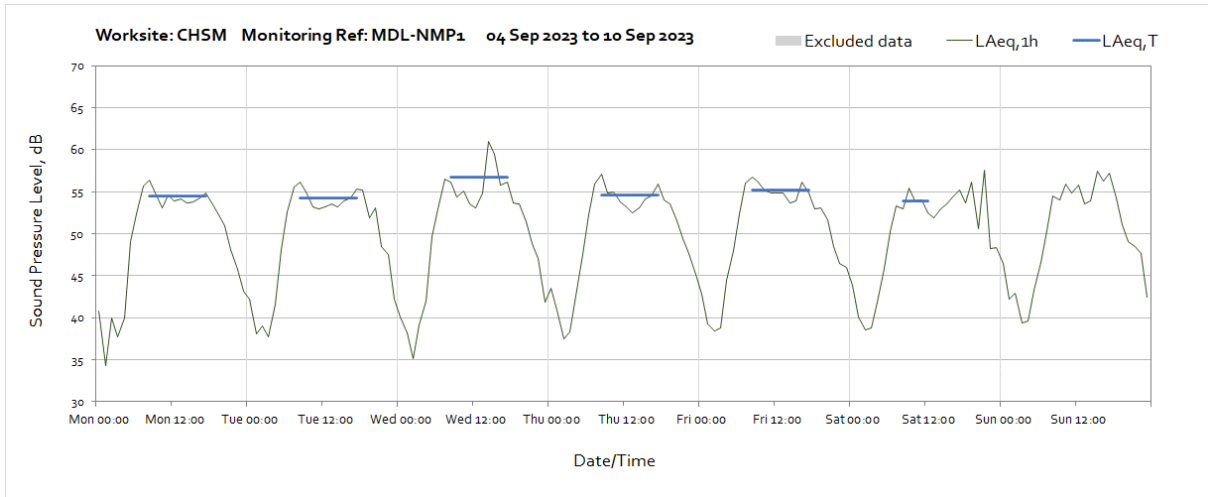


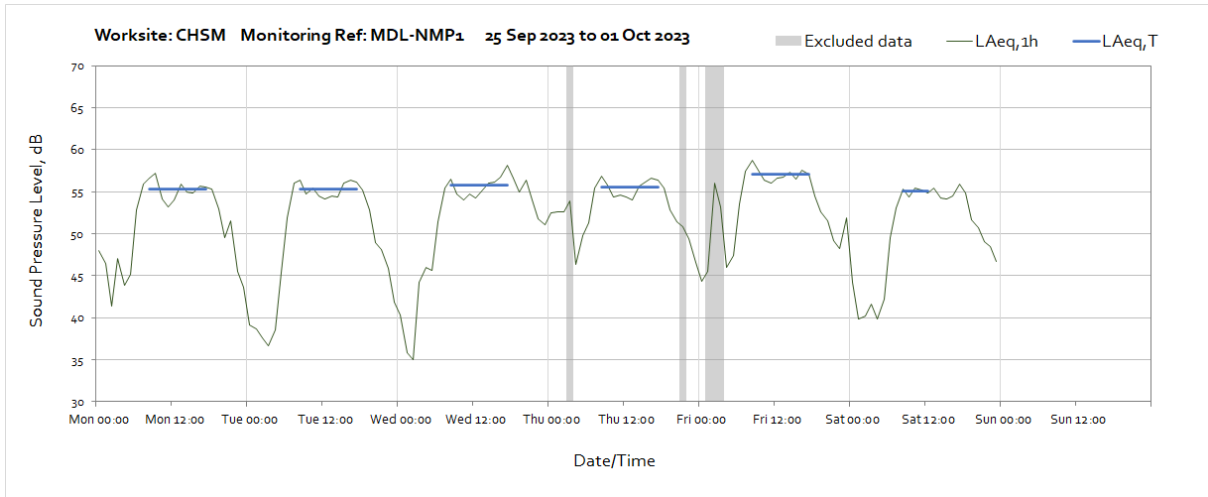
OFFICIAL



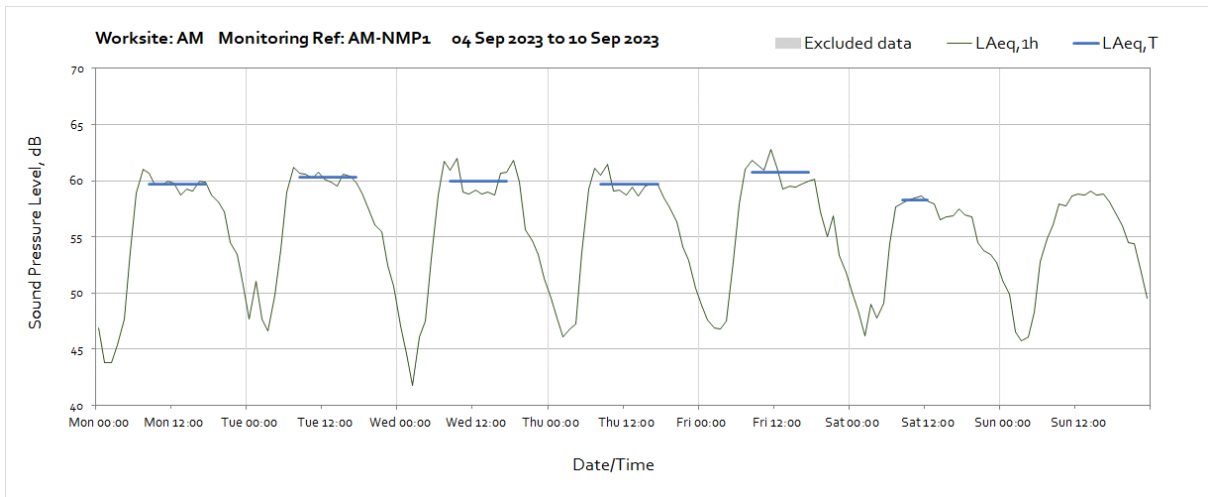
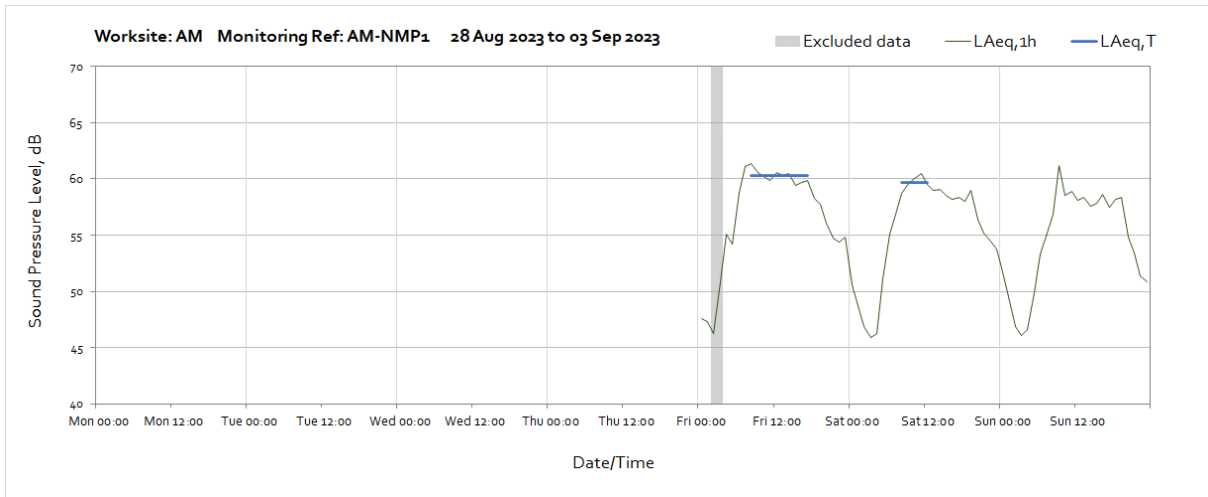
**Worksite: CHSM - Monitoring Ref: MDL-NMP1**

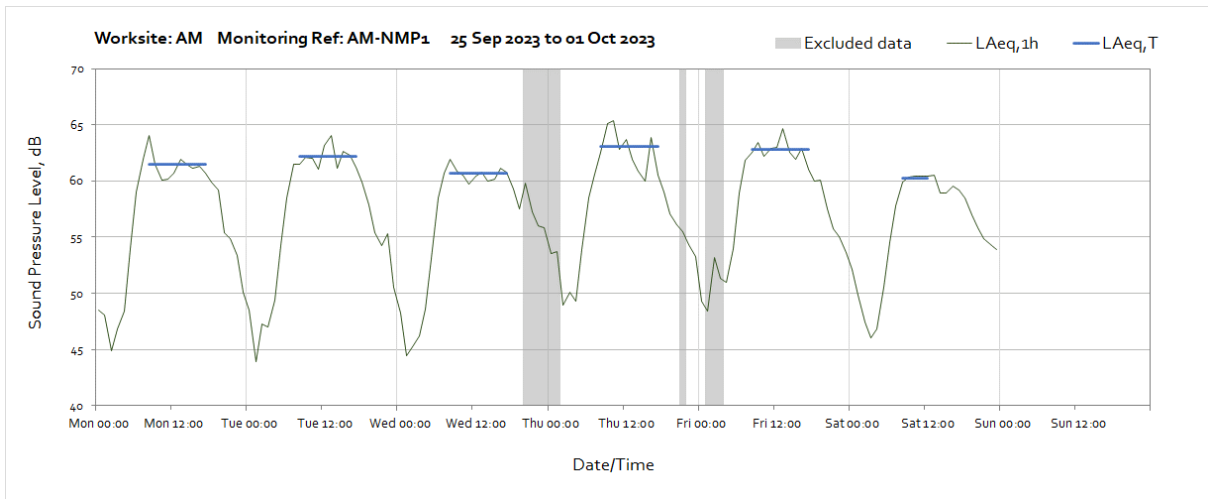
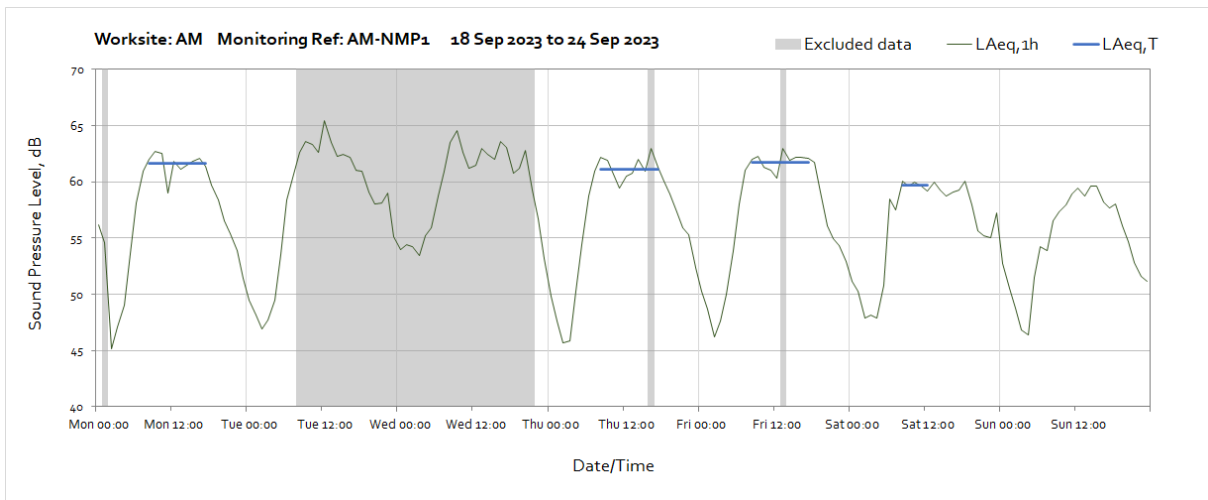
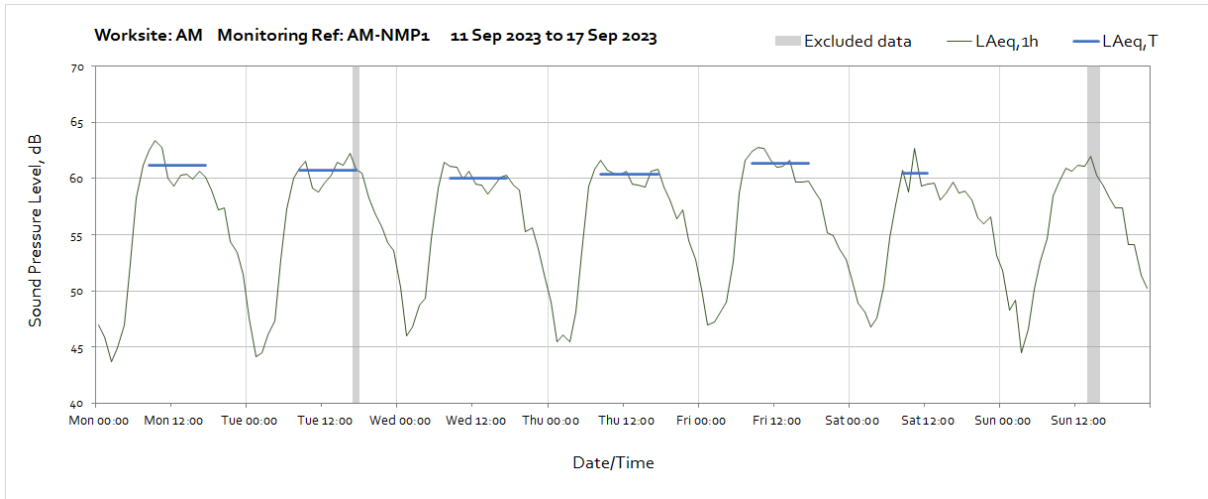




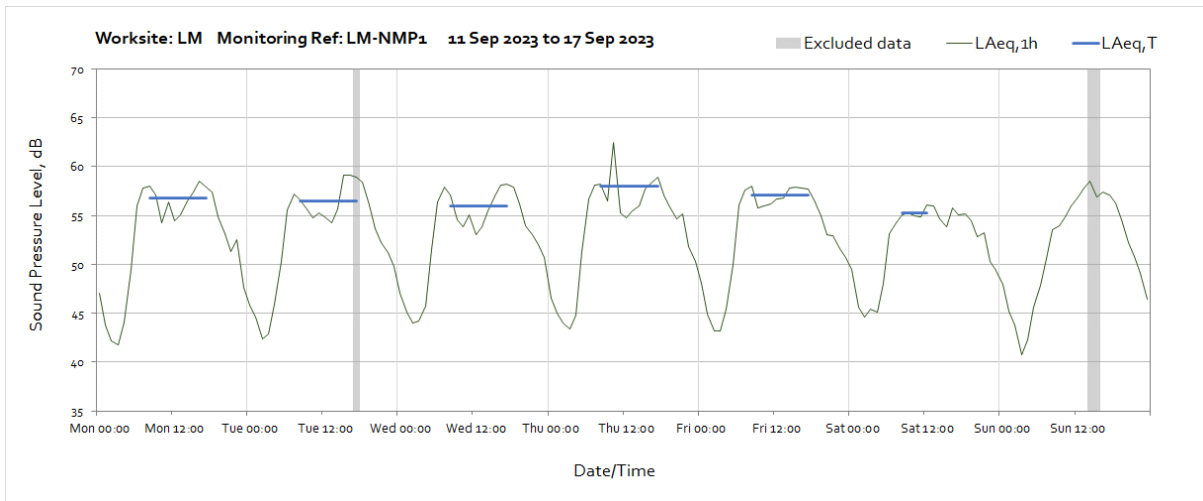
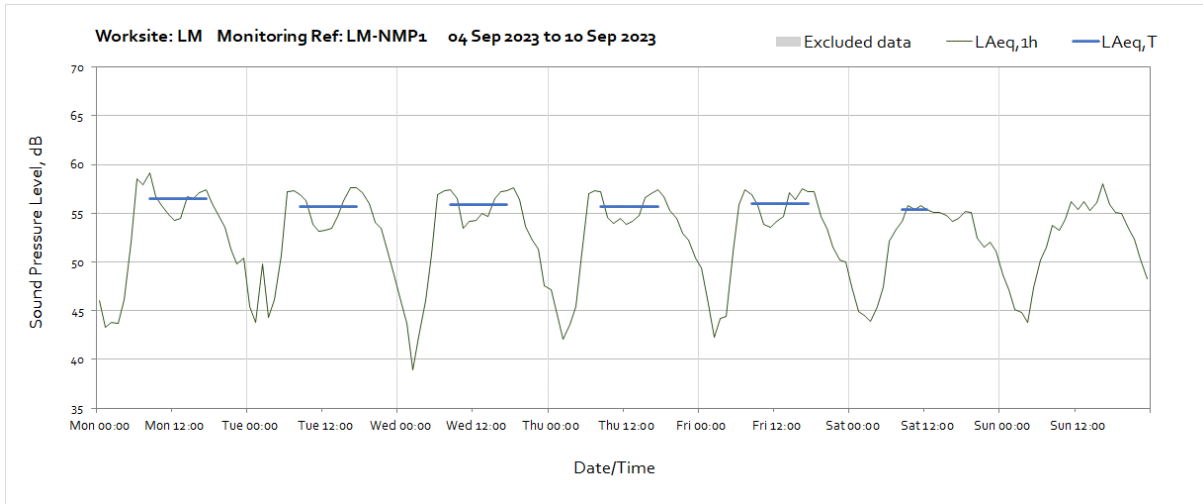
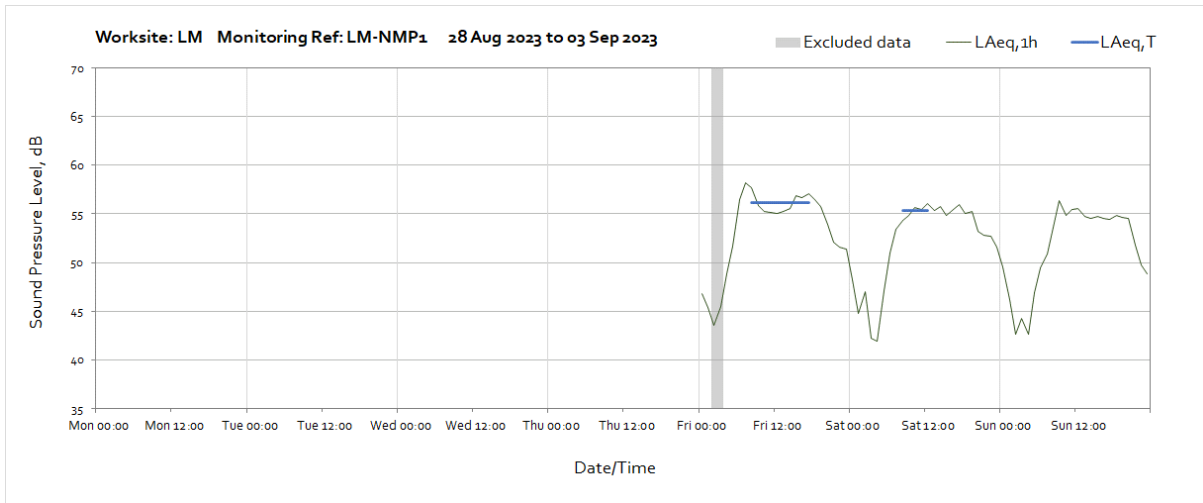


**Worksite: AM - Monitoring Ref: AM-NMP1**

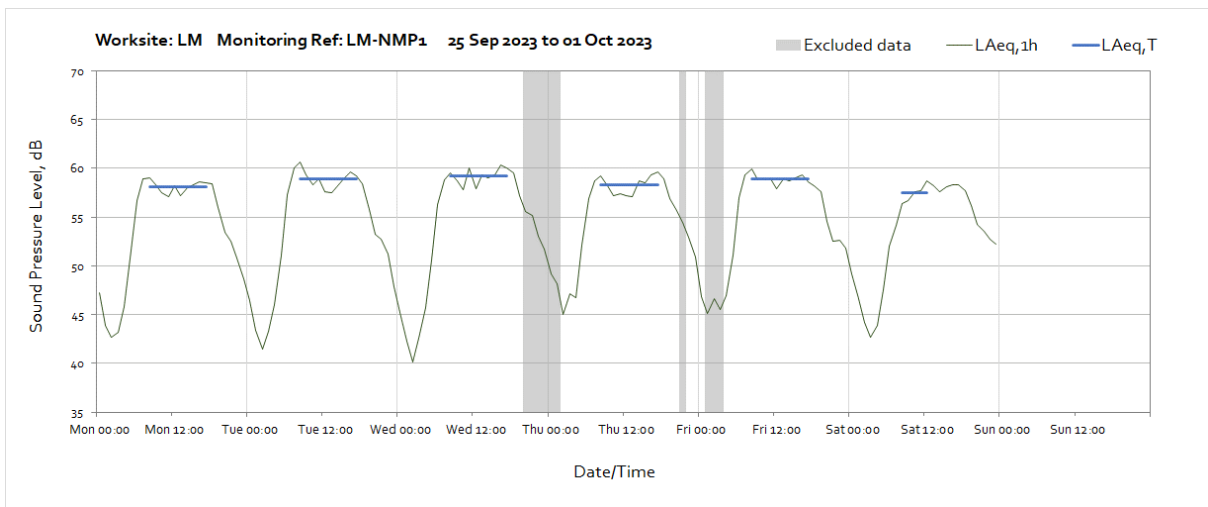
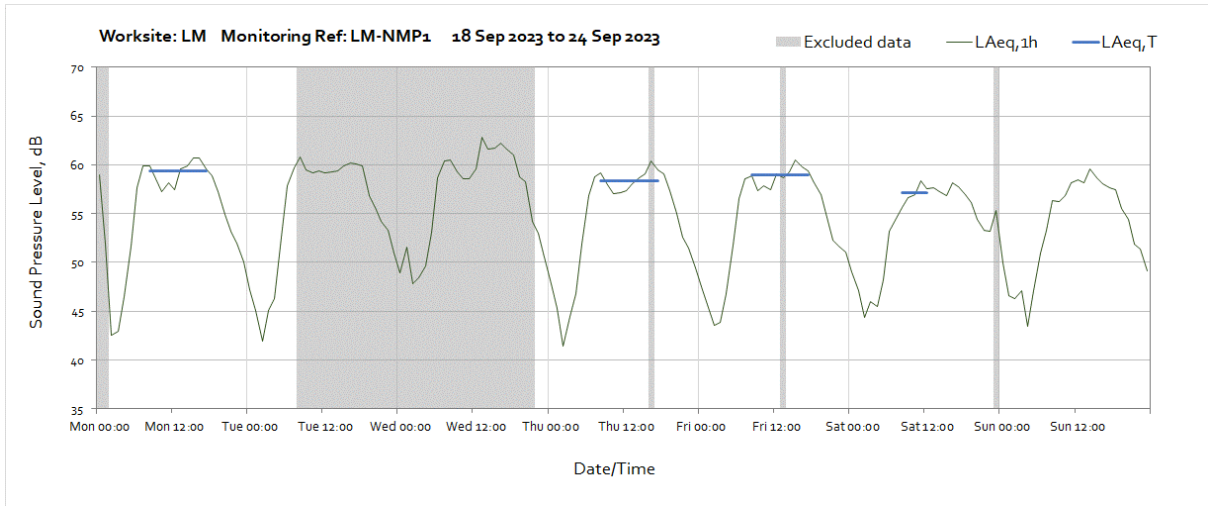




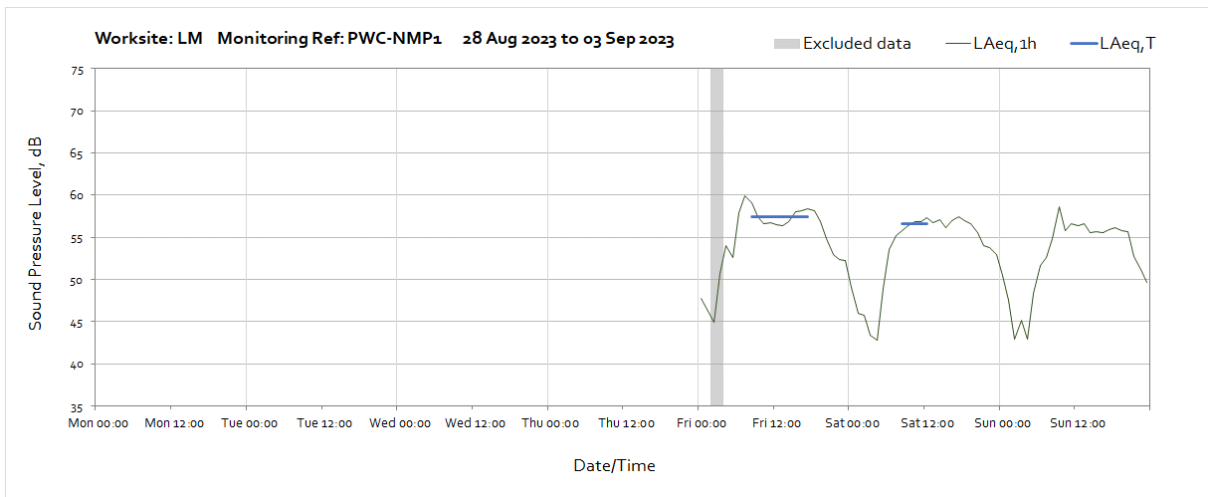
## Worksite: LM – Monitoring Ref: LM-NMP1



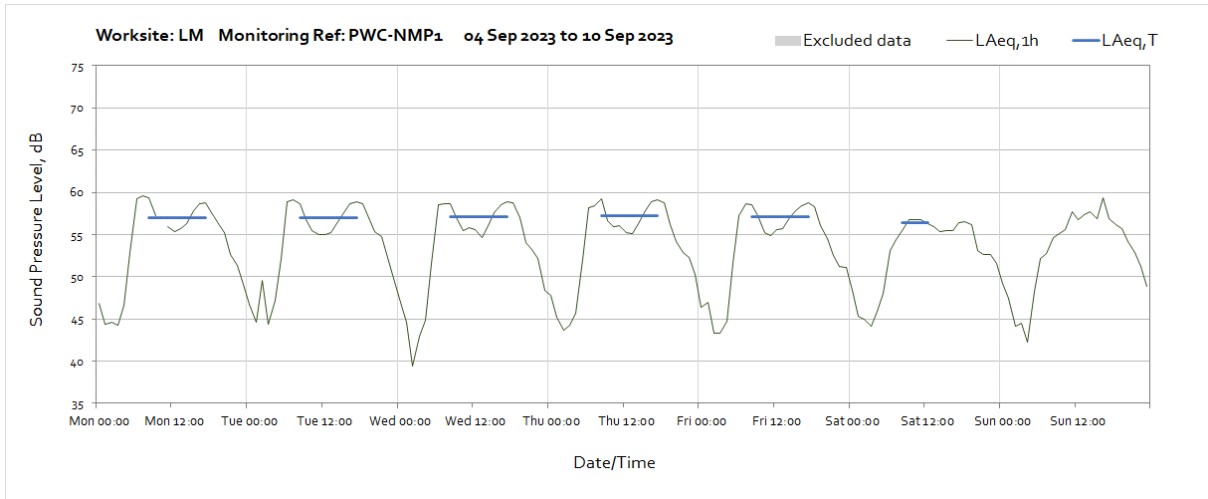
OFFICIAL



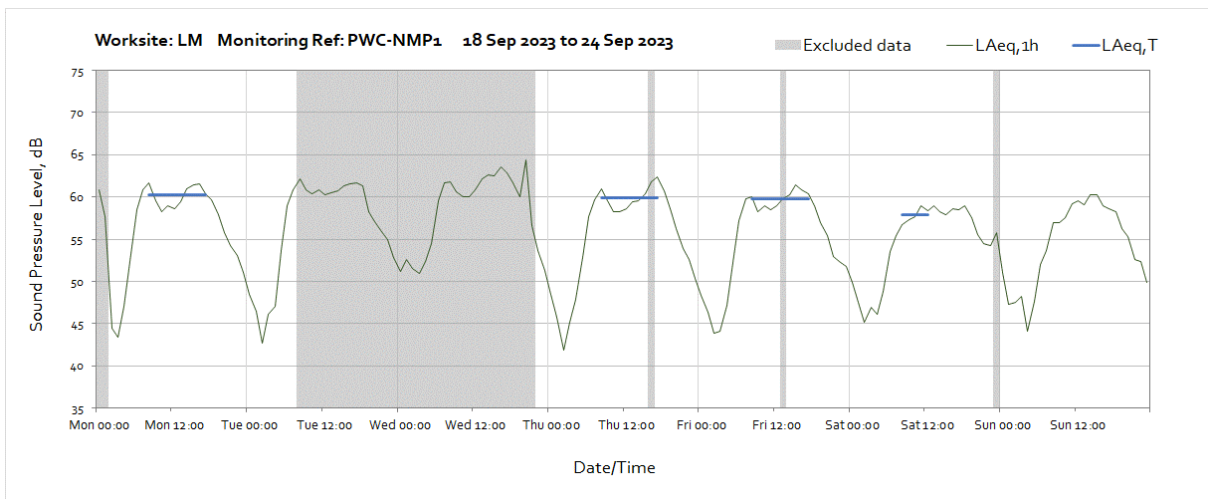
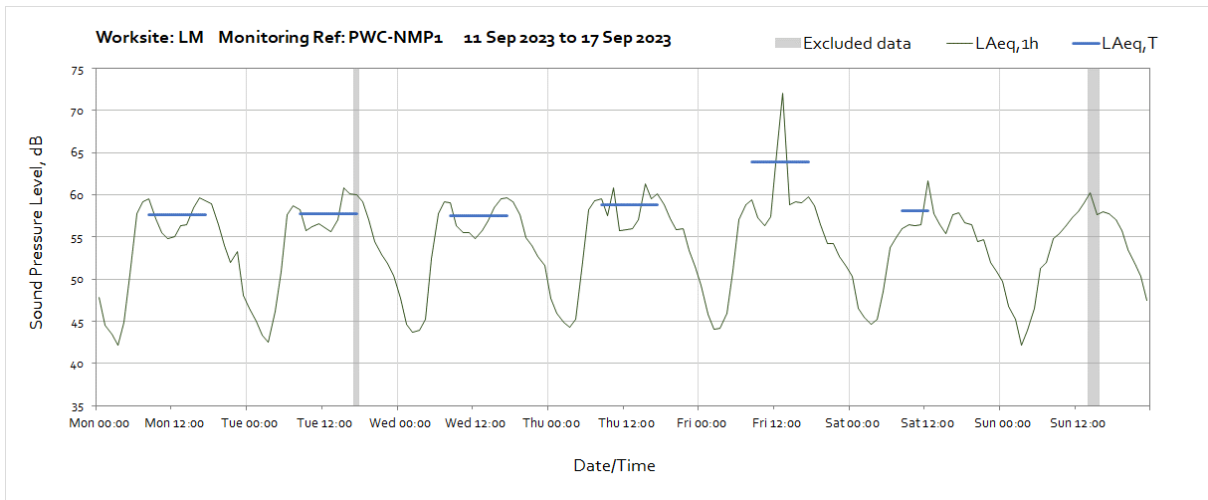
**Worksite: LM – Monitoring Ref: PWC-NMP1**

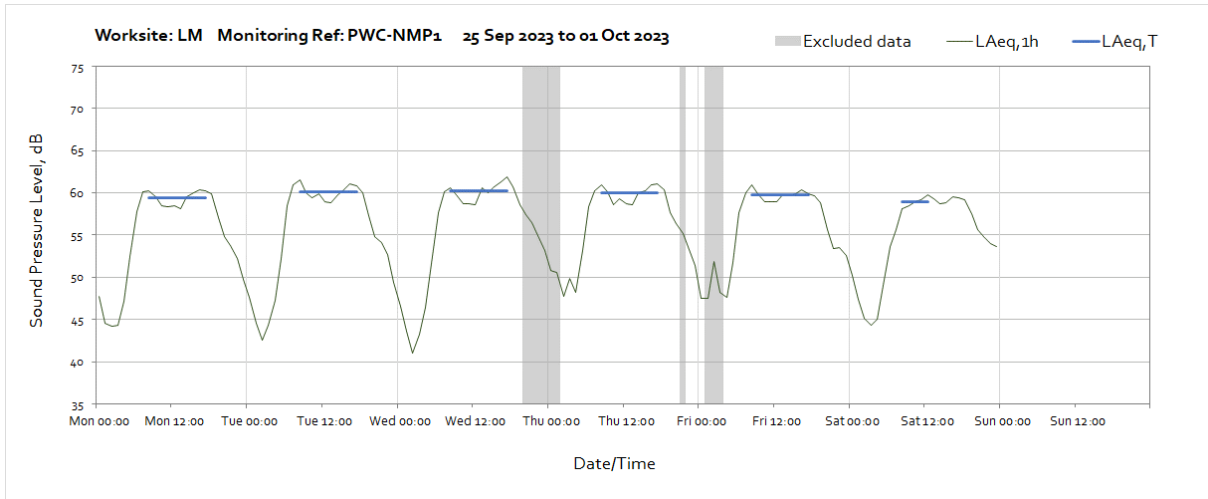




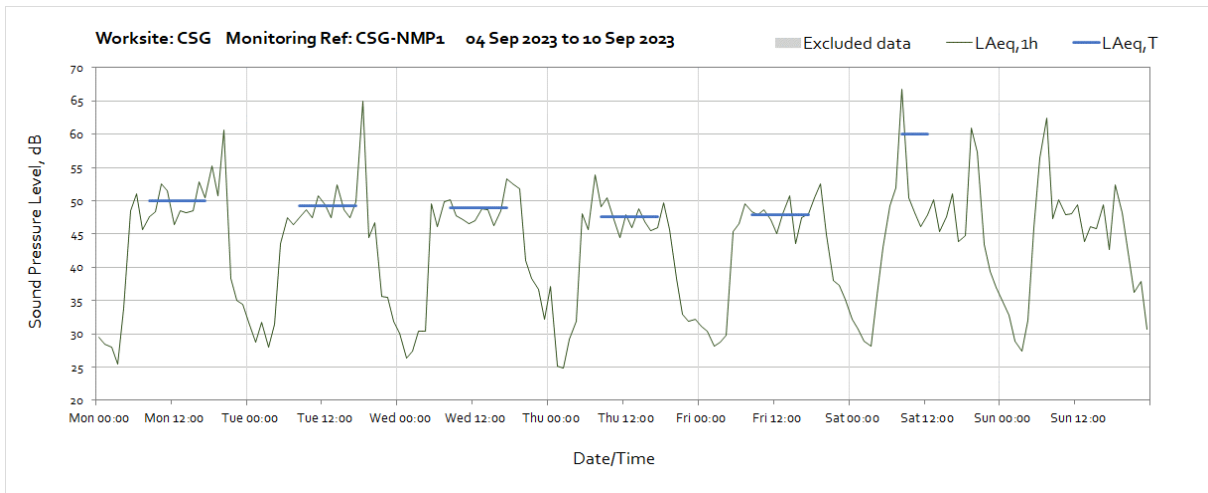
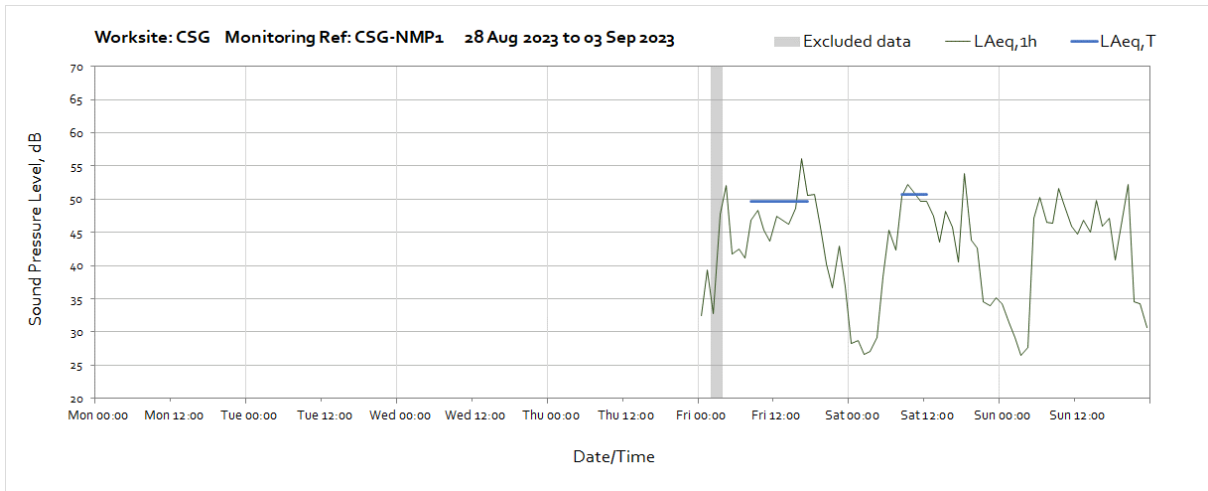


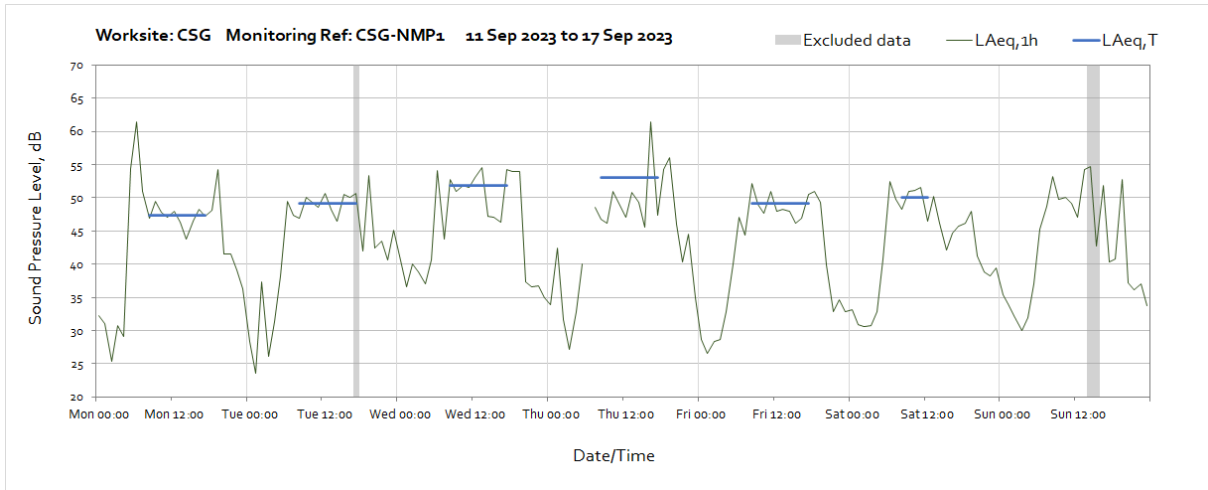
Note: Missing data between 10:00 and 11:00 on Monday 4<sup>th</sup> September was due to monitor maintenance.



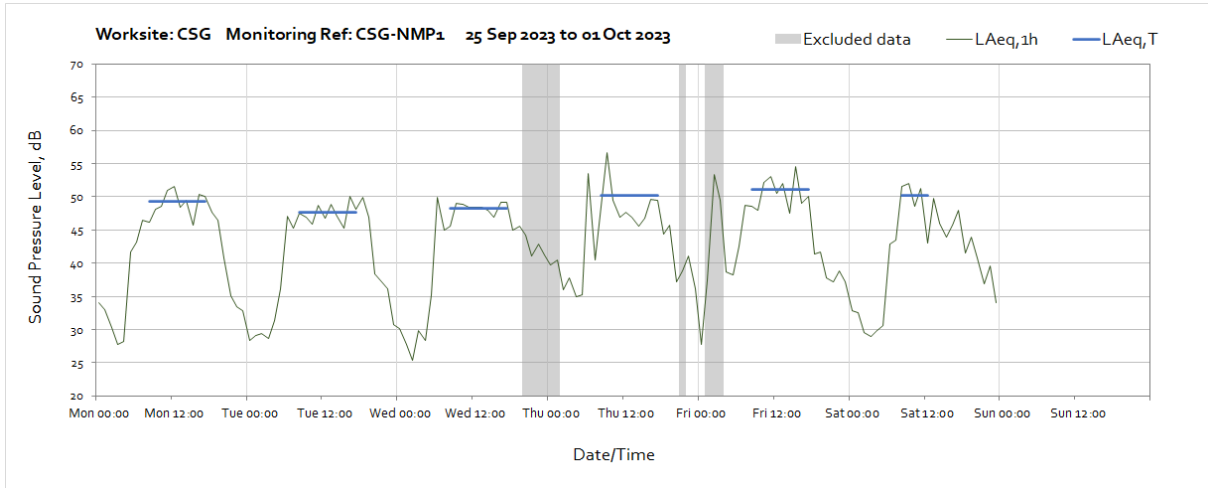
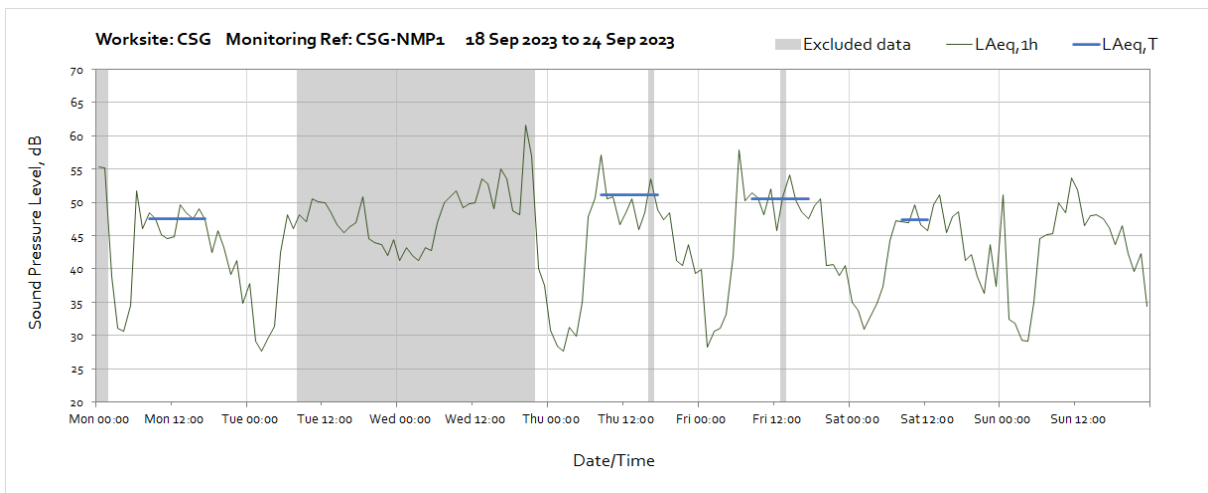


**Worksite: CSG – Monitoring Ref: CSG-NMP1**

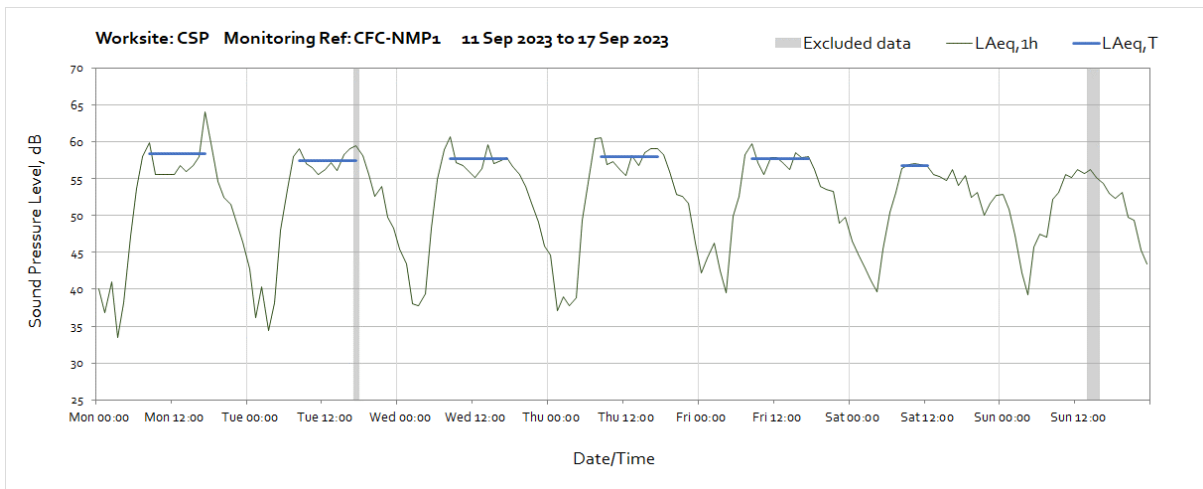
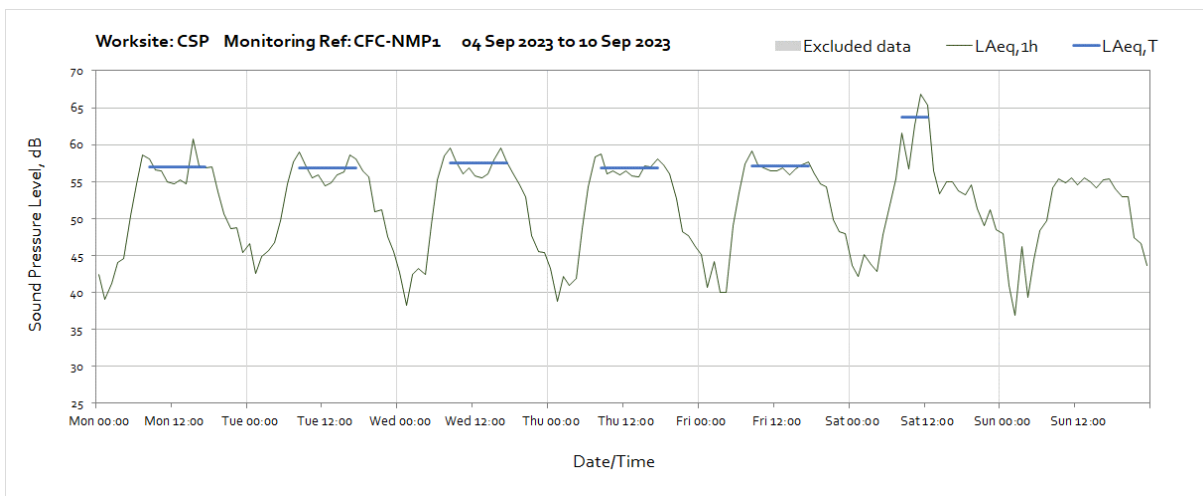
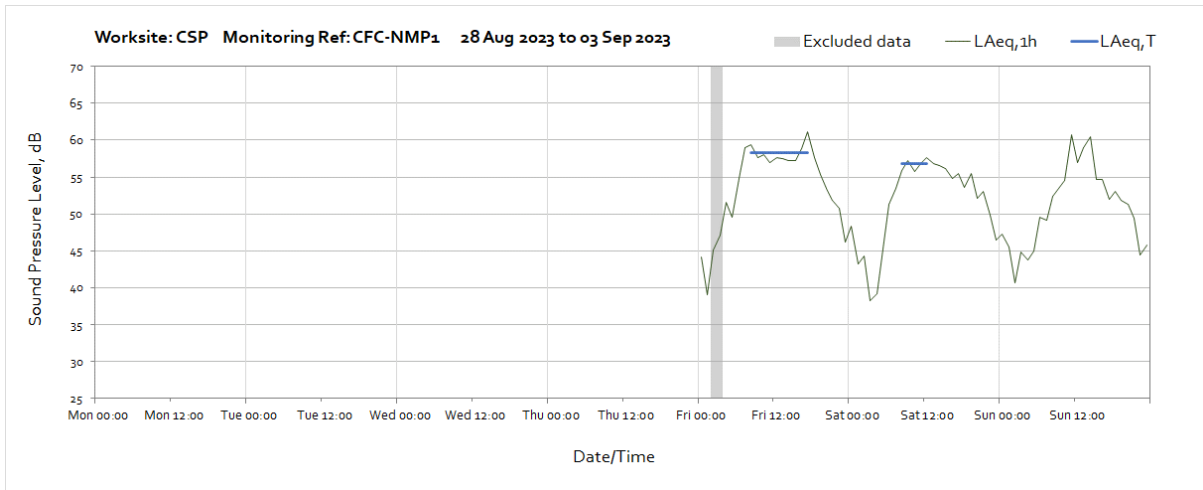


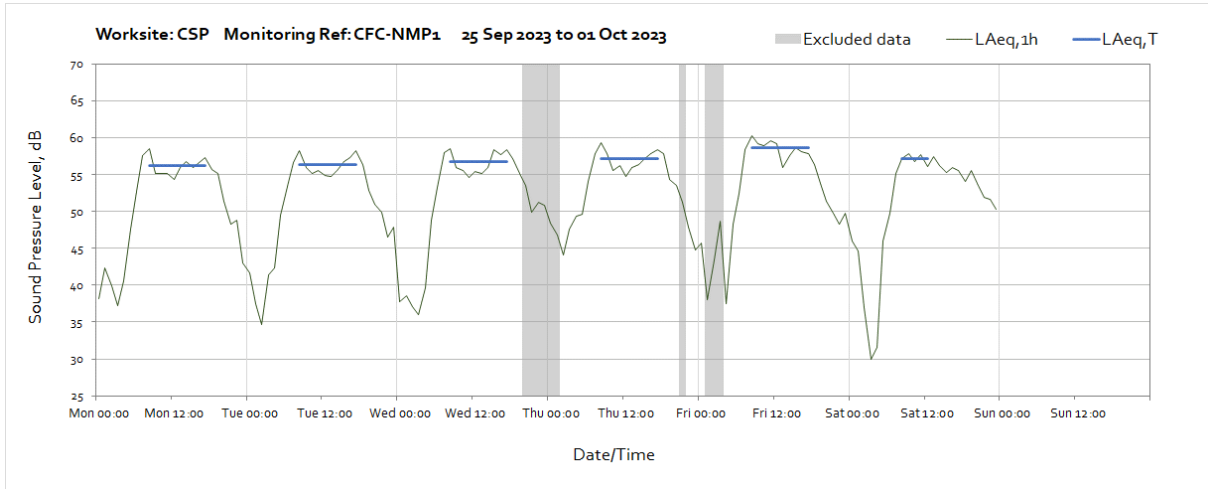
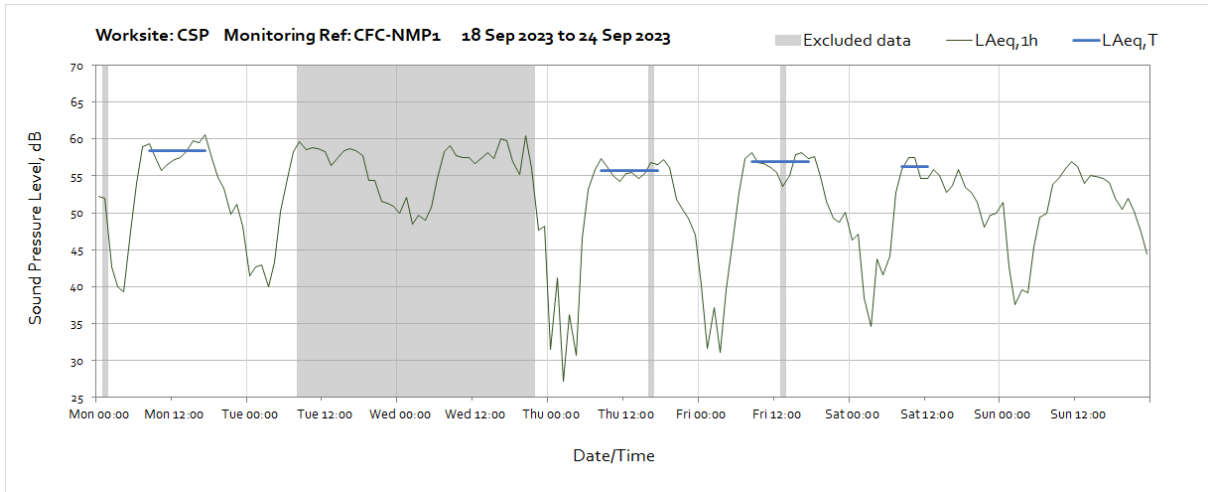


Note: Missing data between 06:00 and 07:00 on Thursday 14<sup>th</sup> September was due to a monitor update.

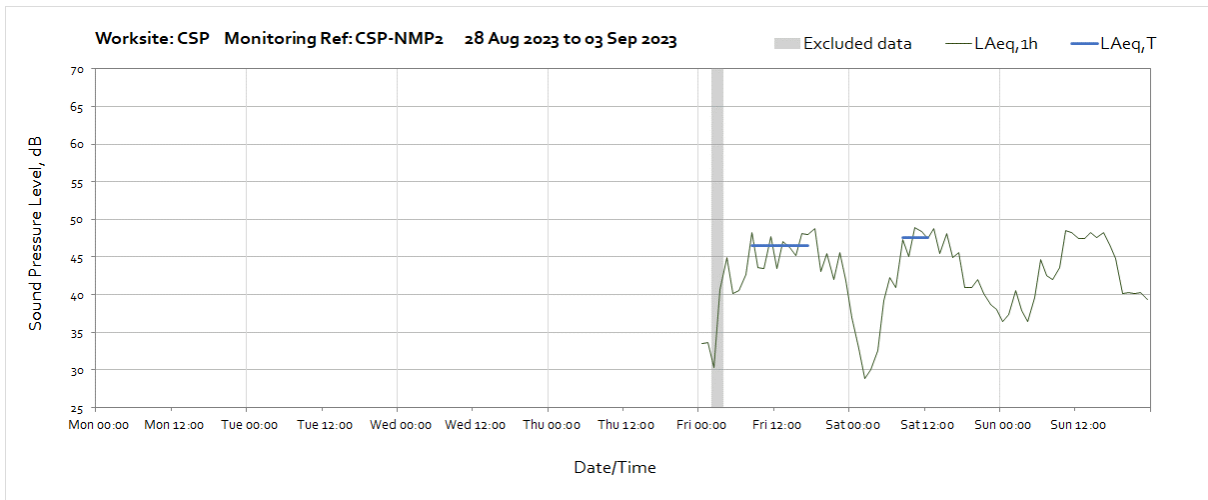


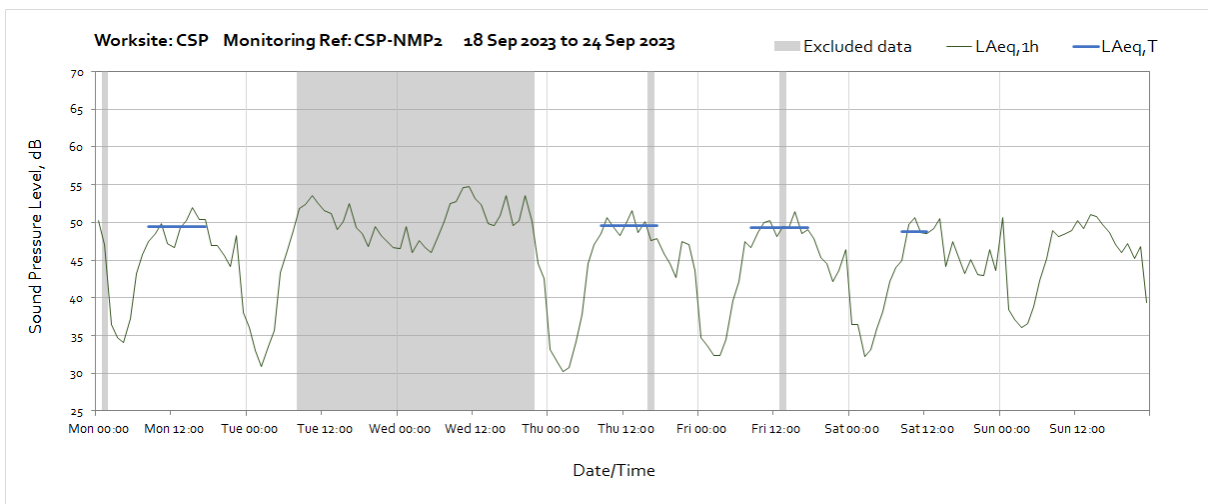
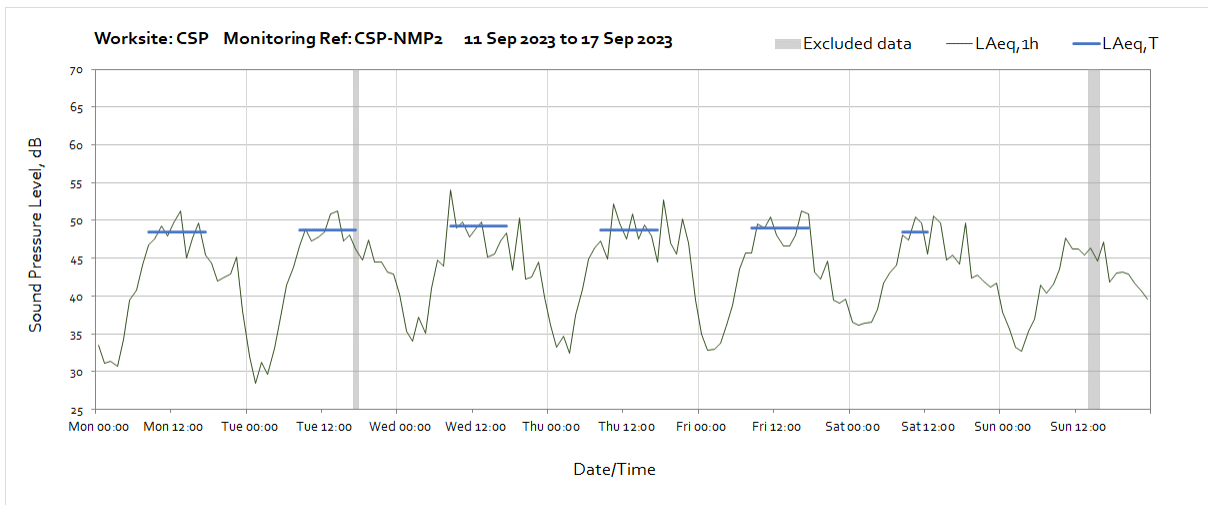
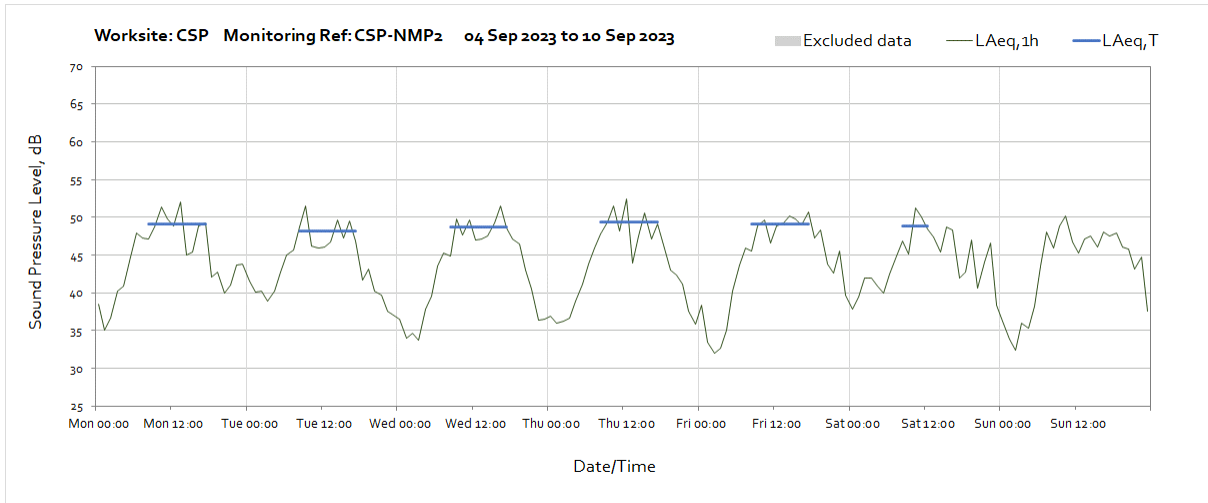
## Worksite: CSP – Monitoring Ref: CFC-NMP1

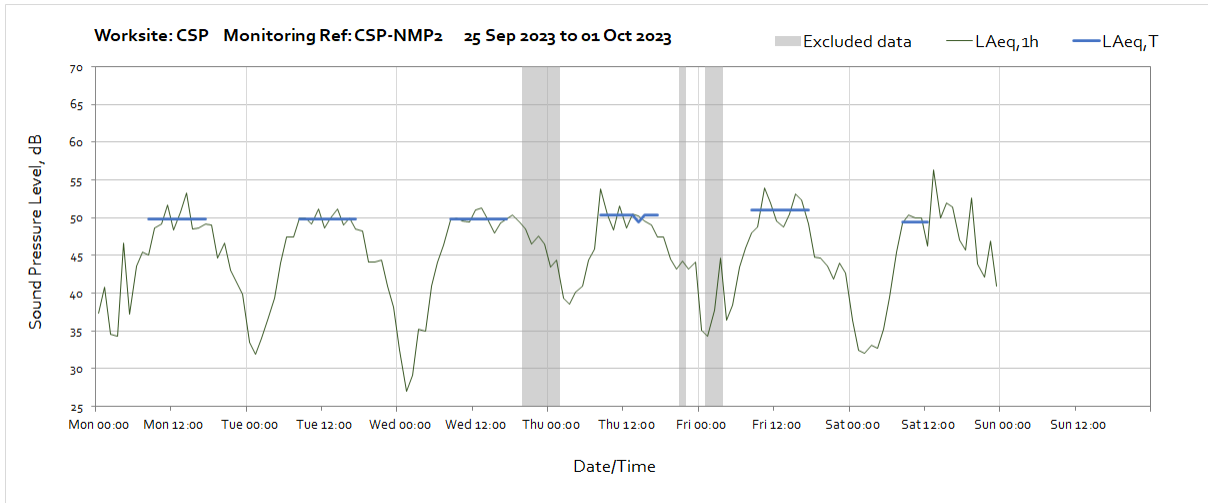




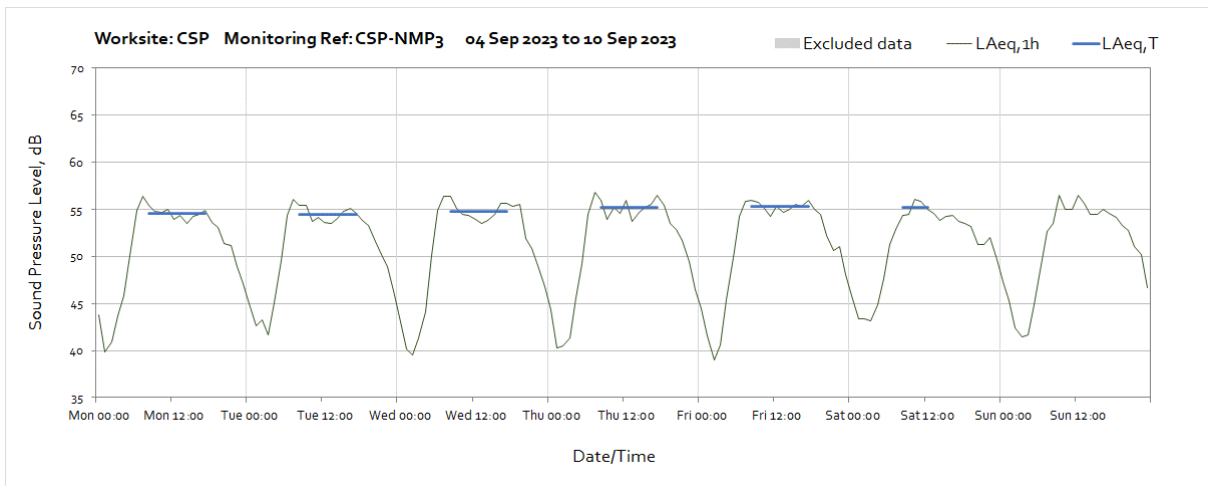
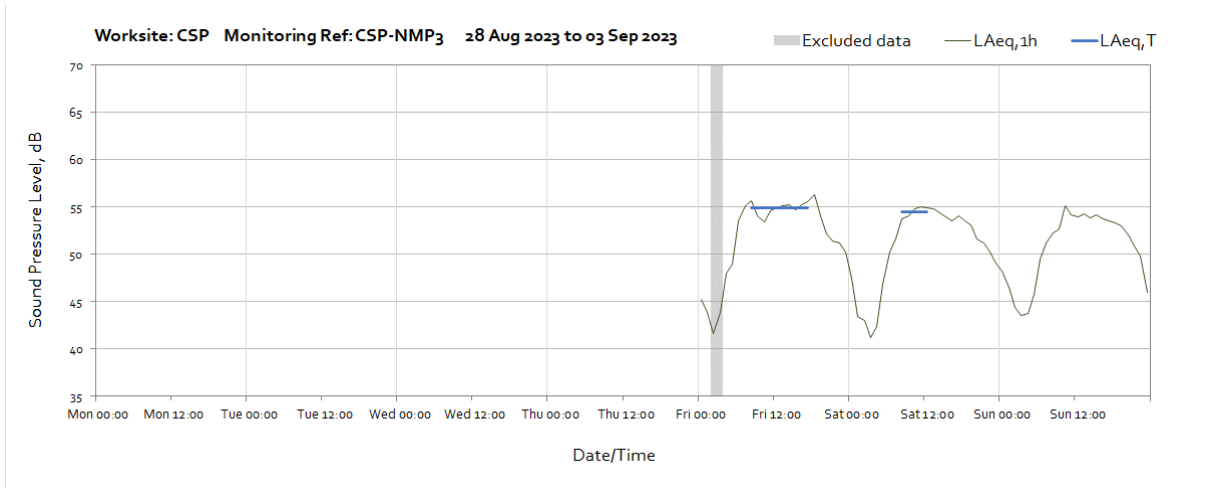
**Worksite: CSP – Monitoring Ref: CSP-NMP2**

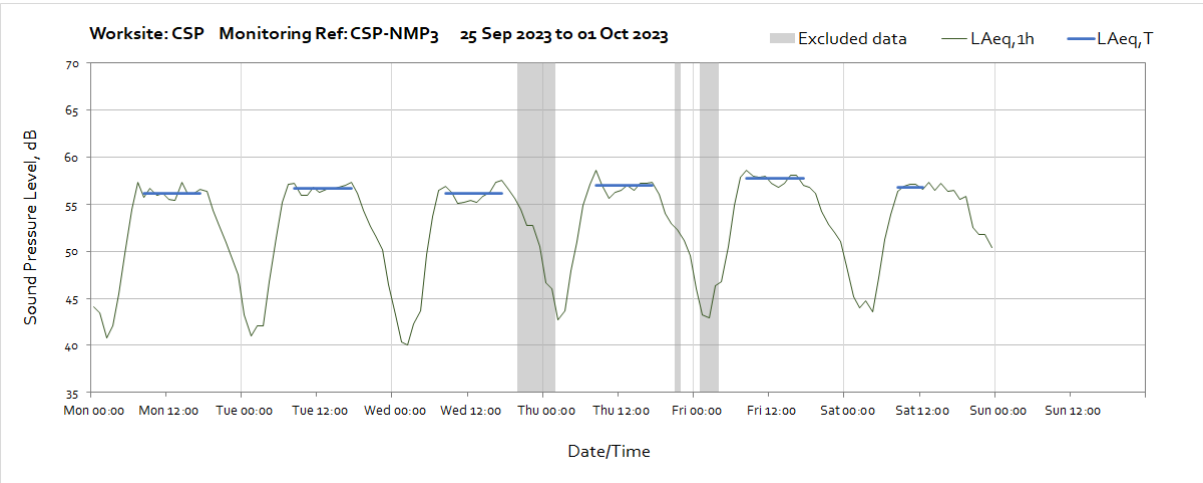
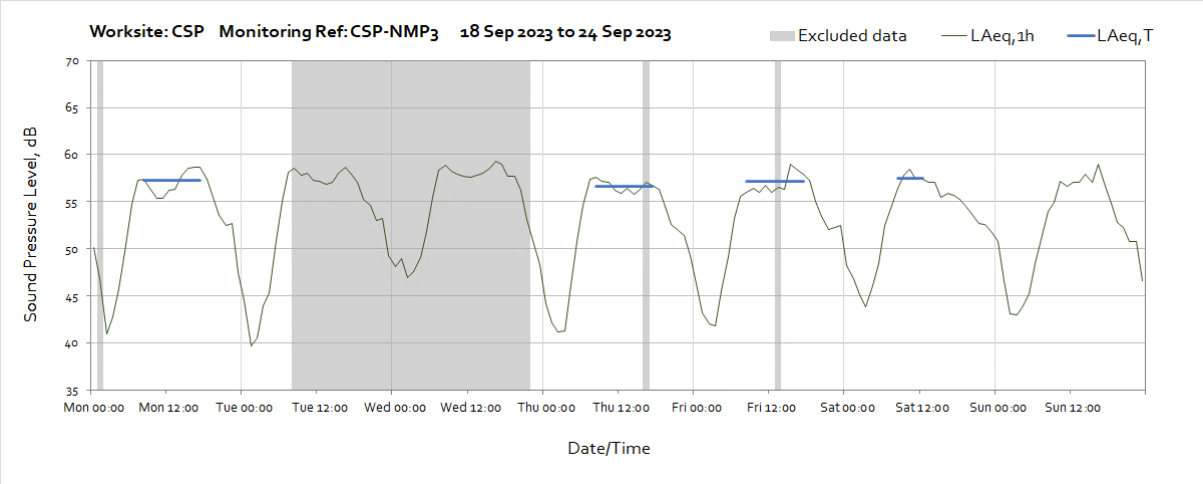
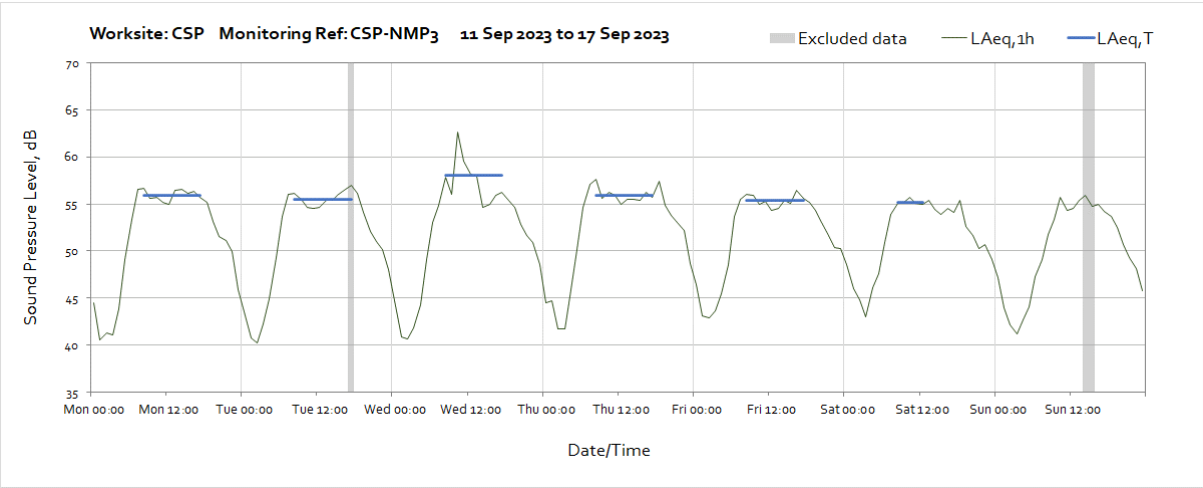






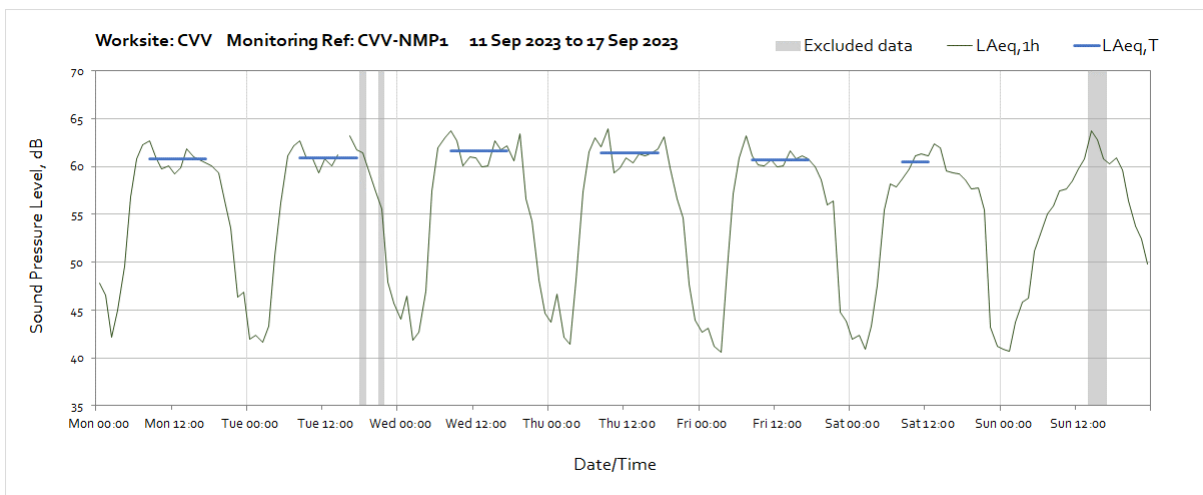
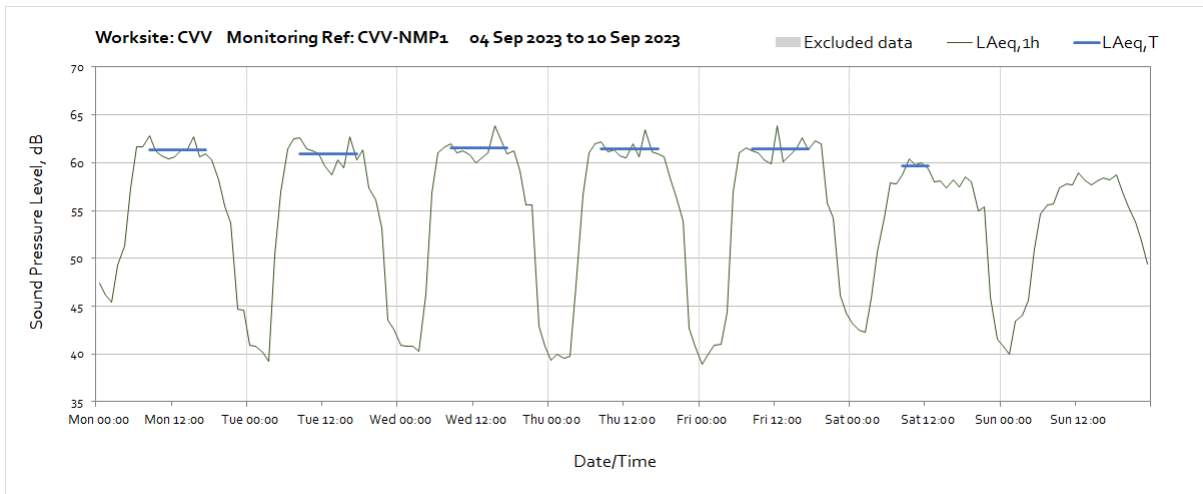
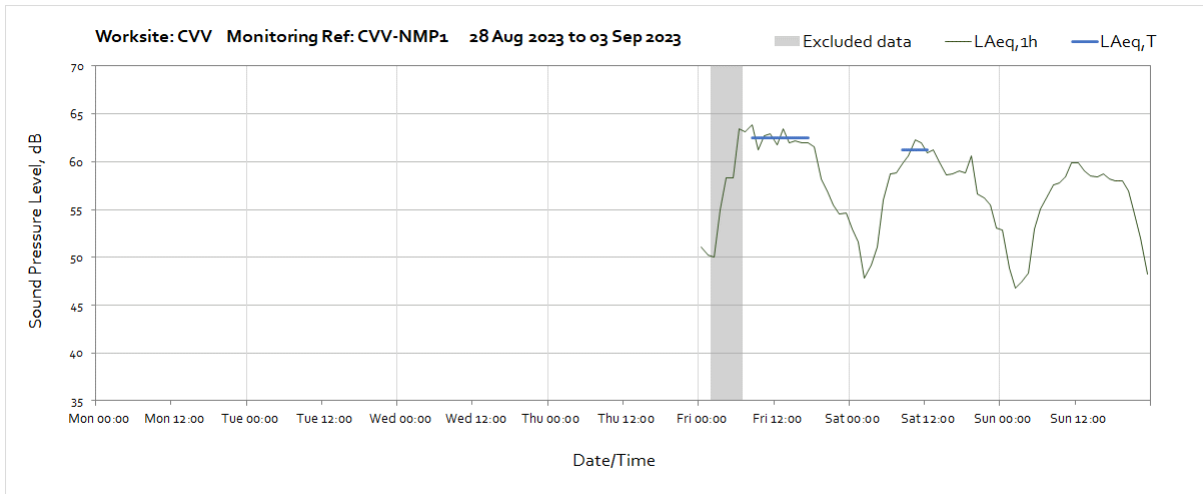
### Worksite: CSP – Monitoring Ref: CSP-NMP3





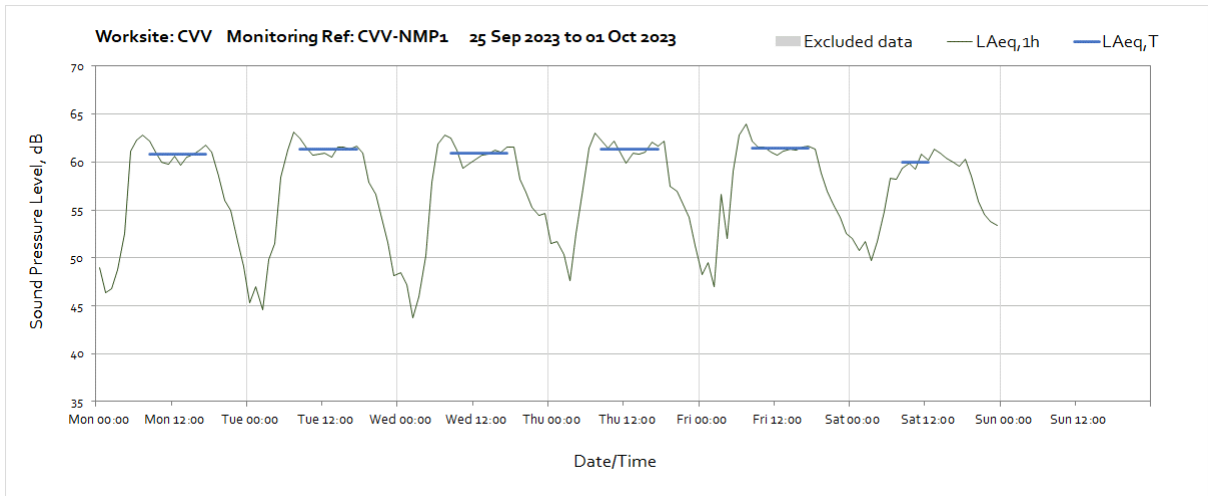
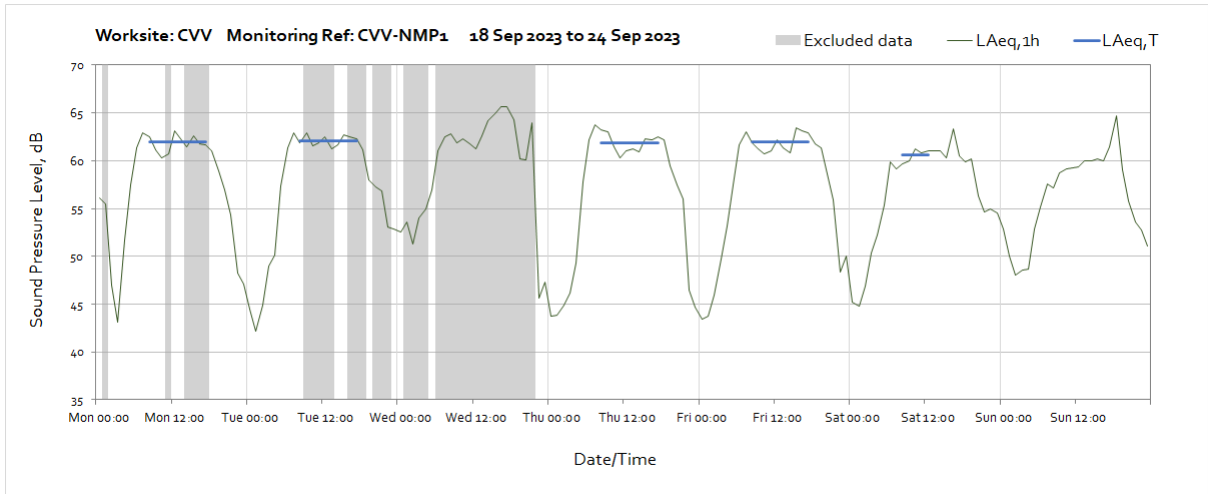


## Worksite: CVV- Monitoring Ref: CVV-NMP1

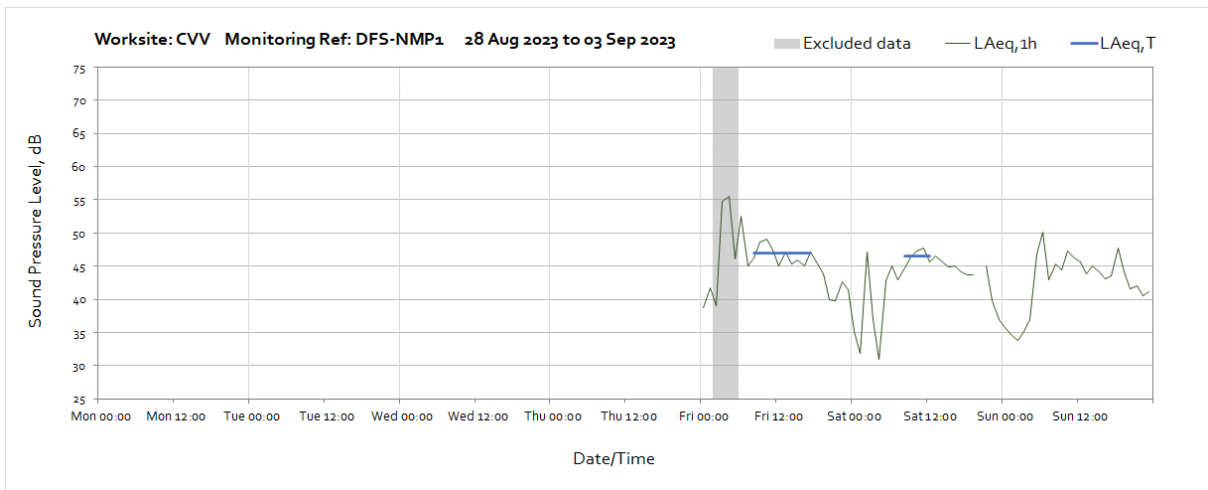


Note: Missing data between 15:00 and 16:00 on Tuesday 12<sup>th</sup> September was due to monitor maintenance.

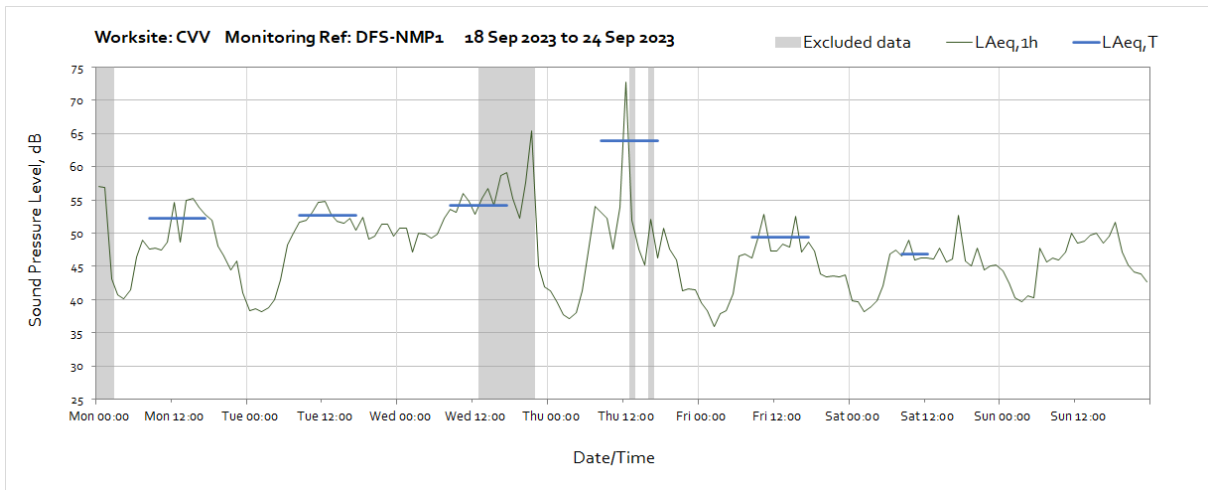
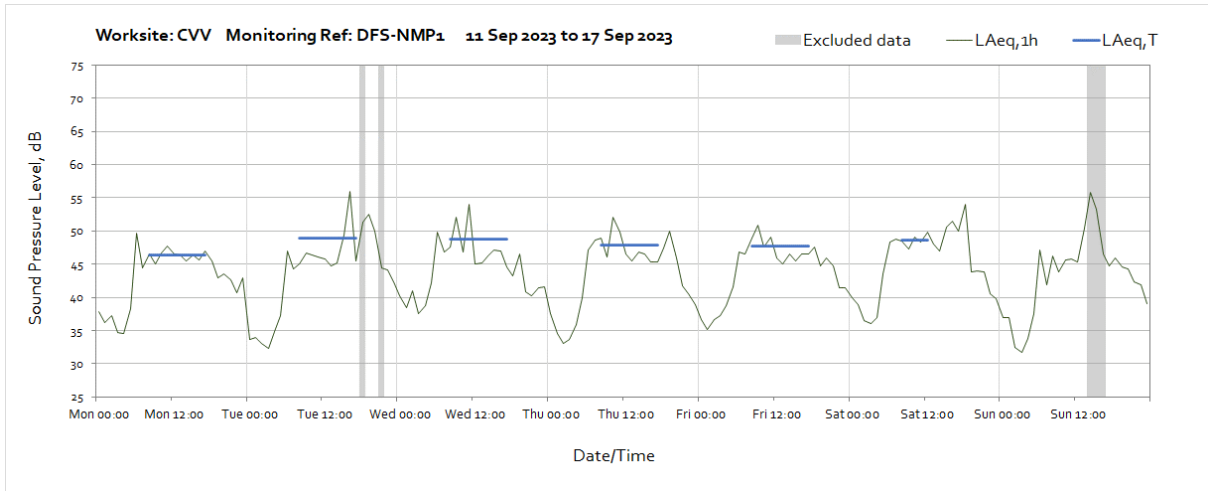
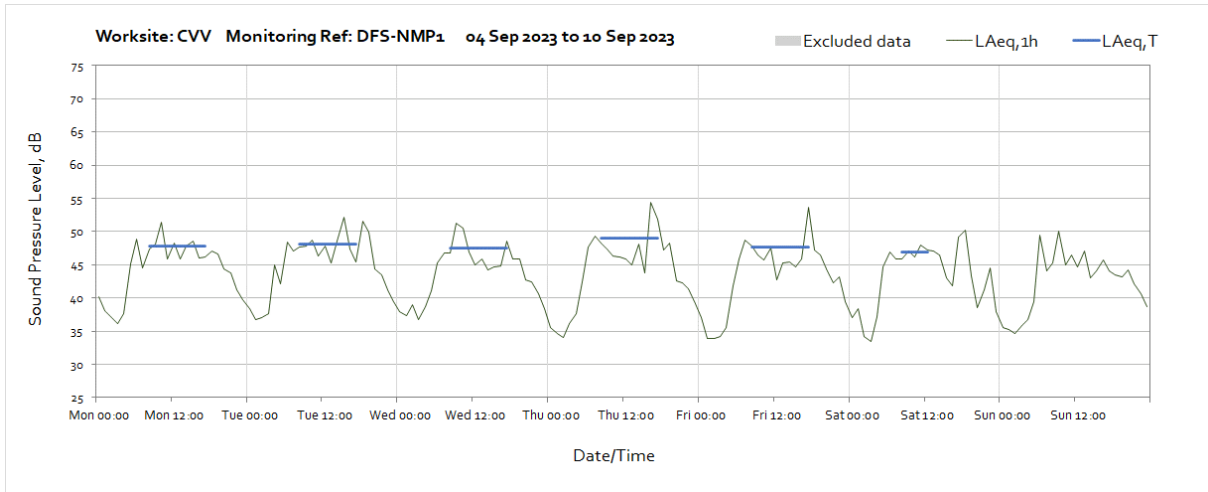
OFFICIAL

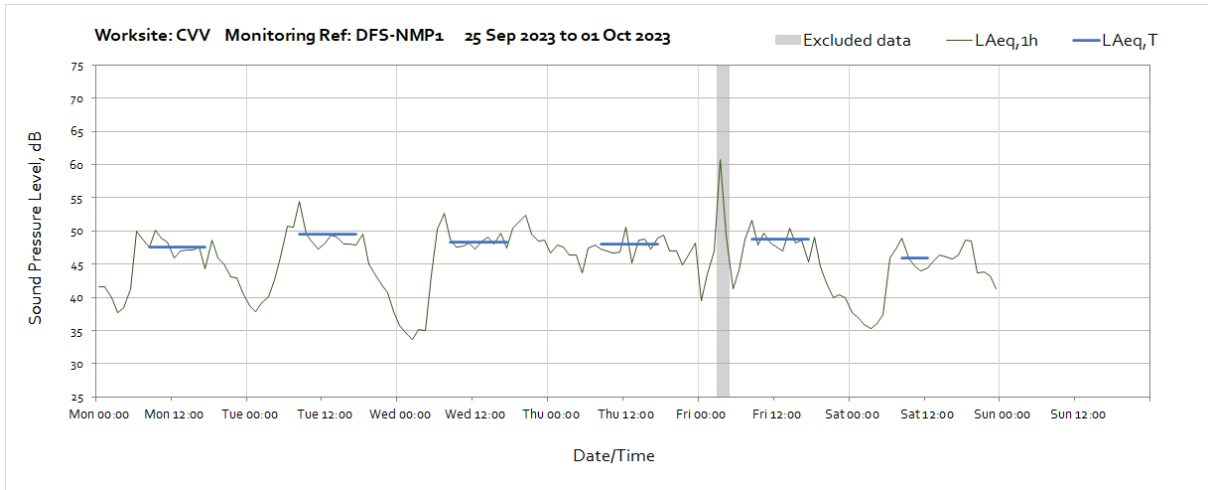


**Worksite: CVV - Monitoring Ref: DFS-NMP1**

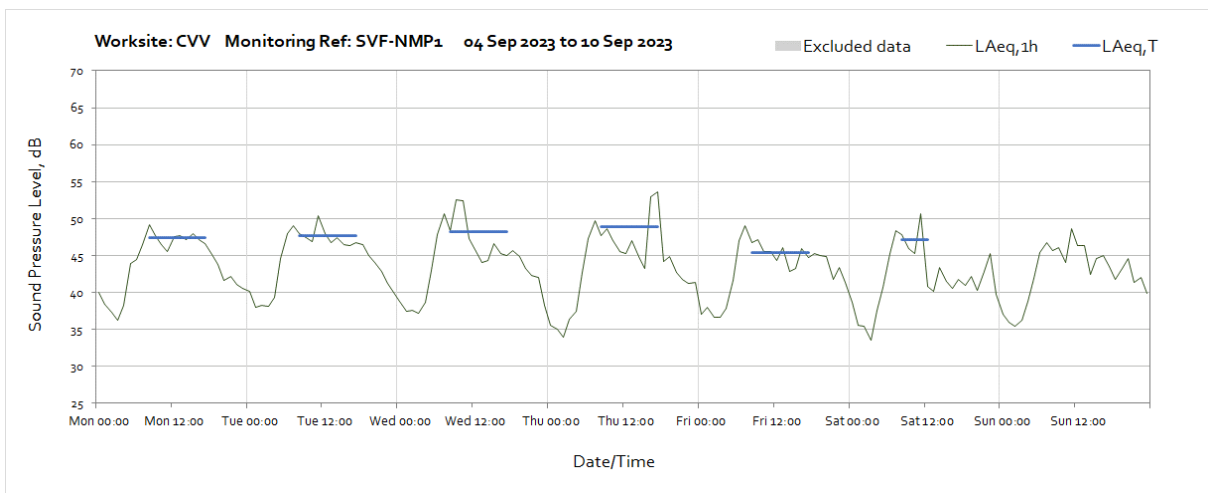
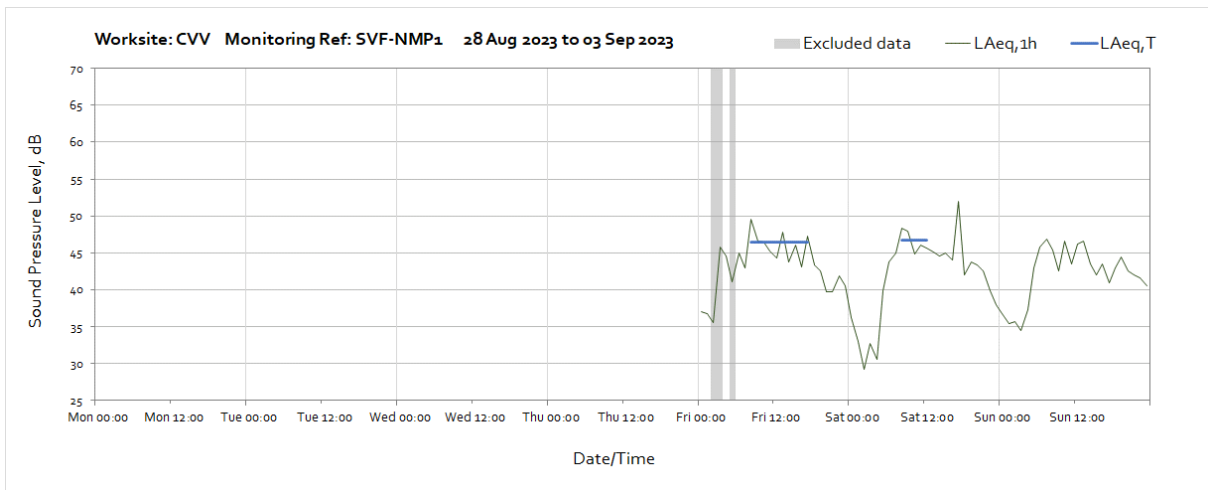


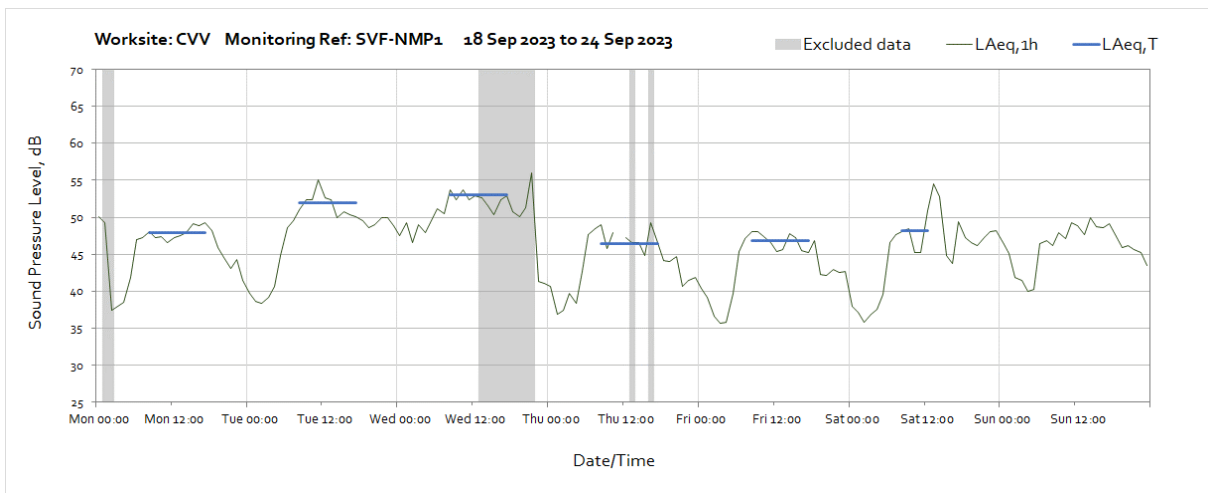
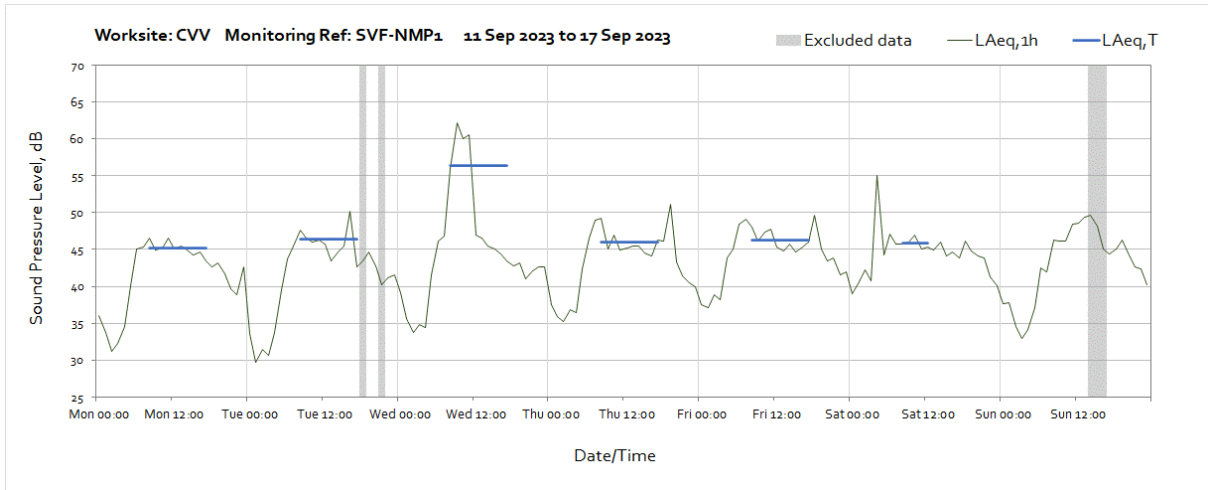
Note: Missing data between 20:00 and 21:00 on Saturday 2<sup>nd</sup> September was due to a data transfer error.



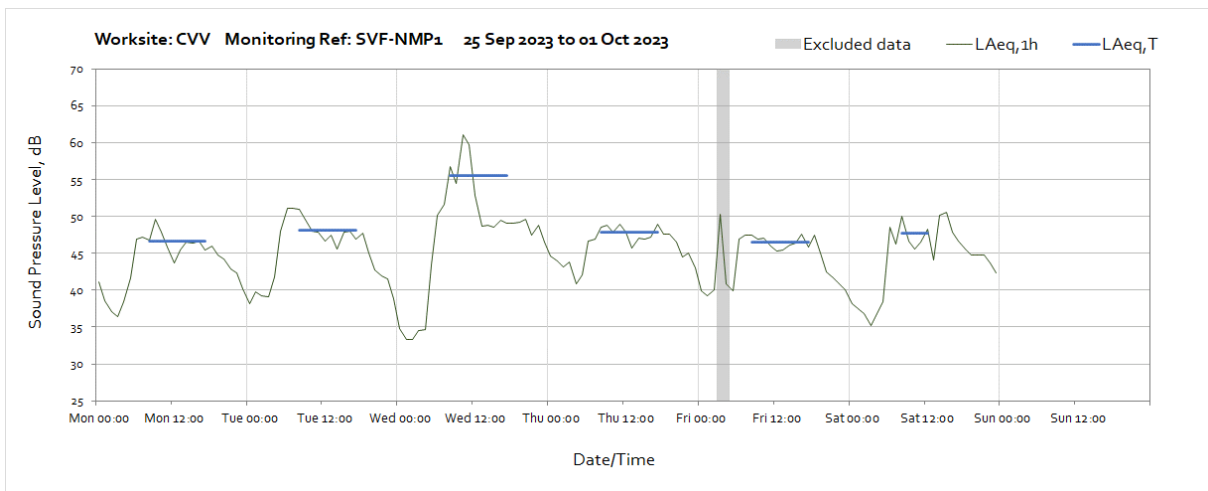


**Worksite: CVV – Monitoring Ref: SVF-NMP1**





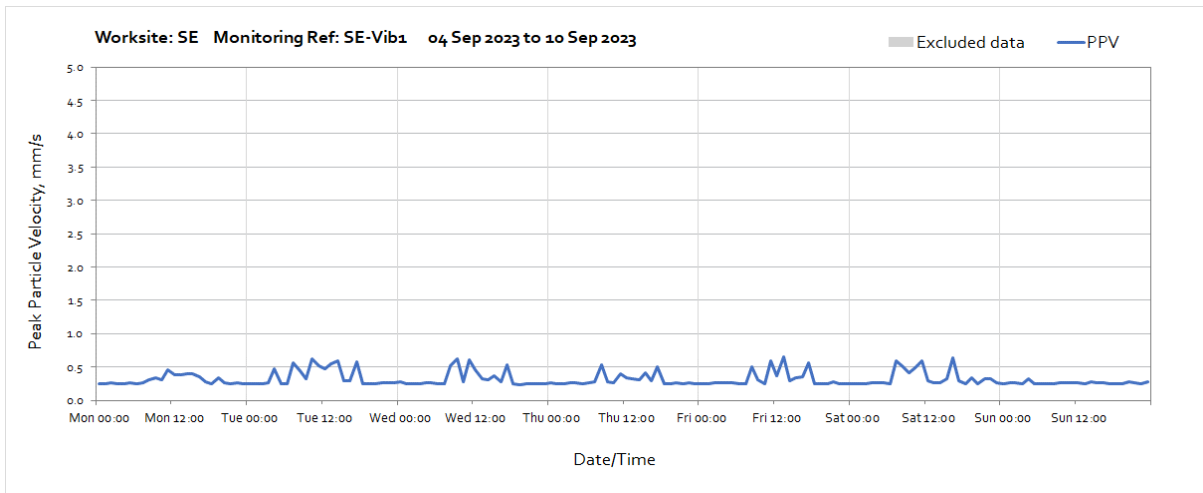
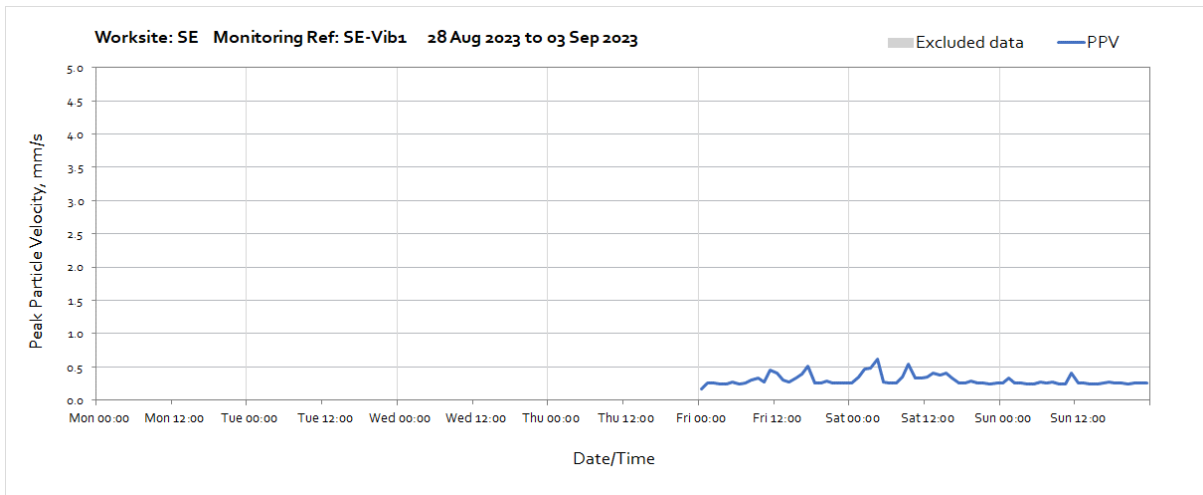
Note: Missing data between 11:00 and 12:00 on Thursday 21<sup>st</sup> September was due to monitor field calibration.

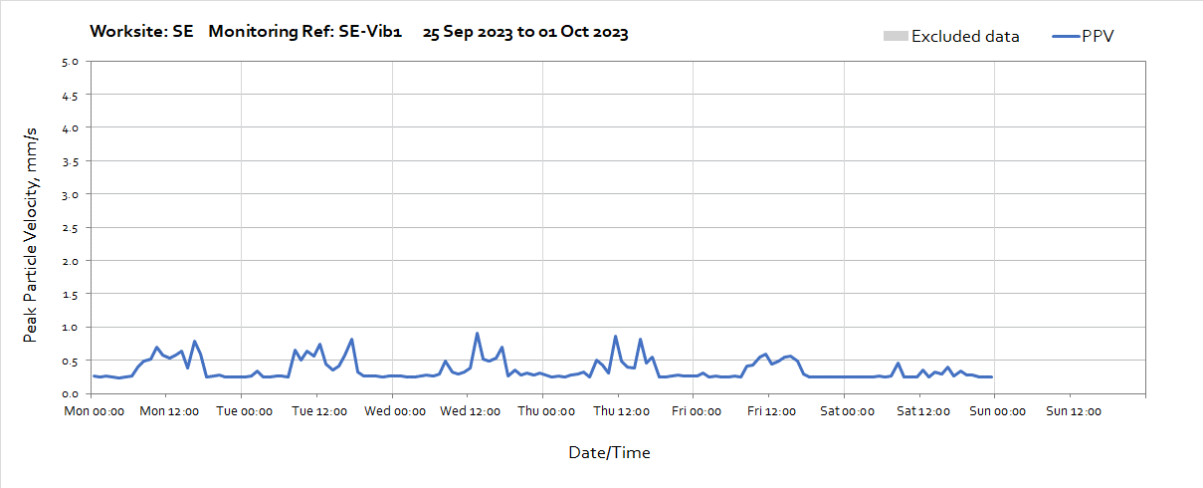
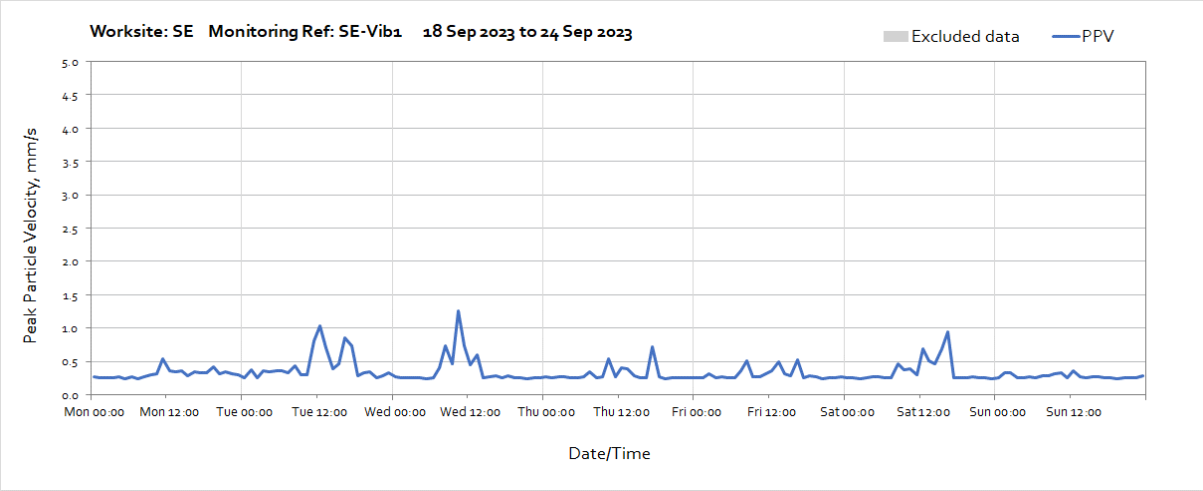
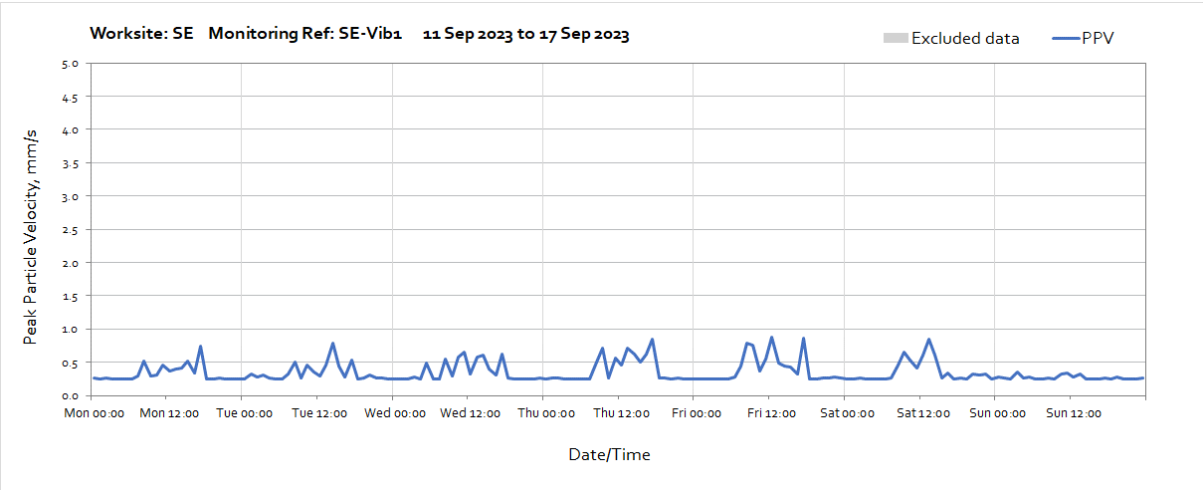


# Vibration

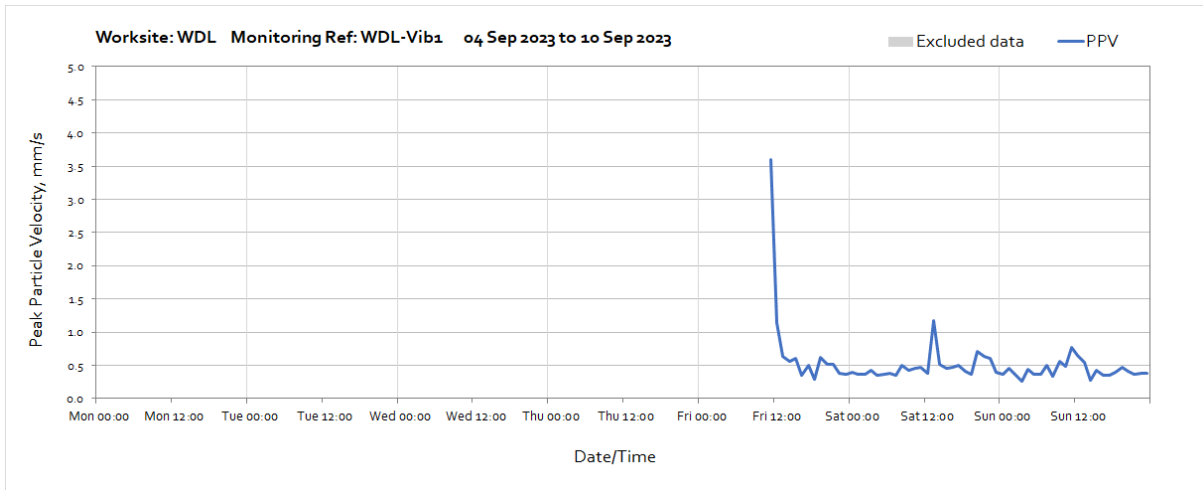
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axes x, y and z. Periods where PPV values have been affected by local interference with the vibration monitor or only measured for part of the period, which are not representative of HS2 construction works, have been greyed out and excluded when calculating values in Table 4 of the main report.

## Worksite: SE – Monitoring Ref: SE-Vib 1

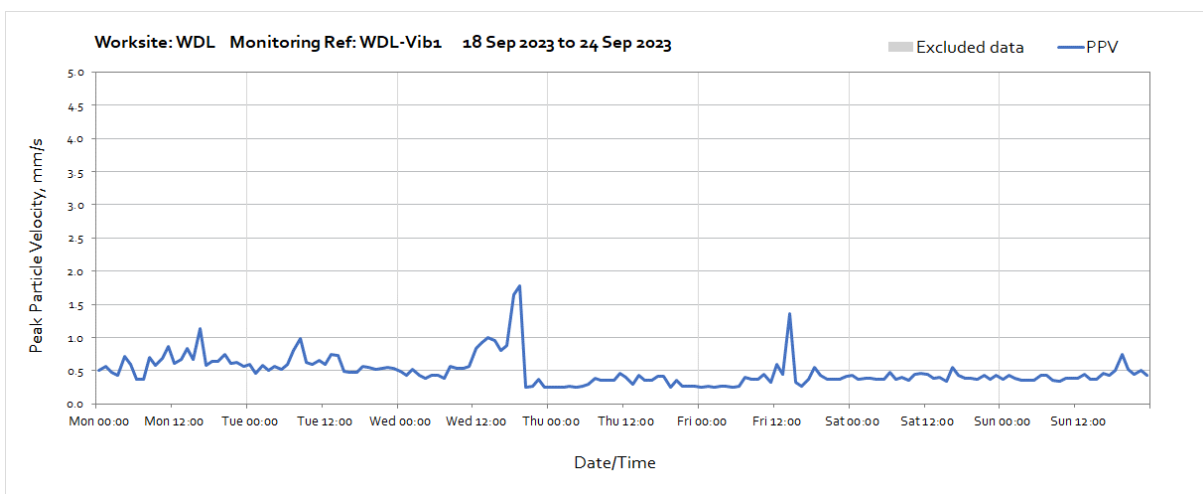
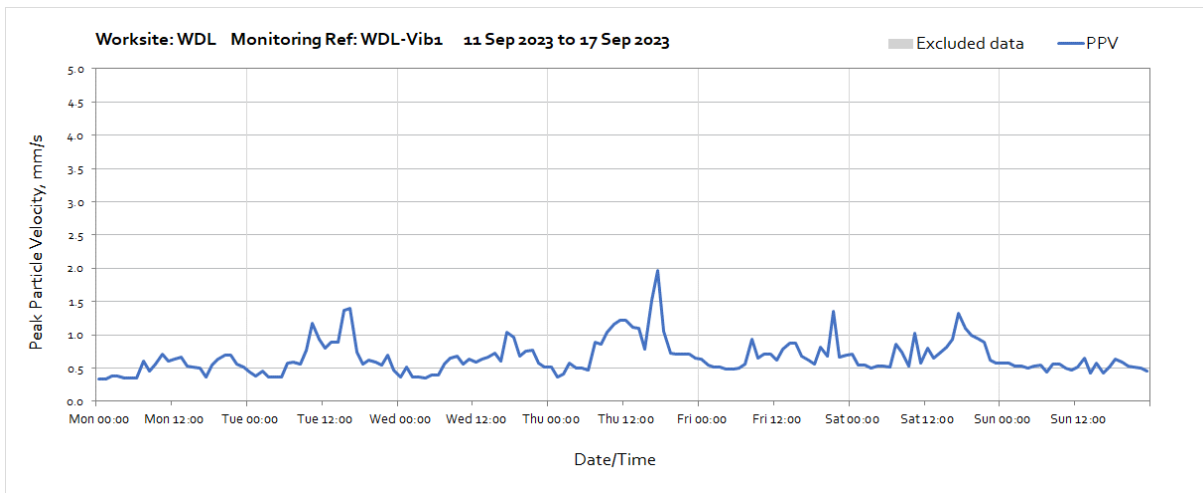




## Worksite: WDL – Monitoring Ref: WDL-Vib 1

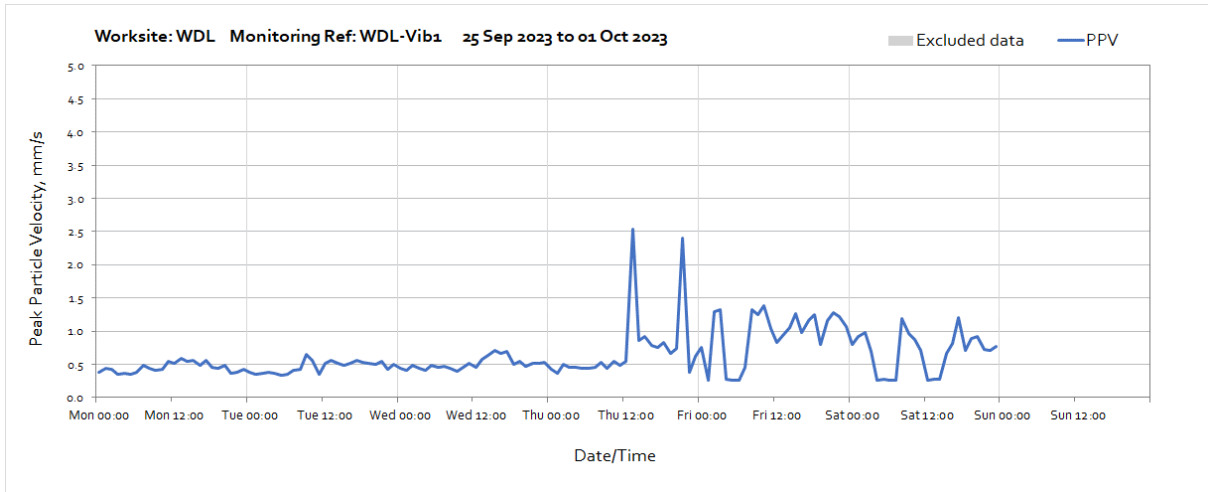


Note: Missing data from the start of the month until 11:00 on Friday 8<sup>th</sup> September was due to loss of battery power to monitor.

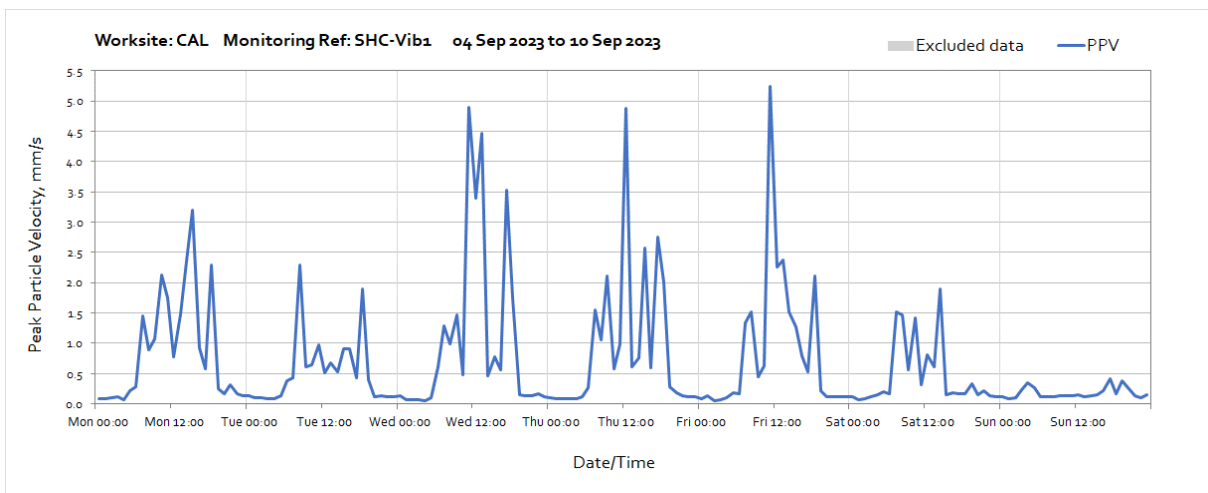
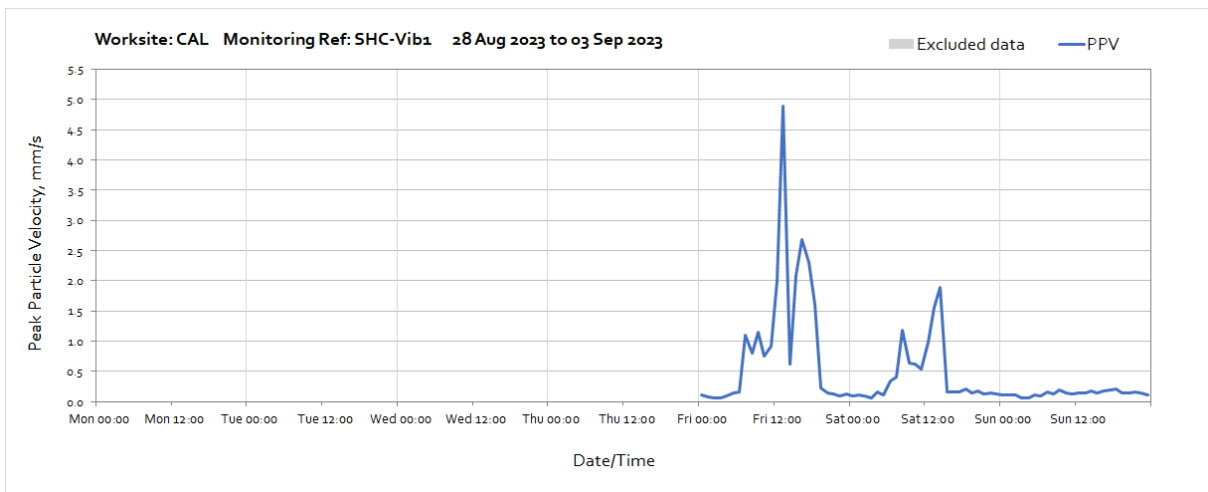


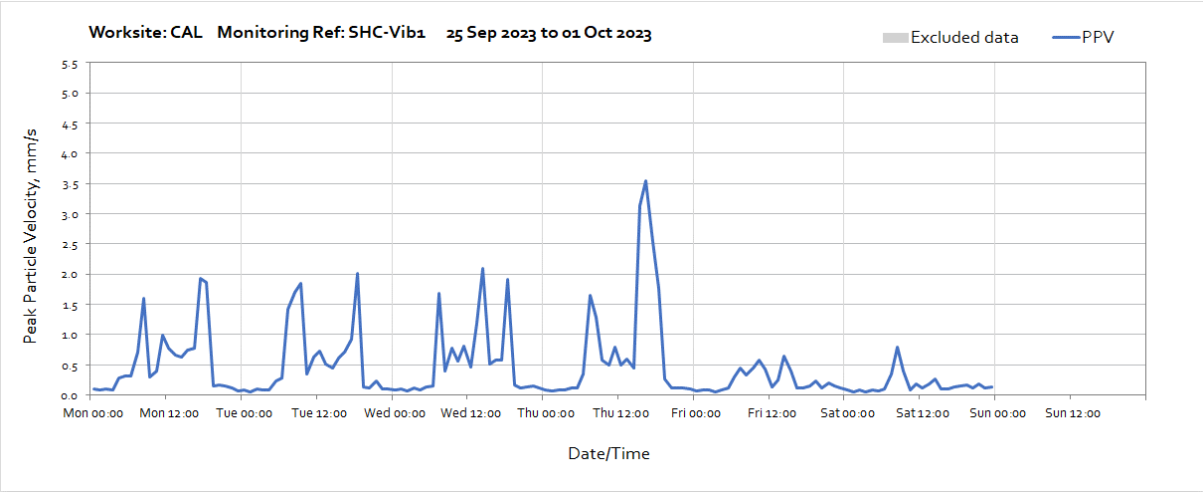
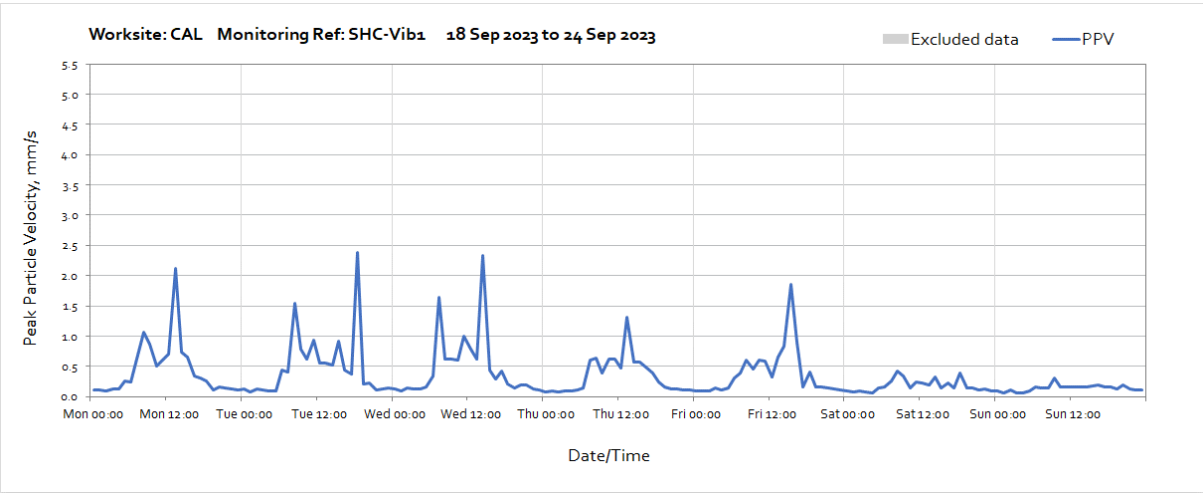
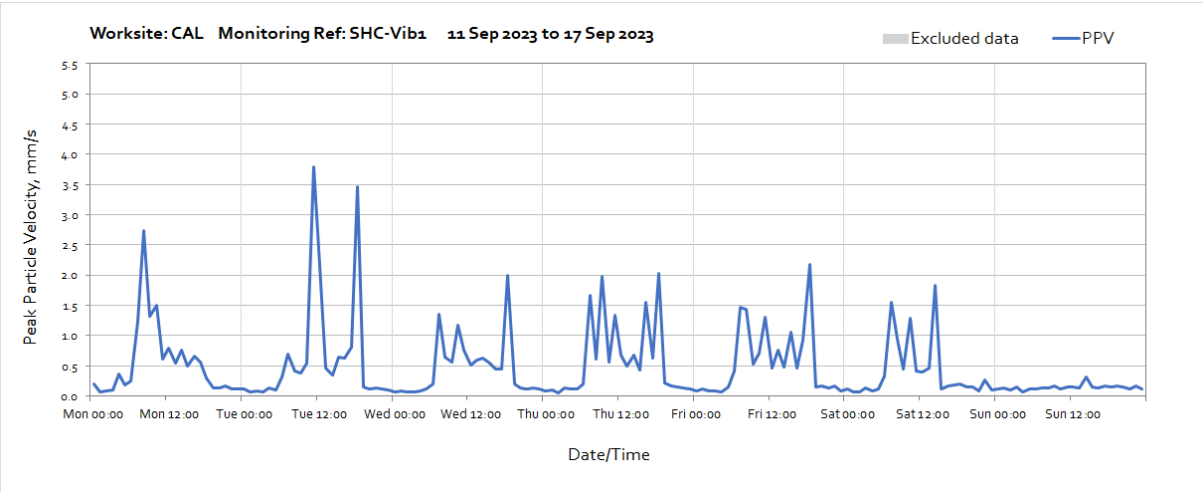
OFFICIAL



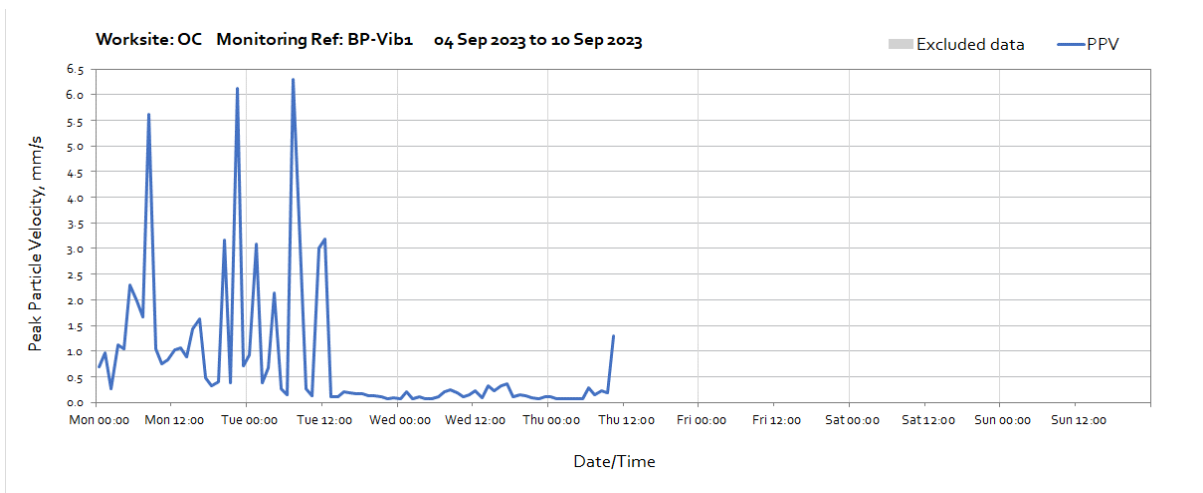
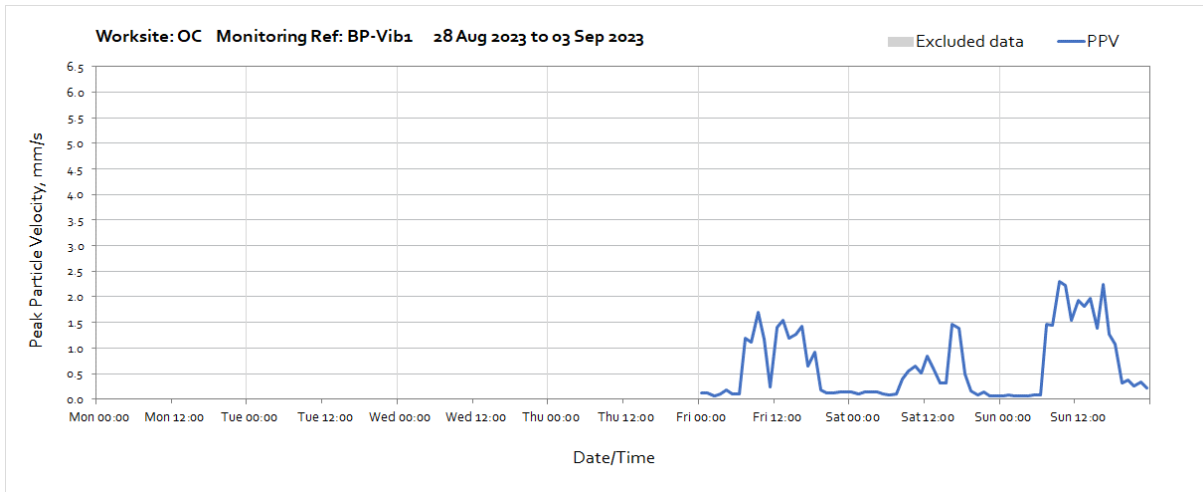


**Worksite: CAL – Monitoring Ref: SHC-Vib1**

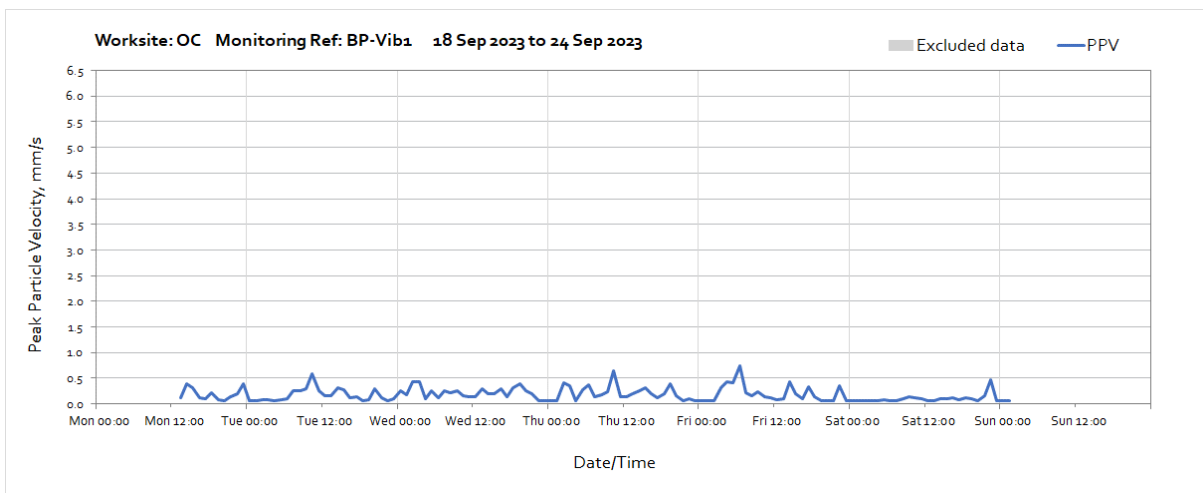




## Worksite: OC – Monitoring Ref: BP-Vib1



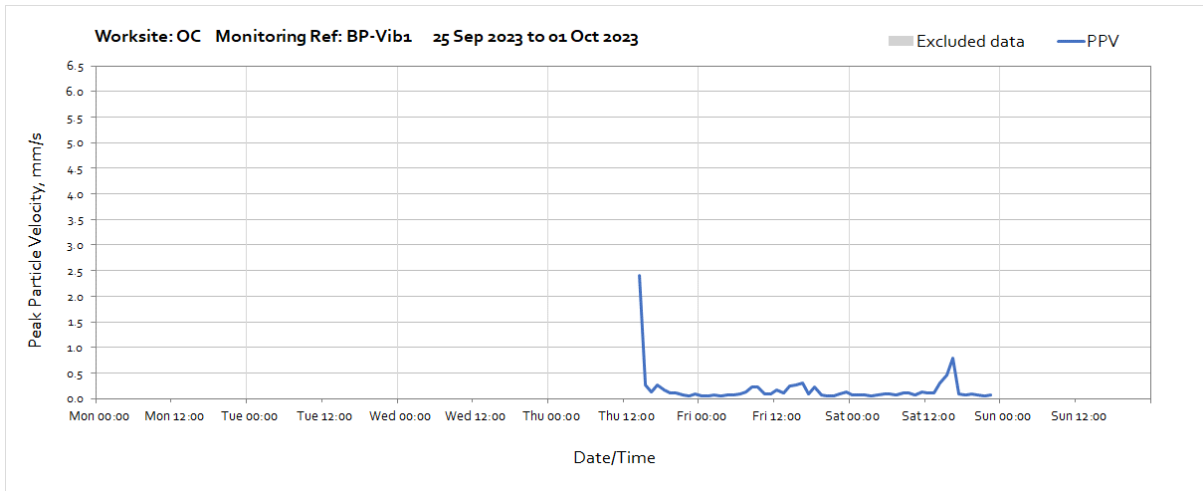
Note: Missing data from 11:00 on Thursday 7<sup>th</sup> September until 13:00 on Monday 18<sup>th</sup> September was due to a monitor fault.



Note: Missing data from 11:00 on Thursday 7<sup>th</sup> September until 13:00 on Monday 18<sup>th</sup> September was due to a monitor fault.

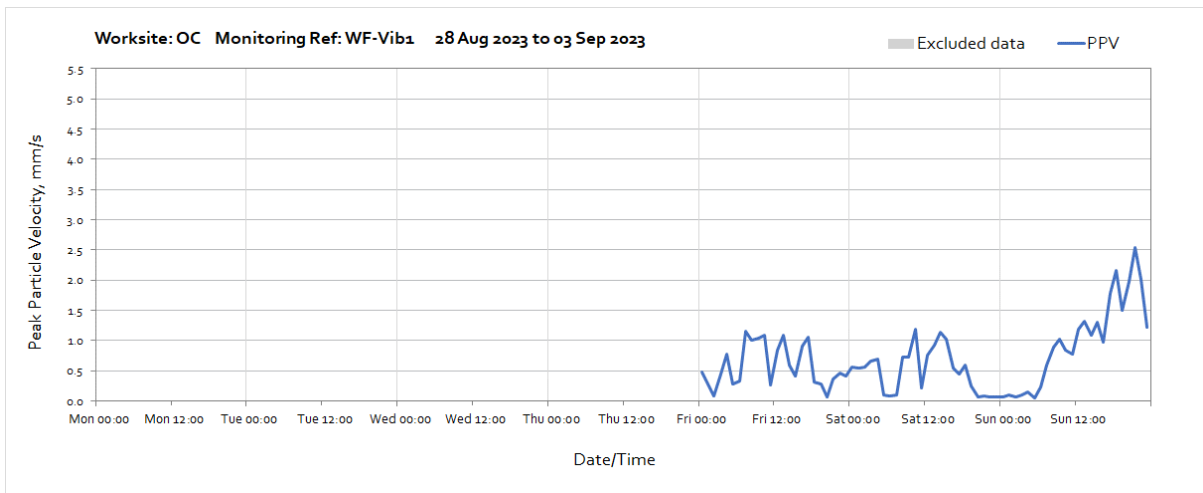
OFFICIAL

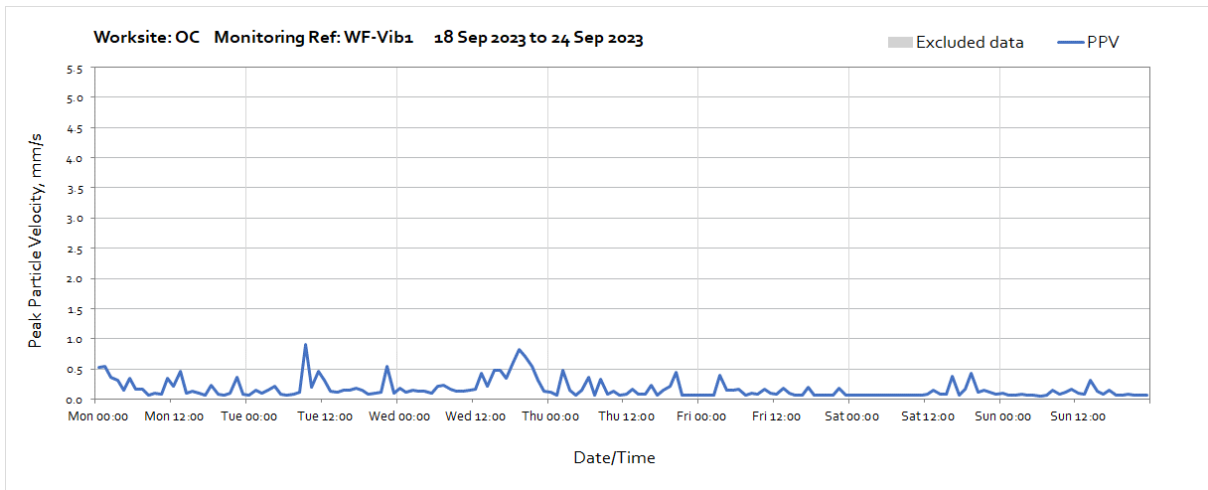
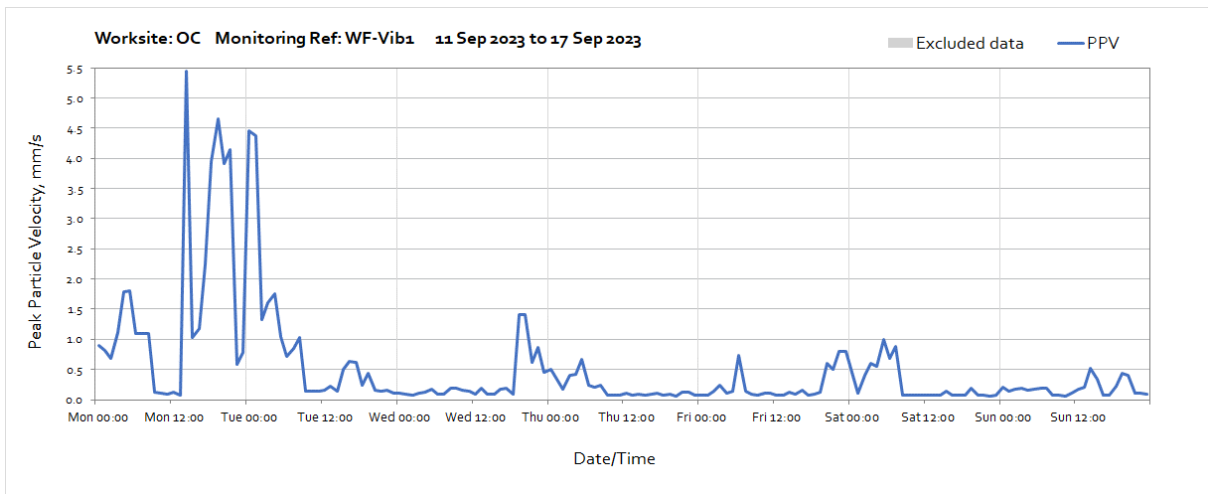
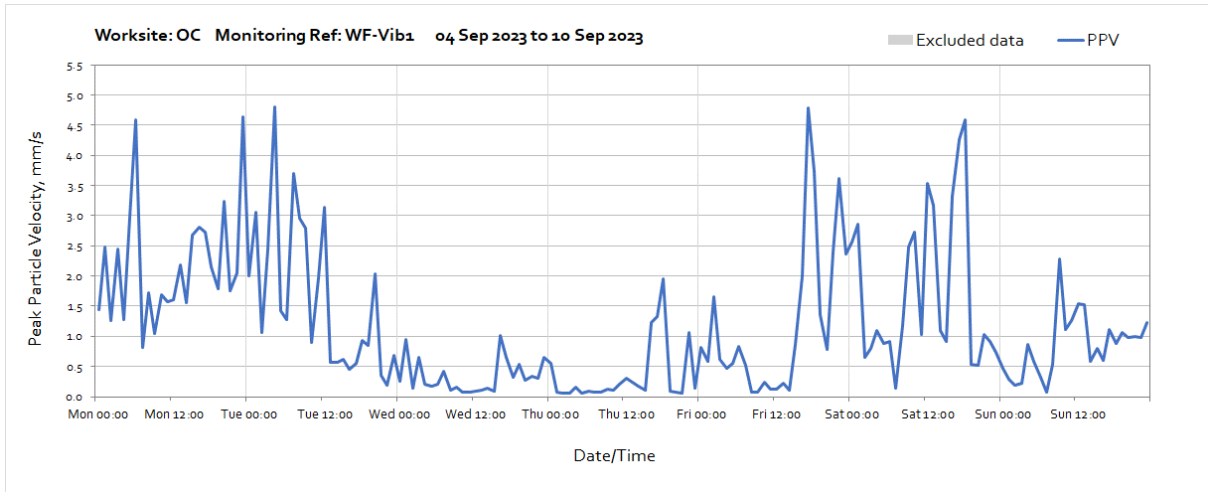
to a monitor fault. Missing data from 02:00 on Sunday 24<sup>th</sup> September until 14:00 on Thursday 28<sup>th</sup> September was due to poor signal to monitoring station.

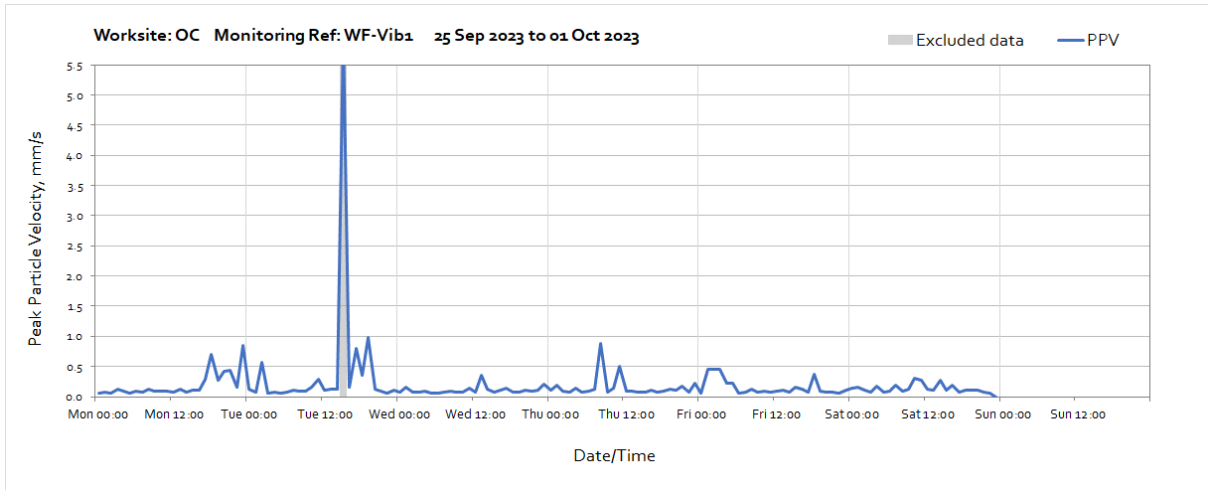


Note: Missing data from 02:00 on Sunday 24<sup>th</sup> September until 14:00 on Thursday 28<sup>th</sup> September was due to poor signal to monitoring station. Missing data between 23:00 and 00:00 on Saturday 30<sup>th</sup> September was due to signal loss.

**Worksite: OC – Monitoring Ref: WF-Vib1**

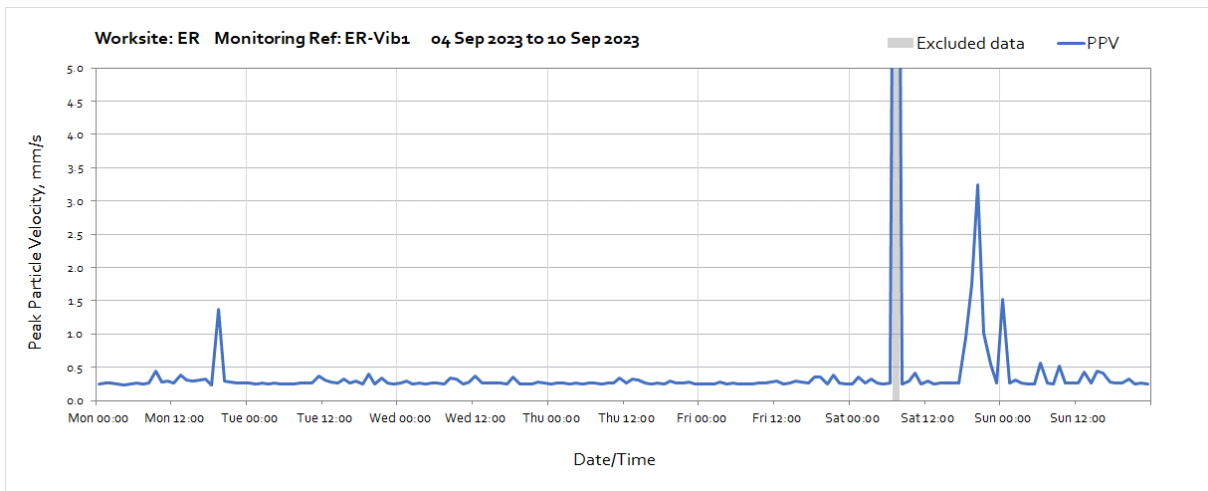
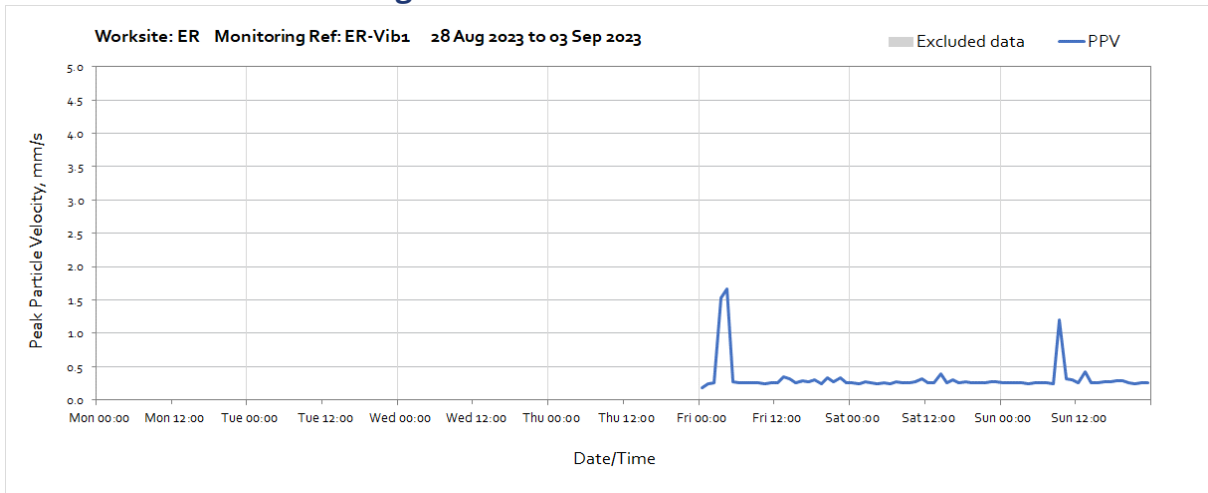


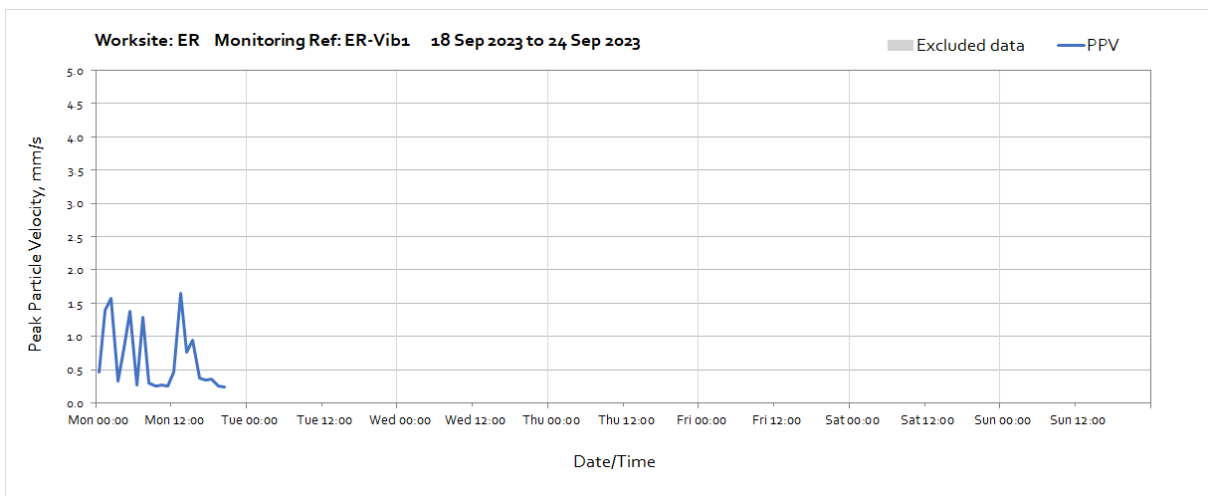
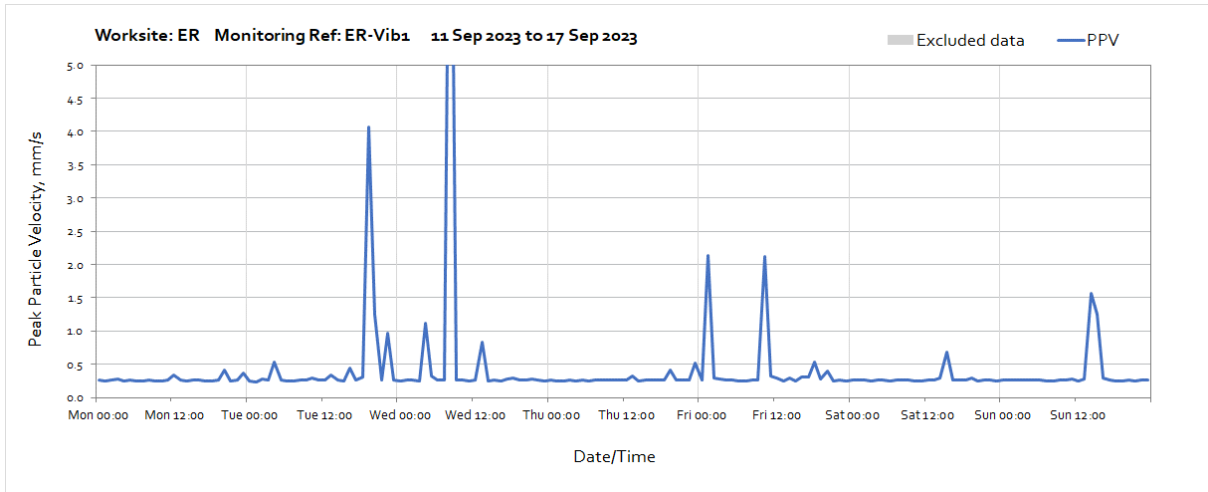




Note: Missing data between 23:00 and 00:00 on Saturday 30<sup>th</sup> September was due to signal loss.

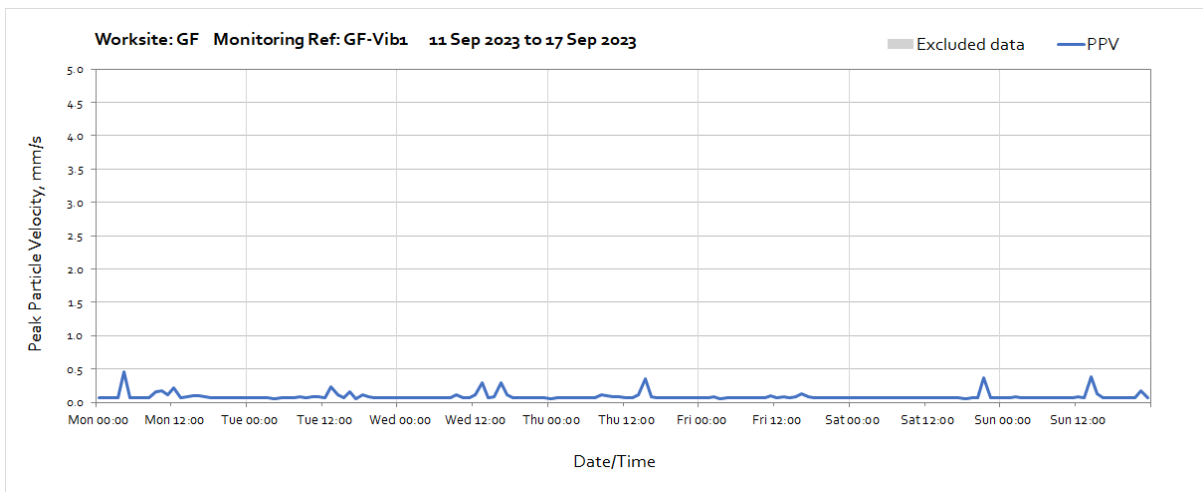
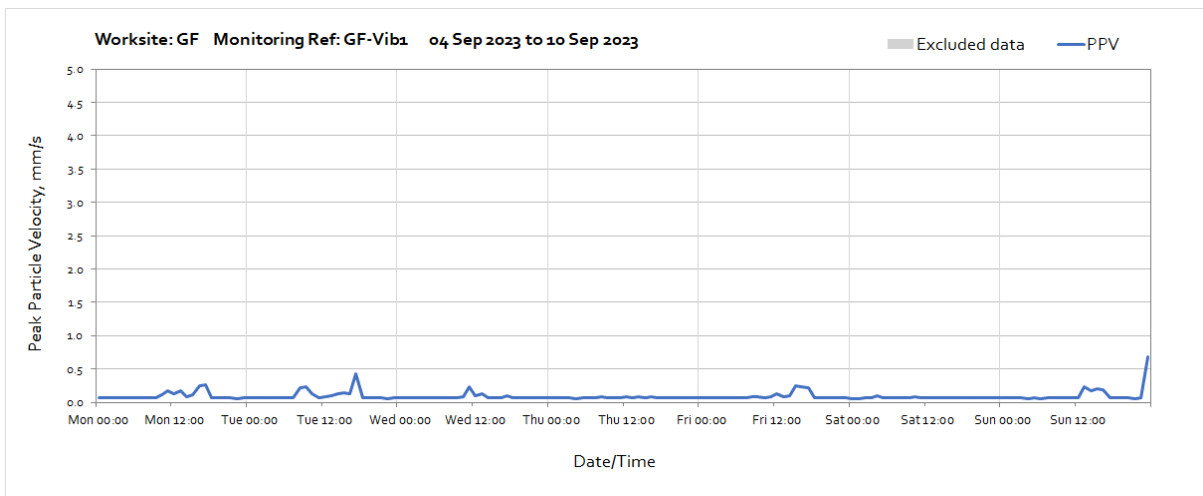
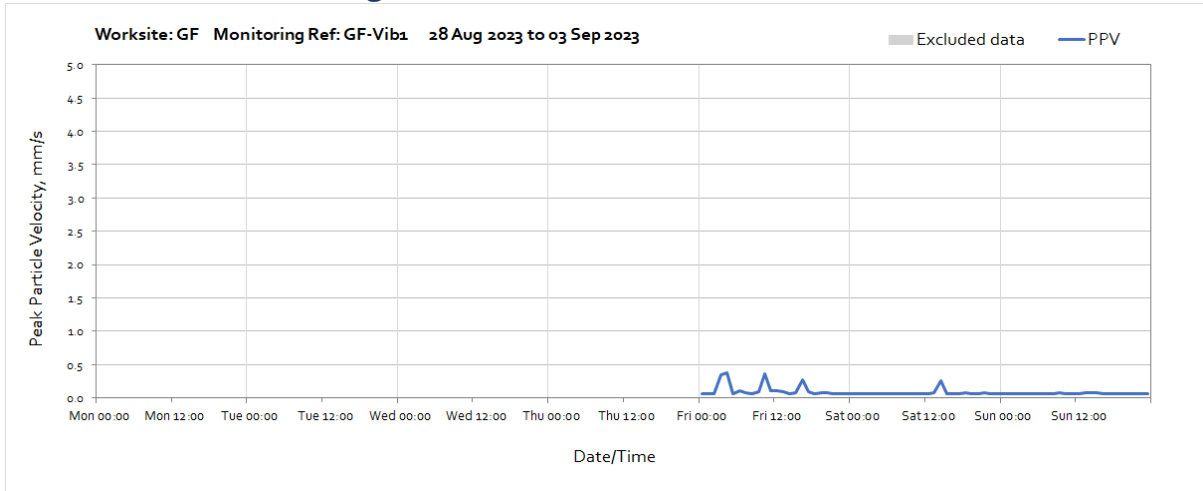
### Worksite: WGT - Monitoring Ref: ER-Vib 1





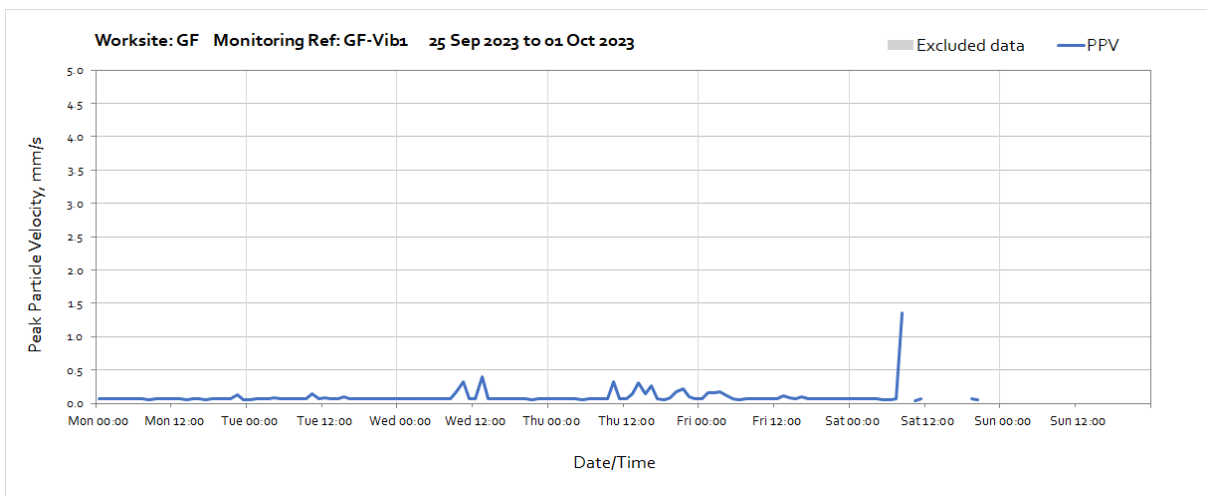
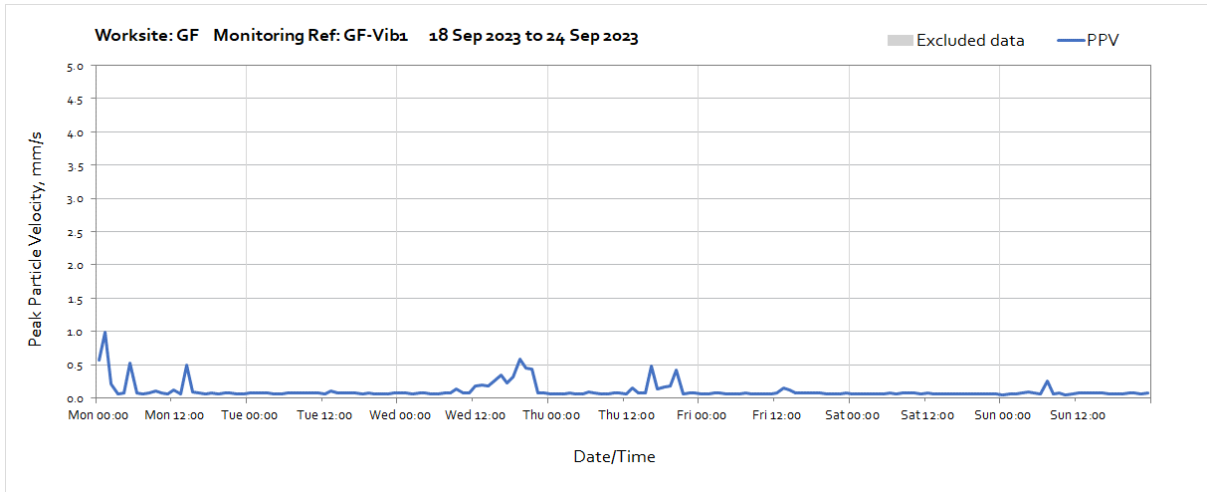
Note: Missing data from 21:00 on Monday 18<sup>th</sup> September until month end was due to depleted monitor battery.

## Worksite: GF – Monitoring Ref: GF-Vib1



OFFICIAL





Note: Missing data on Saturday 30<sup>th</sup> September was due to a monitor network communication error.

**Worksite: WDV – Monitoring Ref: WDV-Vib 1**

