

Construction Noise and Vibration Monthly Report – June 2022

Buckinghamshire

Non-Technical Summary	1
Abbreviations and Descriptions	5
1 Introduction	6
1.2 Measurement Locations	13
2 Summary of Results	16
2.1 Summary of Measured Noise Levels	16
2.2 Exceedances of the LOAEL and SOAEL	22
2.3 Exceedances of Trigger Level	27
2.4 Complaints	27
Appendix A Site Locations	29
Appendix B Monitoring Locations	45
Appendix C Data	61

List of tables

Table 1: Table of Abbreviations	5
Table 2: Monitoring Locations	13
Table 3: Summary of Measured dB L_{Aeq} Data over the Monitoring Period	17
Table 4: Summary of Measured PPV Data over the Monitoring Period	22
Table 5: Summary of Exceedances of LOAEL and SOAEL	23
Table 6: Summary of Total Exceedances of SOAEL	26
Table 7: Summary of Exceedances of Trigger Levels	27
Table 8: Summary of Complaints	27

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 June 2022.

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 construction of the access road, topsoil stripping, compound maintenance works, drainage works, excavations, stockpiling and construction of slab crossing were undertaken.
- Noise monitoring was undertaken in the vicinity of School End worksite (ref.: SE) where compound development works, topsoil stripping, drainage works, instrumentation and monitoring works, stockpiling, demolition works and plant movements were undertaken.
- Noise monitoring was undertaken in the vicinity of Rosehill Farm worksite (ref.: RF) where demolition works and earthworks were undertaken.
- Noise monitoring was undertaken in the vicinity of Hermitage Chetwode worksite (ref.: HC), where compound development works, topsoil stripping, drainage works, instrumentation and monitoring works, stockpiling, demolition works and plant movements were undertaken.
- Noise monitoring was undertaken in the vicinity of West Street Overbridge worksite (ref.: WSO) where construction of access road and site haul road, drainage works and culvert installation works were undertaken.
- Noise monitoring was undertaken in the vicinity of Addison Road worksite (ref.: AR) where concrete pours, rebar fixing works and formworks installations were underway.
- Noise monitoring was undertaken in the vicinity of School Hill Compound worksite (ref.: SHC) where concrete works were underway.
- Noise monitoring was undertaken in the vicinity of the School Hill UTX worksite (ref.: SHU) where demobilisation and reinstatement of compounds were underway.
- Noise monitoring was undertaken in the vicinity of the Quainton worksite (ref.: QAR) where construction of the under track crossing shaft, tunnelling works trenching and pipe works were underway.

- Noise monitoring was undertaken in the vicinity of the FCC Sidings worksite reference (ref: FCC) where no work activities were undertaken during the reporting period.
- Noise monitoring was undertaken in the vicinity of Meadoway and Glebe House, Aylesbury worksite (ref: MW&GH) where access road construction, earthworks were undertaken.
- Noise monitoring was undertaken in the vicinity of Oat Close Worksite (ref: OC) where earthworks, stockpile management, piling works, access road maintenance works and material deliveries were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane Worksite (ref.: NLL) where asphaltting works, construction of access road, drainage works, pond excavations, earthworks and ditching were underway.
- Noise monitoring was undertaken in the vicinity of Ellesborough Road Worksite (ref.: ER) where archaeology works and demolition works were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref: RLE) where asphaltting works, site haul road works, piling works and earthworks were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref: LL) where archaeological works, site haul road works and earthworks were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref: SHCW) where earthworks and culvert installation works were undertaken.
- Noise monitoring was undertaken in the vicinity of North Portal Worksite (ref: NP) where early construction works, including site set up and fencing works, temporary and permanent access road construction, compound car park construction, piling works, ground treatment works and foundation works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road Worksite (ref: CR) where site maintenance and operations and shaft construction works were undertaken.
- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where general plant operations, basement secant piling works, shaft base slab construction, collar construction, secondary lining works, small basement construction and stockpile removal were undertaken.
- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where general plat operations, waterproofing works, basement secant piling works, shaft base slab construction, collar construction,

internal structures construction, small basement construction and secondary lining works were undertaken.

- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where general plant operations, secant piling works, road maintenance works, secondary lining to the concrete, construction of reinforced concrete structures, tunnelling and construction of basement works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where general plant operations, piling works, road maintenance works, concrete reinforcement and basement construction works, tunnelling and secondary lining works were underway.
- Noise monitoring was undertaken in the vicinity of Load Test Pile 1 worksite (ref.: LTP #1), where piling works, construction of a cofferdam, compound operations, satellite welfare installation, installation of generators, utilities works, River Colne re-alignment and crossing works, pier construction, pile trimming, ground investigation works, pumping water management, maintenance of haul roads, gas crossing emergency dismantling works, completion of abutment construction works, fencing works, environmental maintenance, concrete drilling works, bentonite slab construction works and demolition works and deck works were underway.

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

- East West Rail (EWR) Overbridge and Charndon Lodge Underbridge where concrete work were undertaken;
- Perry Hill Overbridge where piling works and concrete works were underway;
- EWR Calvert where installation of culvert units, waterproofing works, backfilling and shuttering works were undertaken;
- EWR Line where removal of existing embankment, drainage and repair works and construction of upper embankment were underway.
- Greendon Underwood Overbridge where construction of piling platform was underway.
- Hills Farm were stockpiling and material deliveries were underway.
- Calvert section of Marylebone to Claydon Junction Line where removal of existing ballast embankment, drainage works and removal of existing culvert were underway.

- West Street where temporary diversion works, including excavations, stone compacting, drainage works, trenching and asphaltting works were underway.
- Addison Road where temporary diversion works, including removal of existing embankment were underway.
- Creighton Road where concrete works were underway.
- A422 North where compound development works were underway;
- Grovehill Embankment where compound maintenance works and excavations were underway;
- Westbury where topsoil stripping, piling works and construction of piling platform were underway;
- Various locations along the route where vegetation clearance, construction of access roads, demolition works and ponds maintenance 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 fifteen (15) times during the reporting period.

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

Six (6) complaints were received within the Buckinghamshire area during the monitoring period. A description of complaints, the results of investigations and any action taken are detailed in Table 8 of this report.

Abbreviations and Descriptions

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

Table 1: Table of Abbreviations

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

1 Introduction

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

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

1.1.2 Monitoring data and interpretive reports are to be provided to each relevant local authority on a monthly basis and shall include a summary of the construction activities occurring, the data recorded over the monitoring period, any complaints received, any periods in exceedance of agreed trigger levels, the results of any investigations and any actions taken or mitigation measures implemented. This report provides noise data, and interpretation thereof, for monitoring carried out by HS2 within the Buckinghamshire (BS) Local Authority area for the period 1st to 30th June 2022.

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

- A422 Turweston North worksite, reference A422 TN (see Plan 1 in Appendix A), where works activities included:
 - access road construction;
 - topsoil stripping;
 - compound maintenance works;
 - drainage works and installation of ponds;
 - excavations
 - stockpiling; and
 - construction of slab crossing.
- School End worksite reference SE (see Plan 2 in Appendix A), where works activities included:
 - compound setup;

- stone deliveries;
 - topsoil stripping;
 - drainage works, including pond maintenance works;
 - instrumentation and monitoring installations;
 - stockpiling;
 - plant movements; and
 - demolition works.
- Rosehill Farm worksite reference RF (see Plan 2 in Appendix A), where works activities included:
 - demolition works; and
 - earthworks.
- Hermitage Chetwode Worksite reference – HC (see plan 2 in Appendix A), where works activities included:
 - compound development works;
 - stone deliveries;
 - topsoil stripping;
 - drainage works, including pond maintenance works;
 - instrumentation and monitoring installations;
 - stockpiling;
 - plant movements; and
 - demolition works.
- West Street Overbridge worksite reference WSO (see Plan 2 in Appendix A), where works activities included:
 - construction of access road and site haul road;
 - drainage works; and
 - culvert installation works.
- Addison Road worksite reference AR (see Plan 3 in Appendix A), where works activities included:
 - concrete pours;

- rebar fixing works; and
- formwork installations.
- School Hill Compound worksite reference SHC (see Plan 3 in Appendix A), where no works activities were works activities included:
 - concrete works.
- School Hill UTX worksite reference - SHU (see Plan 3 in Appendix A), where works activities included:
 - demobilisation and reinstatement of compounds, including removal of site haul roads and standing areas, removal of fencing and top soil stripping.
- Quainton worksite, reference – QAR (see Plan 4 in Appendix A) where works activities included:
 - construction of the under track crossing shaft;
 - tunnelling works;
 - trenching works; and
 - pipe works.
- FCC Sidings worksite, reference – FCC (see Plan 3 in Appendix A) where no works activities were undertaken during the reporting period.
- Meadoway and Glebe House, Aylesbury Worksite, reference – MW&GH (see Plan 5 in Appendix A), where works activities included:
 - construction of access road; and
 - earthworks, including stockpiling.
- Oat Close Worksite, reference – OC (see Plan 5 in Appendix A), where works activities included:
 - earthworks, including stockpiling management;
 - piling works;
 - access road maintenance works; and
 - material deliveries.
- Nash Lee Lane Worksite, reference – NLL (see Plan 6 in Appendix A), where works activities included:
 - asphaltting works;
 - construction of access road;

- manhole installations;
- pond excavations; and
- earthworks.
- Ellesborough Road Worksite, reference – ER (see Plan 6 in Appendix A), where works activities included:
 - archaeology work; and
 - demolition works.
- Rocky Lane Embankment Worksite, reference – RLE (see Plan 7 in Appendix A), where works activities included:
 - asphaltting works;
 - site haul road works; and
 - earthworks, including topsoil stripping, installation of sheet piles, excavation for working platform.
- Leather Lane Worksite, reference – LL (see Plan 8 in Appendix A), where works activities included:
 - archaeological works;
 - site haul road works; and
 - earthworks, including stockpiling.
- South Heath Cutting Worksite, reference – SHCW (see Plan 8 in Appendix A), where works activities included:
 - earthworks; and
 - culvert installation.
- North Portal Worksite, reference – NP (see Plan 8 in Appendix A), where works activities included:
 - early construction works, including site set up and fencing works;
 - temporary and permanent access road construction, including hardstanding, kerbing, drainage works, asphaltting and installation of signage;
 - compound car park construction, including hardstanding, kerbing, drainage works, asphaltting, site accommodation fit outs and deliveries ;
 - piling works, including demolition works, ground stabilisation works, hardstanding, ducting and drainage works;

- foundation works and wall works; and
- ground treatment works.
- Chesham Road Worksite reference – CR (see Plan 8 in Appendix A), where works activities included:
 - site maintenance and operations; and
 - shaft construction, which included concrete pours.
- Little Missenden Vent Shaft worksite reference LM (see Plan 9 in Appendix A), where works activities included:
 - general plant operations;
 - basement secant piling works;
 - shaft base slab construction;
 - collar construction;
 - secondary lining works;
 - small basement construction; and
 - stockpile removal.
- Amersham Vent Shaft Worksite, reference – AM (see Plan 10 in Appendix A), where works activities included:
 - general plant operations;
 - waterproofing works;
 - basement secant piling;
 - shaft base slab construction;
 - collar construction;
 - internal structures construction;
 - small basement construction; and
 - secondary lining works.
- Chalfont St Giles Vent Shaft Worksite, reference - CSG (see Plan 11 in Appendix A), where works activities included:
 - general plant operations;
 - secant piling works;
 - road maintenance works;

- secondary lining to the concrete;
 - construction of reinforced concrete structures;
 - tunnelling works; and
 - construction of basement.
- Chalfont St Peter Vent Shaft Worksite, reference – CSP (see Plan 12 in Appendix A), where works activities included:
 - general plant operations;
 - secant piling works;
 - road maintenance works;
 - concrete reinforcement;
 - tunnelling works;
 - secondary lining works; and
 - basement construction works.
 - Colne Valley Viaduct - Load Test Pile 1 Worksite, reference – CVV-LTP #1 (see Plan 13 in Appendix A), where works activities included:
 - piling works, including bored piling, de-sanding, installation of reinforcement cage and concrete piling, break-out of bored pile, grout curtain construction around viaduct maintenance plant and clean up around piles
 - construction of a cofferdam, including piling and operation of support plant;
 - compound operations;
 - satellite welfare installation;
 - installation of generators;
 - utilities works, including diversion;
 - River Colne re-alignment and crossing works;
 - pier construction, including yard supporting activities and tower crane mobilisation and demobilisation;
 - ground investigation works;
 - pumping water management;
 - maintenance of haul roads;

- completion of abutment construction works, including yard supporting activities;
- dismantling of gas crossing emergency utility;
- fencing works;
- environmental maintenance;
- concrete drilling works;
- Bentonite Farms demolition and base slab construction works,; and
- deck works.

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

- East West Rail (EWR) Overbridge and Charndon Lodge Underbridge where concrete work were undertaken;
- Perry Hill Overbridge where piling works and concrete works were underway;
- EWR Calvert where installation of culvert units, waterproofing works, backfilling and shuttering works were undertaken;
- EWR Line where removal of existing embankment, drainage and repair works and construction of upper embankment were underway.
- Greendon Underwood Overbridge where construction of piling platform was underway.
- Hills Farm were stockpiling and material deliveries were underway.
- Calvert section of Marylebone to Claydon Junction Line where removal of existing ballast embankment, drainage works and removal of existing culvert were underway.
- West Street where temporary diversion works, including excavations, stone compacting, drainage works, trenching and asphaltting works were underway.
- Addison Road where temporary diversion works, including removal of existing embankment were underway.
- Creighton Road where concrete works were underway.
- A422 North where compound development works were underway;
- Grovehill Embankment where compound maintenance works and excavations were underway;

- Westbury where topsoil stripping, piling works and construction of piling platform were underway;
- Various locations along the route where vegetation clearance, construction of access roads, demolition works and ponds maintenance 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-four (44) noise and three (3) vibration monitoring installations were active in June in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in June 2022.

1.2.2 An additional noise monitor position (ref.:WT-NMP1) was installed along A413 in Wendover close to Ellesborough Road worksite (worksite ref.: ER) on Tuesday 21st June.

1.2.3 A temporary vibration monitor (ref.:ER-Vib1 - Temp) was installed in place of the existing monitor ER-Vib1 due to system fault in June. The permanent vibration monitor ER-Vib1 has been repaired and re-installed in July 2022.

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
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode
	RF-Vib1	Old Stable Cottage, Rosehill Farm, Chetwode
HC	HC-NMP1	Hermitage, Chetwode
WSO	WSO-NMP1	West Street, Twyford
	WSO-NMP2	Cross Bucks Way, Twyford

Worksite Reference	Measurement Reference	Address
AR	AR-NMP1	Addison Road, Rosehill Farm
SHC	SHC-NMP1	School Hill Compound, Calvert
SHU	SHU-NMP1	70 Cotswold Way, Calvert
QAR	QAR-NMP2	Station Rd, Quainton
FCC	FCC-NMP1	Calvert South
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury
	MW-NMP1	Aylesbury, Buckinghamshire
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
ER	ER-NMP1	Ellesborough Rd, Wendover
	BL-NMP1	Bacombe Lane, Wendover
	WT-NMP1	A413, Wendover
	ER-Vib1-Temp	Ellesborough Rd, Wendover
RLE	SDVC-NMP1	Rocky Lane, Wendover
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath
	GD-NMP1	Grimms Ditch, The Lee, South Heath
SHCW	PR-NMP1	Potters Row, South Heath
	SH-NMP1	Bury Farm, South Heath
NP	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath
AM	AM-NMP1	Amersham Vent Shaft Worksite, Whielden Lane, Amersham
LM	LM-NMP1	Little Missenden, A413, Amersham
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter

Worksite Reference	Measurement Reference	Address
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite, Denham Water Ski Club
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham, Denham Garden Village
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge
CVV-MR*	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire

* This worksite is within the London Borough of Hillingdon, for more details on the works taking place please refer to the London Borough of Hillingdon Noise and Vibration Report available at:

<https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2>

2 Summary of Results

2.1 Summary of Measured Noise Levels

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

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

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L _{Aeq,T} (Highest day L _{Aeq,T})					Saturday Average L _{Aeq,T} (Highest day L _{Aeq,T})					Sunday / Public Holiday Average L _{Aeq,T} (Highest Day L _{Aeq,T})	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
A422 TN	TN-NMP1	Turweston, Brackley	Free-field	49.0 (53.9)	51.8 (62.5)	48.0 (51.9)	46.7 (50.9)	47.4 (60.5)	48.1 (50.5)	48.2 (49.1)	48.9 (50.4)	48.2 (52.0)	47.4 (53.0)	47.8 (50.7)	47.4 (57.0)
SE	SE-NMP1	School End, Chetwode	Free-field	49.6 (57.0)	59.6 (67.8)	48.5 (59.0)	44.1 (58.2)	43.9 (51.3)	48.6 (52.3)	53.3 (60.0)	51.0 (53.8)	48.6 (52.8)	44.5 (53.1)	47.0 (52.5)	44.2 (49.8)
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Free-field	49.6 (51.7)	50.9 (67.3)	49.0 (52.7)	48.7 (59.0)	48.6 (56.9)	50.7 (54.5)	50.2 (52.0)	50.4 (52.0)	49.7 (53.1)	49.0 (57.0)	49.2 (52.9)	46.8 (53.8)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	49.3 (56.7)	57.9 (65.2)	47.1 (59.0)	45.1 (53.8)	42.5 (52.5)	49.0 (50.5)	50.9 (56.2)	50.9 (55.8)	49.5 (55.9)	44.8 (53.8)	48.3 (56.5)	42.8 (49.2)
WSO	WSO-NMP1	West Street, Twyford	Free-field	50.1 (60.7)	54.3 (65.7)	48.0 (63.0)	44.8 (56.3)	43.7 (59.0)	50.6 (54.4)	48.7 (50.2)	47.0 (50.2)	47.3 (54.9)	44.3 (52.2)	46.2 (52.4)	43.2 (50.4)
	WSO-NMP2	Twyford	Free-field	44.5 (46.8)	47.2 (53.6)	45.4 (51.9)	44.3 (49.3)	43.4 (50.6)	45.6 (46.0)	46.4 (48.1)	46.1 (47.9)	47.3 (59.7)	43.9 (48.5)	44.9 (50.8)	42.8 (45.5)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	47.2 (50.9)	50.2 (55.4)	46.8 (53.3)	42.6 (53.0)	41.5 (54.8)	47.0 (50.1)	52.2 (57.0)	48.1 (52.1)	47.0 (54.5)	43.5 (50.0)	47.2 (55.7)	41.2 (49.3)
SHC	SHC-NMP1	School Hill Compound, Calvert	Free-field	47.5 (50.1)	49.9 (58.6)	46.0 (54.4)	43.6 (51.3)	40.7 (52.4)	49.2 (54.1)	49.0 (52.4)	49.0 (51.8)	47.4 (52.2)	42.0 (51.8)	46.3 (51.3)	41.1 (47.5)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average $L_{Aeq,T}$ (Highest day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (Highest day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Free-field	51.2 (55.8)	56.3 (73.3)	50.1 (58.7)	48.3 (56.8)	45.5 (53.9)	48.9 (51.2)	50.3 (51.2)	50.4 (52.0)	52.9 (71.0)	45.2 (52.2)	50.4 (55.6)	46.4 (53.6)
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	51.7 (59.2)	53.7 (61.3)	50.9 (70.2)	48.7 (61.3)	45.5 (62.9)	55.7 (63.5)	60.5 (65.2)	62.5 (70.7)	59.8 (70.3)	46.7 (58.3)	54.3 (62.9)	45.4 (52.2)
FCC	FCC-NMP1	Calvert South	Free-field	54.1 (59.4)	55.6 (63.4)	48.5 (58.2)	46.1 (59.5)	46.2 (56.7)	47.5 (49.8)	48.2 (49.0)	47.9 (49.2)	47.2 (52.7)	45.6 (54.2)	47.0 (51.8)	47.5 (56.9)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	52.2 (55.2)	52.8 (55.2)	52.8 (55.7)	51.8 (63.5)	47.7 (55.6)	52.5 (55.4)	53.6 (55.0)	53.8 (55.9)	53.1 (57.7)	47.8 (55.3)	52.4 (57.1)	48.1 (53.7)
	MW-NMP1	Aylesbury, Buckinghamshire	Free-field	61.9 (63.7)	60.7 (65.3)	60.9 (62.7)	59.0 (61.6)	55.5 (63.2)	59.3 (60.1)	61.2 (61.5)	61.5 (62.6)	60.2 (62.3)	54.6 (58.0)	60.0 (62.4)	56.0 (62.6)
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	Free-field	46.2 (54.8)	48.6 (56.1)	45.8 (50.8)	44.8 (53.4)	43.7 (53.7)	49.0 (53.8)	48.0 (49.4)	47.1 (48.2)	46.9 (52.3)	45.3 (51.2)	46.2 (53.8)	45.1 (51.7)
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville	Free-field	44.8 (48.7)	46.4 (49.2)	45.2 (49.8)	41.9 (45.9)	41.9 (53.4)	45.2 (45.2)	46.7 (46.7)	46.9 (46.9)	45.8 (47.8)	42.0 (43.7)	42.9 (43.8)	40.4 (43.6)
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	44.2 (45.8)	50.1 (59.4)	45.8 (51.7)	45.4 (53.5)	43.8 (52.4)	46.0 (46.3)	48.6 (49.3)	48.2 (48.4)	46.5 (50.2)	42.0 (45.6)	44.9 (56.3)	41.8 (48.0)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	54.3 (59.1)	59.4 (77.1)	54.6 (57.5)	51.6 (57.3)	50.3 (58.1)	53.5 (55.2)	55.3 (56.6)	56.5 (58.9)	54.9 (58.2)	50.9 (54.5)	52.7 (59.2)	50.4 (55.5)

OFFICIAL

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average $L_{Aeq,T}$ (Highest day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (Highest day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	54.6 (60.8)	56.6 (60.4)	53.8 (57.9)	52.4 (57.6)	48.5 (61.4)	51.4 (54.1)	54.0 (56.3)	54.2 (57.4)	53.2 (57.0)	48.2 (52.4)	51.9 (57.8)	49.2 (56.8)
ER	ER-NMP1	Ellesborough Rd, Wendover	Free-field	54.5 (57.6)	53.6 (59.6)	53.3 (55.9)	51.5 (56.9)	48.7 (58.4)	51.2 (52.5)	52.9 (54.9)	53.4 (55.9)	52.8 (56.6)	48.4 (52.2)	52.9 (56.3)	49.9 (56.3)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	47.9 (49.6)	49.5 (72.5)	47.8 (53.1)	47.6 (56.4)	46.1 (50.0)	47.3 (47.8)	48.4 (49.2)	48.9 (50.1)	48.9 (54.8)	47.5 (54.0)	48.3 (57.6)	46.9 (49.6)
	WT-NMP1	A413, Wendover	Free-field	65.8 (67.1)	64.2 (65.1)	65.2 (67.3)	62.7 (69.0)	59.0 (66.6)	62.2 (62.2)	63.4 (63.4)	63.8 (63.8)	63.7 (66.8)	57.5 (60.8)	64.2 (70.0)	58.0 (64.6)
RLE	SDVC-NMP1	Rocky Lane, Wendover	Free-field	61.3 (64.8)	62.6 (66.2)	61.9 (63.9)	58.9 (61.7)	55.9 (63.8)	59.4 (60.0)	62.1 (64.2)	61.5 (62.1)	60.7 (62.9)	56.3 (60.0)	60.3 (61.9)	57.1 (64.3)
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	55.0 (67.2)	61.1 (67.7)	59.4 (72.8)	45.2 (49.8)	42.8 (52.3)	48.4 (62.3)	49.7 (59.9)	49.0 (56.1)	47.6 (54.7)	43.4 (48.9)	47.2 (52.0)	43.6 (52.5)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	55.1 (58.2)	57.9 (61.8)	55.2 (60.9)	52.2 (56.1)	49.0 (56.1)	51.7 (54.2)	53.8 (56.1)	53.7 (56.4)	53.3 (57.2)	48.8 (53.6)	52.9 (57.0)	49.0 (55.7)
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee	Free-field	46.7 (61.7)	50.3 (56.1)	48.9 (62.1)	46.0 (68.1)	44.0 (62.0)	45.4 (48.3)	50.5 (55.5)	48.7 (54.6)	50.7 (61.8)	43.5 (59.0)	49.8 (64.4)	48.5 (70.0)
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	47.9 (60.8)	52.8 (68.5)	49.3 (67.4)	47.6 (65.0)	48.6 (66.6)	49.1 (54.6)	56.7 (66.3)	58.3 (69.6)	55.6 (68.7)	50.0 (57.7)	54.1 (71.5)	52.4 (62.3)

OFFICIAL

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average $L_{Aeq,T}$ (Highest day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (Highest day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	49.1 (55.8)	52.1 (67.8)	49.6 (54.2)	46.1 (60.6)	42.4 (53.1)	46.9 (48.5)	51.7 (54.3)	49.1 (52.8)	49.3 (59.8)	45.5 (61.0)	47.4 (58.1)	42.7 (51.8)
	SH-NMP1	Bury Farm, South Heath	Free-field	49.0 (54.0)	51.2 (54.8)	49.0 (53.3)	47.3 (51.8)	41.7 (47.8)	46.8 (49.9)	48.9 (52.1)	47.2 (50.7)	46.2 (55.0)	42.2 (50.8)	45.2 (51.1)	42.5 (50.4)
NP	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	53.8 (59.6)	54.4 (58.8)	52.1 (59.3)	51.1 (58.1)	43.0 (56.3)	53.0 (54.3)	55.6 (56.8)	55.5 (58.8)	53.5 (63.8)	48.3 (58.5)	51.3 (56.1)	47.5 (58.7)
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Free-field	49.0 (53.7)	52.3 (60.0)	50.0 (54.9)	48.7 (55.3)	41.2 (49.9)	47.2 (48.7)	50.1 (51.1)	49.2 (52.4)	48.0 (57.5)	41.7 (51.3)	47.8 (53.6)	42.0 (51.0)
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	55.5 (60.2)	55.0 (58.9)	56.3 (63.2)	53.7 (62.5)	47.0 (57.3)	54.0 (60.9)	56.6 (59.8)	55.2 (57.2)	58.4 (72.0)	48.7 (57.2)	58.6 (74.8)	47.5 (55.4)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	60.9 (63.0)	64.2 (68.5)	59.8 (62.3)	57.6 (60.3)	54.4 (61.0)	59.2 (63.4)	61.6 (65.7)	60.1 (60.9)	59.0 (61.0)	53.3 (57.3)	58.3 (60.6)	53.7 (59.3)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	58.0 (62.0)	58.5 (60.5)	58.5 (61.2)	55.4 (59.0)	50.9 (58.9)	53.6 (55.2)	56.8 (58.0)	57.8 (60.1)	57.2 (67.3)	50.5 (57.9)	55.7 (59.6)	50.8 (58.3)
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Free-field	58.3 (60.1)	57.7 (59.5)	58.3 (60.7)	55.4 (58.5)	52.1 (60.0)	54.5 (56.1)	57.8 (58.7)	58.8 (60.9)	57.1 (60.0)	52.0 (59.2)	56.2 (62.3)	51.8 (58.0)
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	44.9 (49.4)	50.2 (69.9)	48.0 (57.3)	44.9 (62.2)	41.4 (57.7)	44.1 (46.7)	49.0 (50.4)	49.3 (51.9)	47.3 (56.1)	41.8 (53.7)	47.8 (57.6)	40.9 (52.2)

OFFICIAL

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L _{Aeq,T} (Highest day L _{Aeq,T})					Saturday Average L _{Aeq,T} (Highest day L _{Aeq,T})					Sunday / Public Holiday Average L _{Aeq,T} (Highest Day L _{Aeq,T})	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	50.7 (61.7)	56.3 (62.0)	50.4 (60.4)	45.4 (62.3)	44.9 (68.2)	47.1 (50.6)	52.0 (55.8)	48.5 (50.1)	47.0 (52.0)	45.8 (51.8)	46.9 (52.5)	43.7 (51.5)
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles, Buckinghamshire	Free-field	53.7 (59.6)	53.2 (55.1)	52.5 (54.8)	51.4 (57.2)	49.2 (60.5)	51.2 (54.7)	53.4 (54.3)	53.9 (56.0)	52.0 (56.0)	49.9 (61.0)	53.2 (65.5)	50.2 (61.4)
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite	Free-field	58.0 (60.1)	57.8 (61.1)	57.1 (64.5)	53.0 (58.0)	48.2 (55.0)	52.7 (55.1)	55.8 (56.3)	56.7 (57.2)	54.6 (57.9)	48.2 (55.5)	53.7 (56.6)	48.1 (54.0)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	45.6 (52.1)	49.2 (51.9)	47.3 (55.4)	46.8 (55.4)	42.0 (51.6)	43.1 (45.4)	48.4 (49.8)	48.8 (50.8)	46.6 (52.0)	42.3 (50.7)	46.7 (53.2)	41.3 (48.0)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	55.5 (57.0)	55.3 (58.5)	54.6 (56.5)	54.1 (60.5)	50.4 (64.7)	52.5 (53.6)	55.5 (56.7)	54.8 (55.7)	54.5 (57.5)	49.4 (53.4)	54.7 (58.9)	50.0 (58.9)
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	61.4 (63.4)	61.0 (61.6)	60.4 (61.8)	58.0 (63.2)	55.7 (62.6)	58.0 (59.0)	60.4 (61.3)	60.6 (61.3)	59.0 (61.3)	54.8 (62.9)	58.7 (62.0)	56.1 (62.8)
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham	Free-field	57.4 (62.8)	57.8 (60.8)	56.3 (58.4)	53.2 (58.8)	50.5 (60.1)	53.1 (54.8)	57.4 (58.1)	57.7 (59.0)	55.4 (58.9)	50.7 (64.5)	55.7 (59.9)	51.1 (57.2)
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	47.2 (54.2)	50.4 (52.9)	51.4 (61.5)	48.6 (56.7)	43.8 (55.6)	47.4 (50.0)	49.4 (51.0)	48.9 (50.1)	50.3 (59.3)	46.8 (64.5)	51.1 (71.3)	44.8 (55.7)
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	48.4 (54.2)	50.0 (61.8)	47.8 (56.9)	46.9 (55.8)	46.5 (58.8)	49.5 (52.6)	48.4 (49.5)	47.4 (48.3)	47.4 (52.4)	48.2 (56.4)	47.0 (53.0)	45.5 (52.3)

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

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

Worksite Reference	Measurement Reference	Monitor Address	Highest PPV measured in any axis, mm/s
SE	SE-Vib 1	School End, Chetwode	5.07 (Z-axis)
RF	RF-Vib 1	Old Stable Cottage, Rosehill Farm, Chetwode	3.72 (X-axis)
ER	ER-Vib1-Temp	Ellesborough Rd, Wendover	1.26 (Y-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	Weekdays	0800-1800	1	No exceedance
SE	SE-NMP1	School End, Chetwode	Weekdays Saturdays	0800-1800 1400-2200	7 2	No exceedance
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Weekdays Saturdays	0800-1800 1400-2200	1 1	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	Weekdays Saturdays	0800-1800 1400-2200	4 7	No exceedance
WSO	WSO-NMP1	West Street, Twyford	Weekdays	0800-1800	2	No exceedance
	WSO-NMP2	Twyford	All days	All periods	No exceedance	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	All days	All periods	No exceedance	No exceedance
SHC	SHC-NMP1*	School Hill Compound, Calvert	All days	All periods	No exceedance	No exceedance
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Weekdays	0800-1800	4	1
QAR	QAR-NMP2	Station Rd, Quainton	Saturdays	0800-1300	2	No exceedance
FCC	FCC-NMP1	Calvert South	Weekdays	0800-1800	1	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance
	MW-NMP1	Aylesbury, Buckinghamshire	Weekdays	0800-1800	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
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	All days	All periods	No exceedance	No exceedance
	MF-NMP1*	Moat Farm, Marsh Lane, Stoke Mandeville	All days	All periods	No exceedance	No exceedance
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	All days	All periods	No exceedance	No exceedance
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Weekdays	0800-1800	2	1
	NLL-NMP2	Nash Lee Lane, Nash Lee	All days	All periods	No exceedance	No exceedance
ER	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	8 1	No exceedance
RLE	SDVC-NMP1	Rocky Lane, Wendover	Weekdays Saturdays	0800-1800 0800-1300	16 1	No exceedance
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Weekdays	0800-1800 1800-1900	14 9	No exceedance 9
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Weekdays	1800-1900	4	No exceedance
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	Weekdays	1800-1900	3	No exceedance
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Weekdays Saturdays	0800-1800 0800-1300 1300-1400 1400-2200	2 1 2 8	No exceedance No exceedance 1 4
SHCW	PR-NMP1	Potters Row, South Heath	Weekdays	0800-1800	1	No exceedance
	SH-NMP1	Bury Farm, South Heath	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
NP	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Saturdays	1400-2200	1	No exceedance
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Weekdays Saturdays	1900-2200 1400-2200	2 1	No exceedance
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekdays	0700-0800 1800-1900 1900-2200	1 3 11	No exceedance No exceedance No exceedance
			Saturdays	0700-0800 1400-2200	1 10	No exceedance 3
AM	AM-NMP1*	Whielden Lane, Amersham	All days	All periods	No exceedance	No exceedance
LM	LM-NMP1*	Little Missenden Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Weekdays Saturdays	1800-1900 1900-2200 1300-1400 1400-2200	2 19 2 21	No exceedance
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
	CSG-NMP2*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles	Weekdays Saturdays	1900-2200 1400-2200	2 1	No exceedance
CSP	CSP-NMP1*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP2*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	Weekdays	1900-2200	1	No exceedance
CVV-LTP #1	CVV-LTP #1-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	CVW-WYC-NMP1**	Wyatt's Covert, Tilehouse Lane, Denham	All days	All periods	No exceedance	No exceedance
	CVW-DFS-NMP1**	Denham Film Studio, Uxbridge	All days	All periods	No exceedance	No exceedance
CVW-MR	CVW-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.

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

2.2.6 Exceedances of the LOAEL were recorded at twenty-four (24) monitoring locations during the month of June 2022. LOAEL exceedances were recorded during weekdays and Saturdays working hours.

2.2.7 For the purpose of assessing eligibility for noise insulation or temporary rehousing, multiple exceedances of the SOAEL in a 24-hour period would be counted as a single exceedance during that day. Over the reporting period, the overall number of SOAEL exceedances at each measurement location is shown in Table 6 and may be lower than the total sum of individual exceedances reported in Table 5 for each location.

Table 6: Summary of Total Exceedances of SOAEL

Worksite Reference	Measurement Reference	Monitor Address	Total of SOAEL exceedances in the month
SHU	SHU-NMP1	70 Cotswold Way, Calvert	1
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	1
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	9
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	2
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	2

2.2.8 Fifteen (15) SOAEL exceedances were recorded due to HS2 construction works during June 2022. The exceedance occurred at monitoring locations SHU-NMP1, NLL-NMP1, NCAS6-NMP1 and GD-NMP1 during weekdays and Saturdays 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

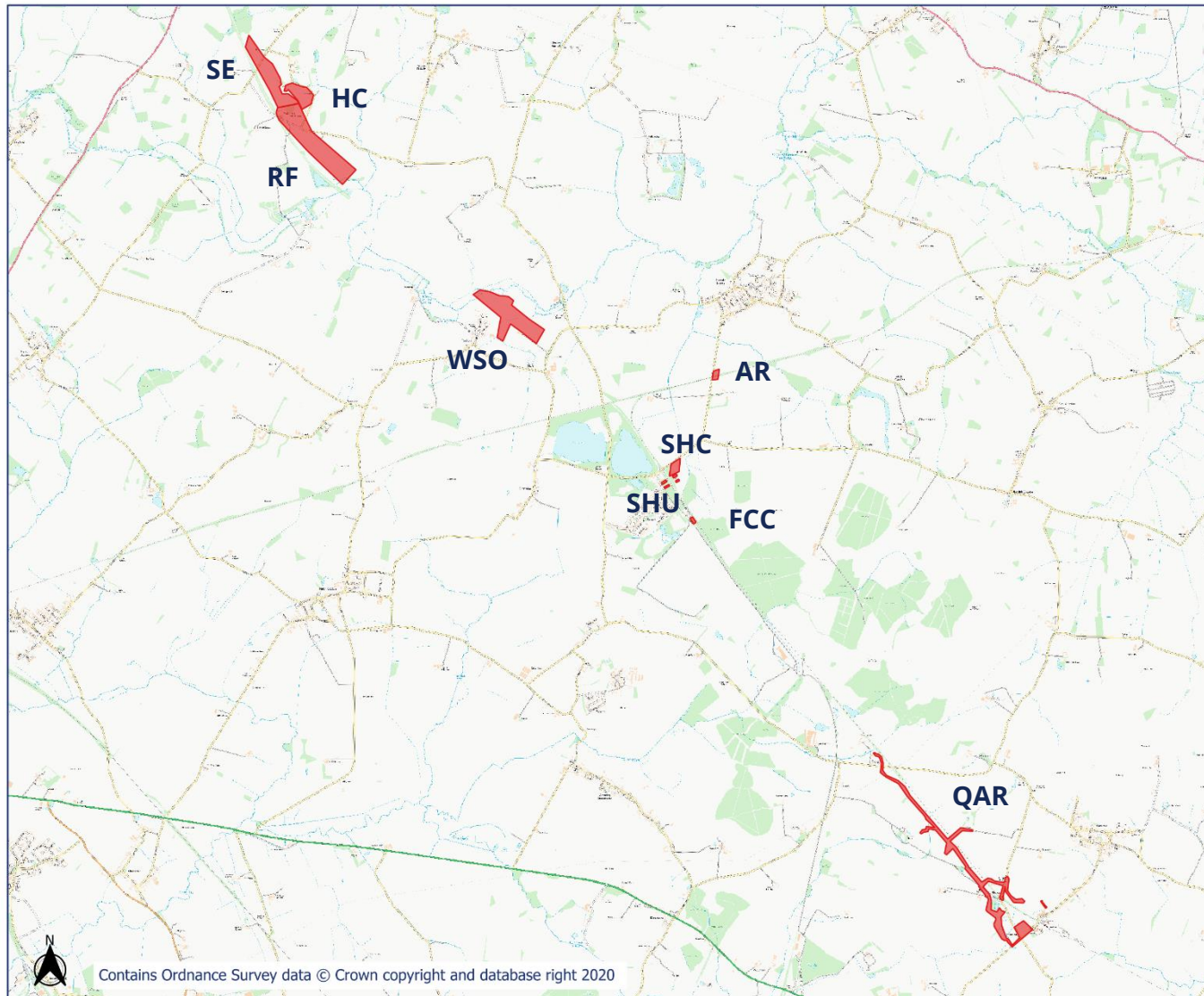
2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

Table 8: Summary of Complaints

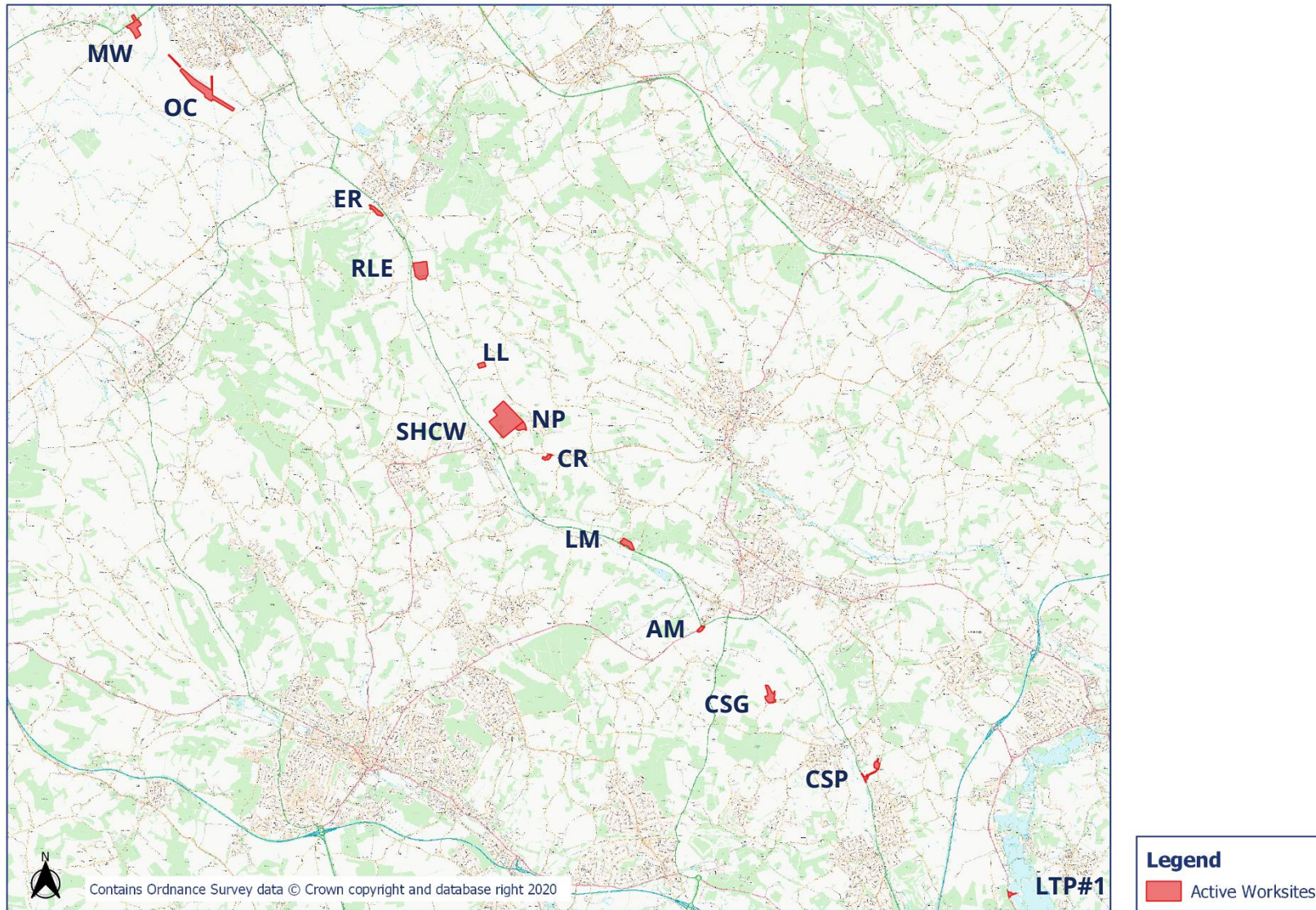
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-22-43682-C HS2-22-43750-C	OC	Complaint due to noise disturbance at night.	Investigation shows overnight rail deliveries are only possible when no commuter services are operating. Notification was published in January 2022 and no noise exceedances were recorded at the nearest monitoring location.	Acoustic barriers are nearing completing. Stakeholder has been contacted and information about the results of investigations have been provided.
HS2-22-43712-C	OC	Noise disturbance from construction works at site in middle of the night.	Investigation shows overnight rail deliveries are only possible when no commuter services are operating. Noise bunds are in place to minimise the noise and no exceedances were recorded at the noise monitor installed on the estate.	Acoustic barriers are nearing completing. Stakeholder has been contacted and information about the results of investigations have been provided.
HS2-22-43733-C	NP	Complaint due to loud noise and vibration disturbance	Investigation shows that grouting works were undertaken during additional working hours in line with Section 61 consent.	Stakeholder was visited along with a site engineer who explained the works and suggestions as to what

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
		coming from the construction site.	No exceedances occurred at local noise monitors.	we can be achieved at the location. The site engineer's direct contact details have been provided to the Stakeholder to call if the vibration disturbance will be experienced again.
HS2-22-43741-C	NP	Complaint due to noise disturbance from construction noise after 10pm.	Investigations shown that concrete pours were overrunning due to deliveries arriving later than expected as result of excess traffic from the rail strikes.	Stakeholder has been informed of the results of the investigation.
HS2-22-43758-C	MW&GH	Noise from rail deliveries during night.	Investigation shows that at the time of the complaint a lengthy train wait due to a concert at Wembley. That meant the commuter trains were running longer. Delivery train had to wait longer to enter the Princes Risborough-Aylesbury line.	A start-stop technology is in operation to curtail disturbances and the contractor has been in conversation with stakeholder to arrange a visit to monitor the noise / start stop usage.

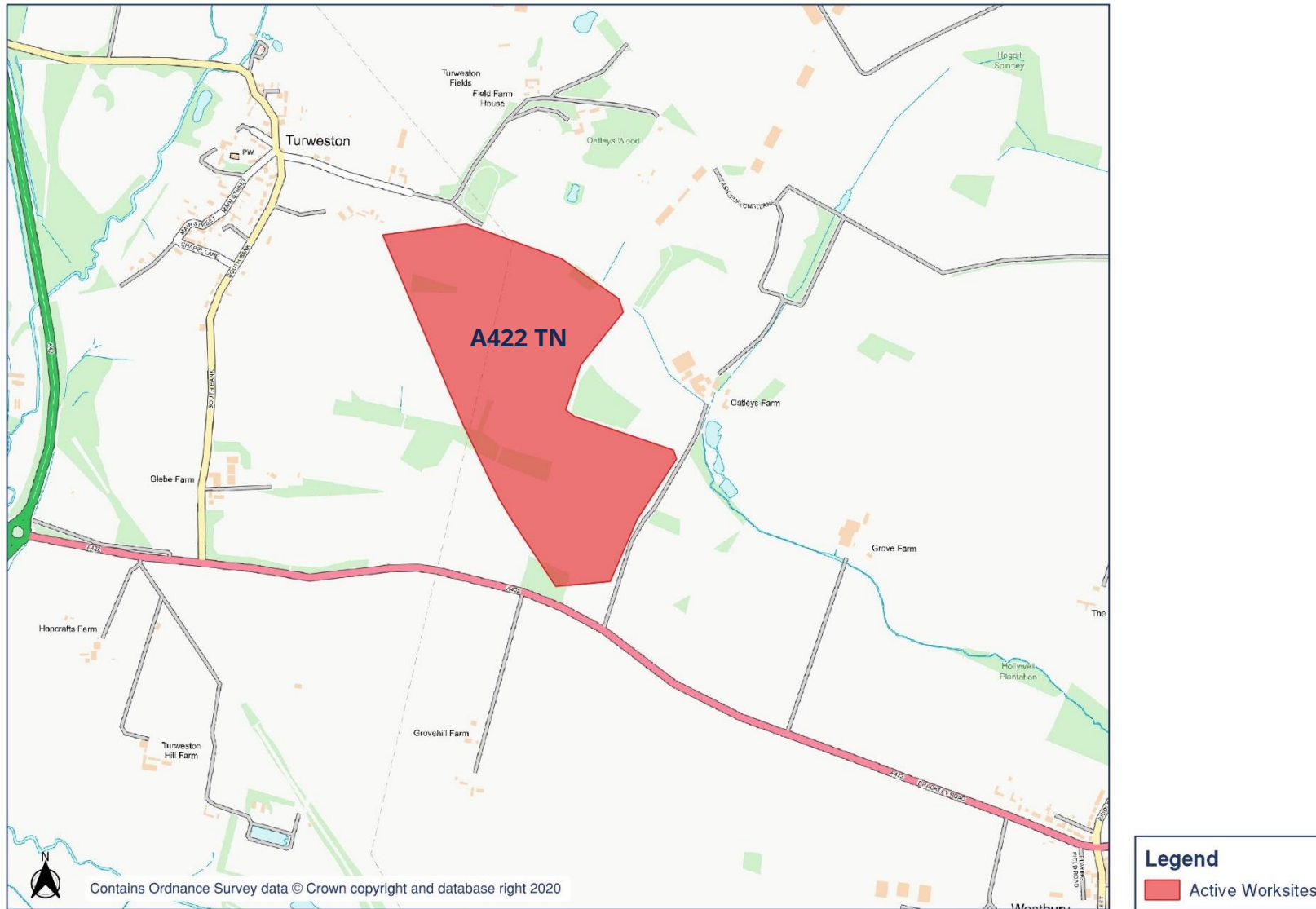
Appendix A Site Locations

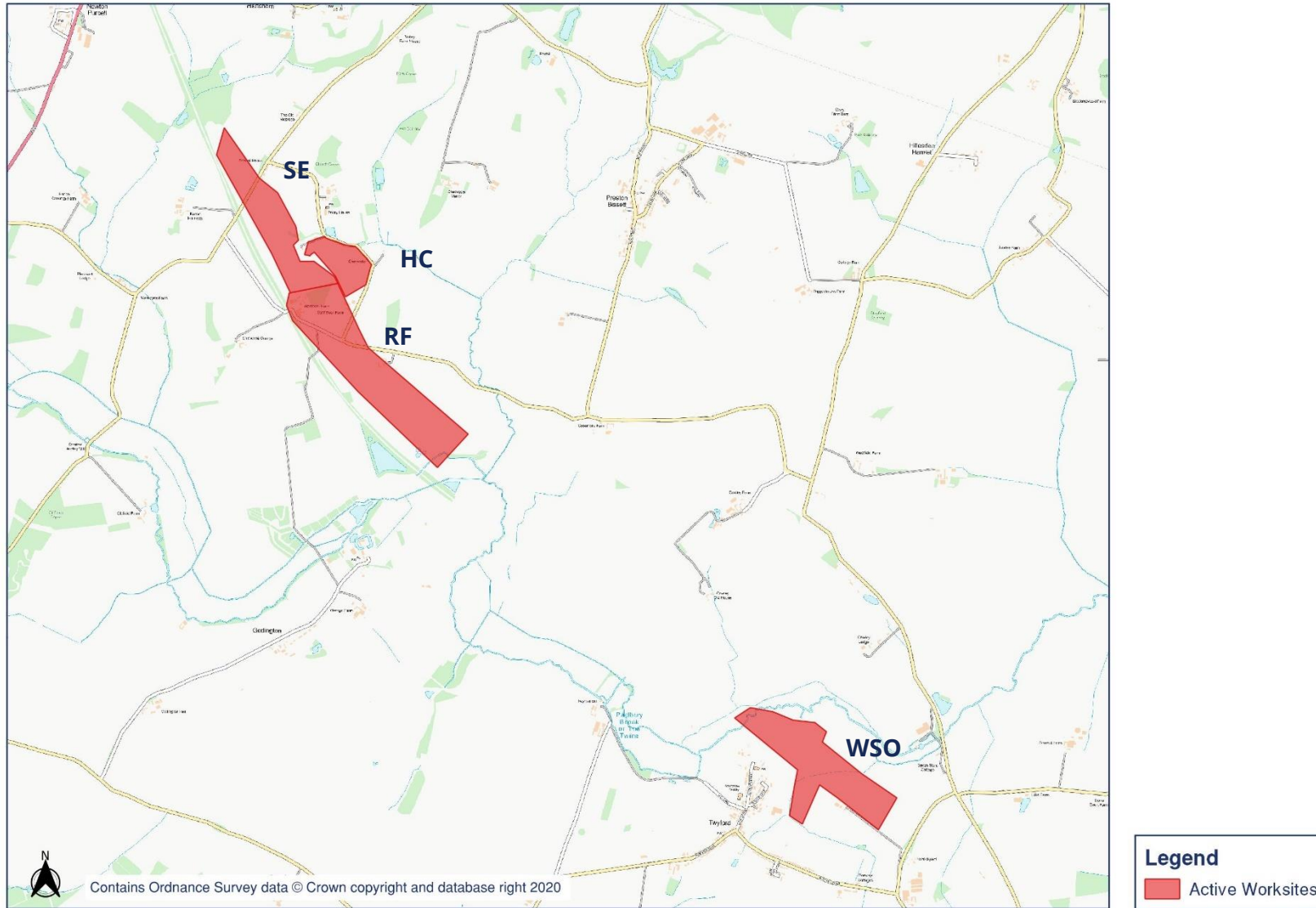


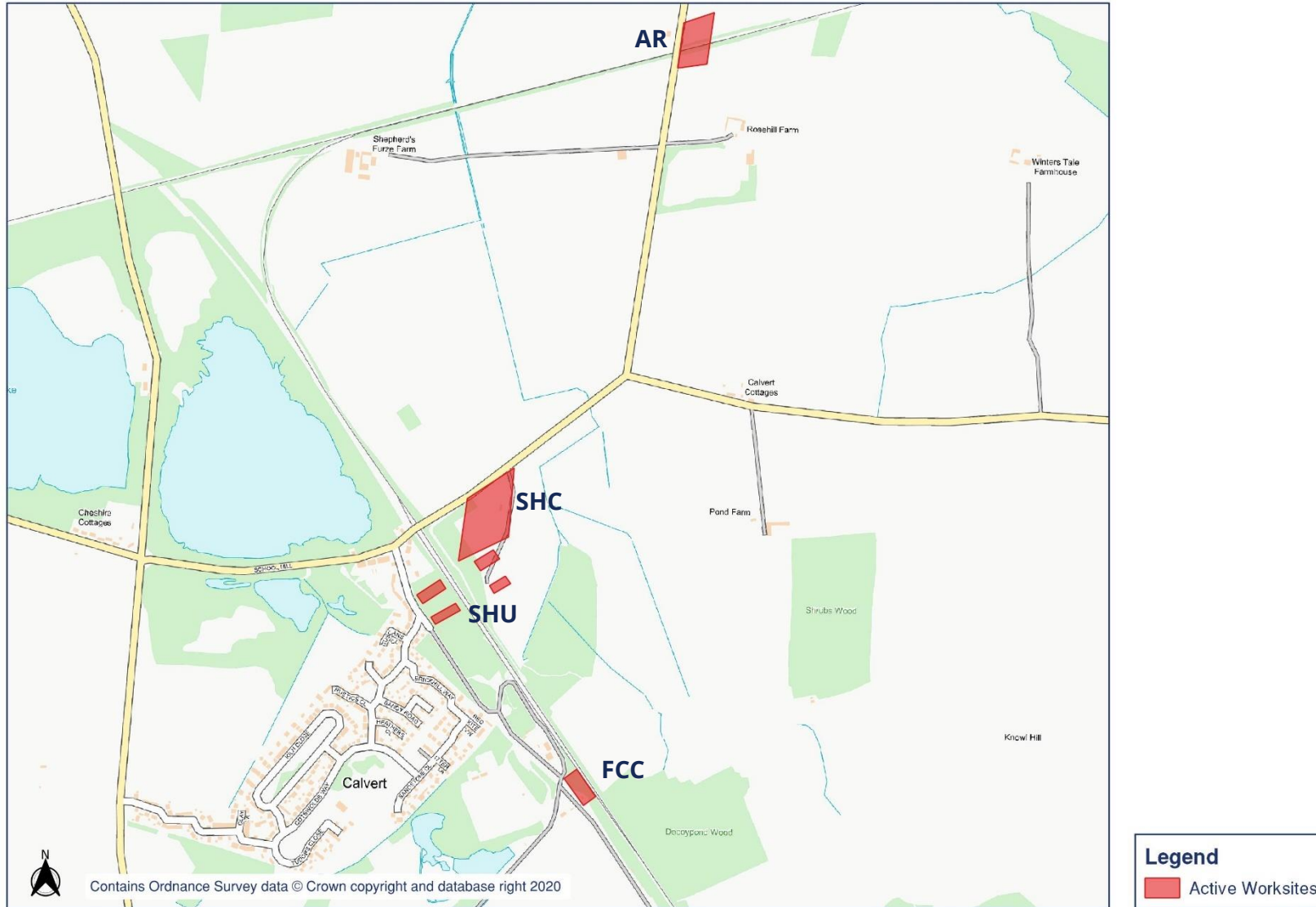
HS2 Worksite Identification Plan - Overview 2

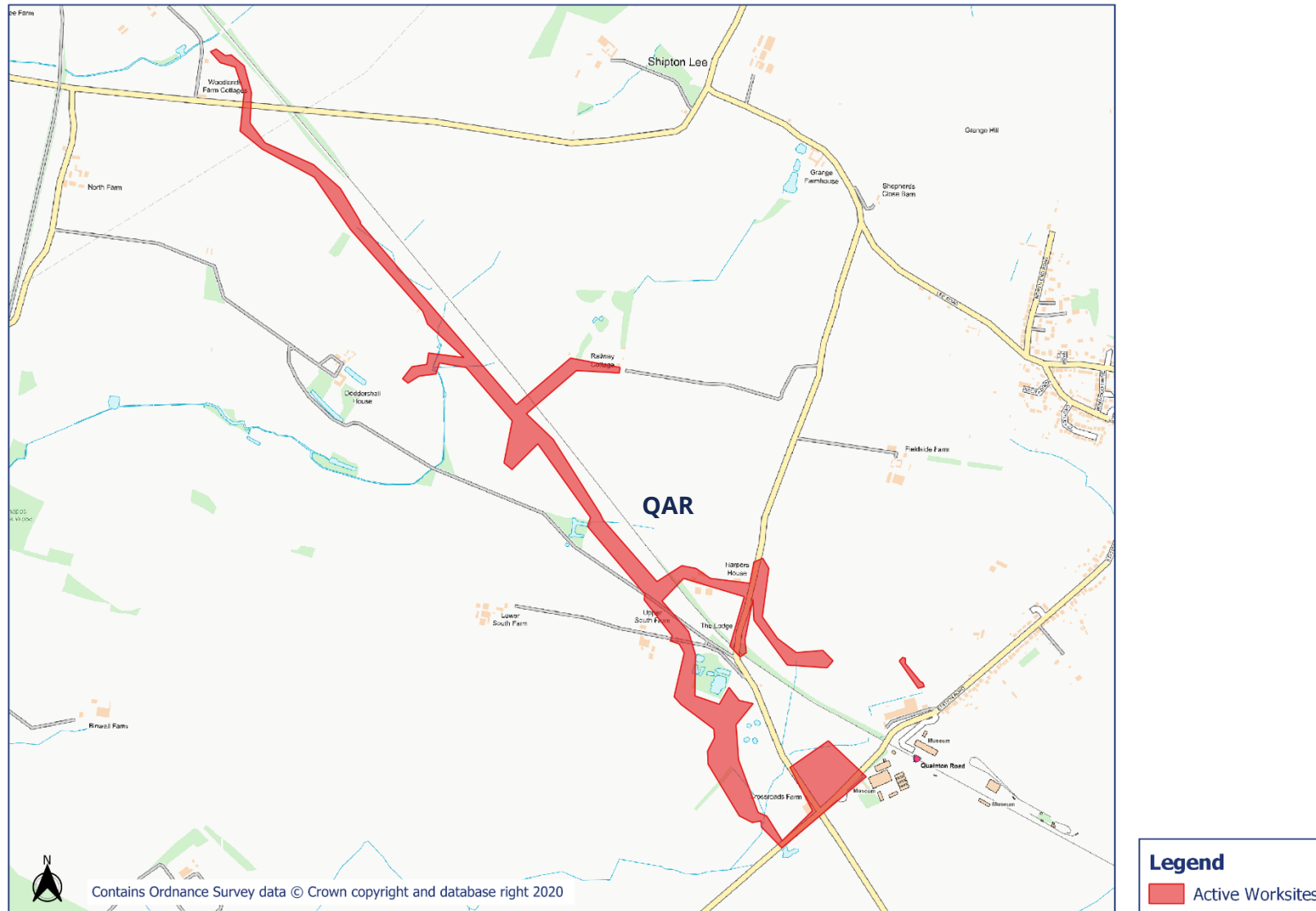


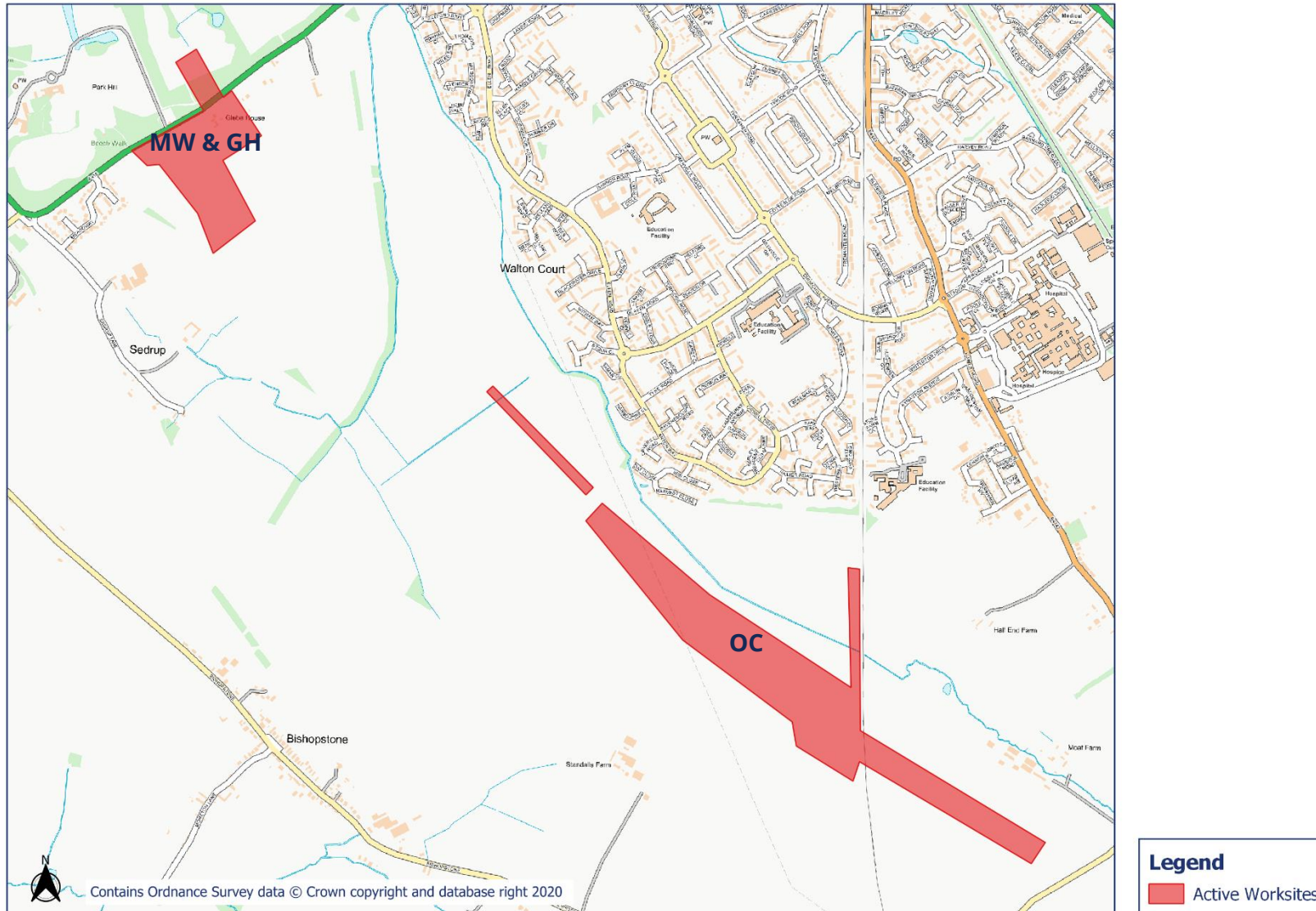
OFFICIAL

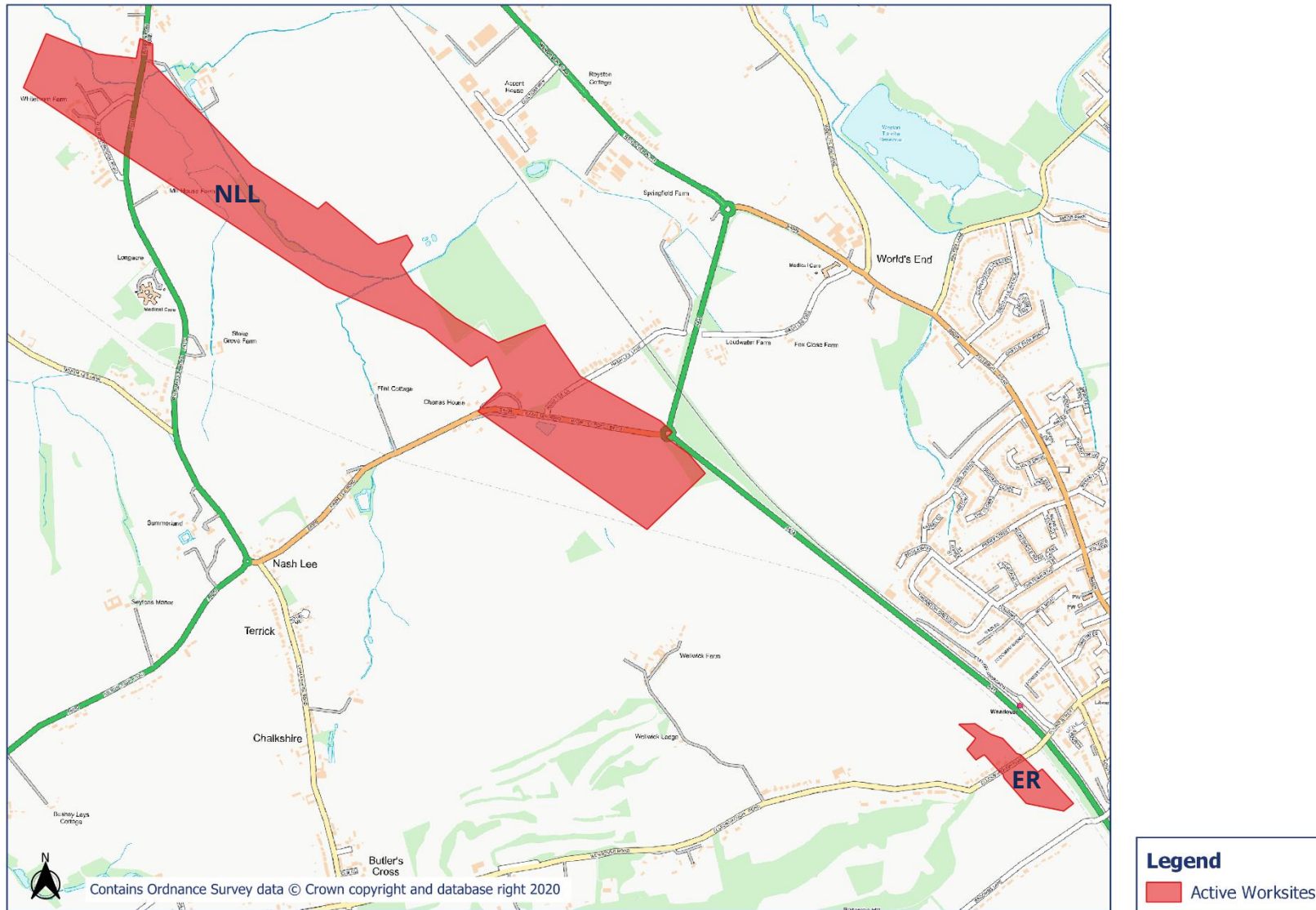


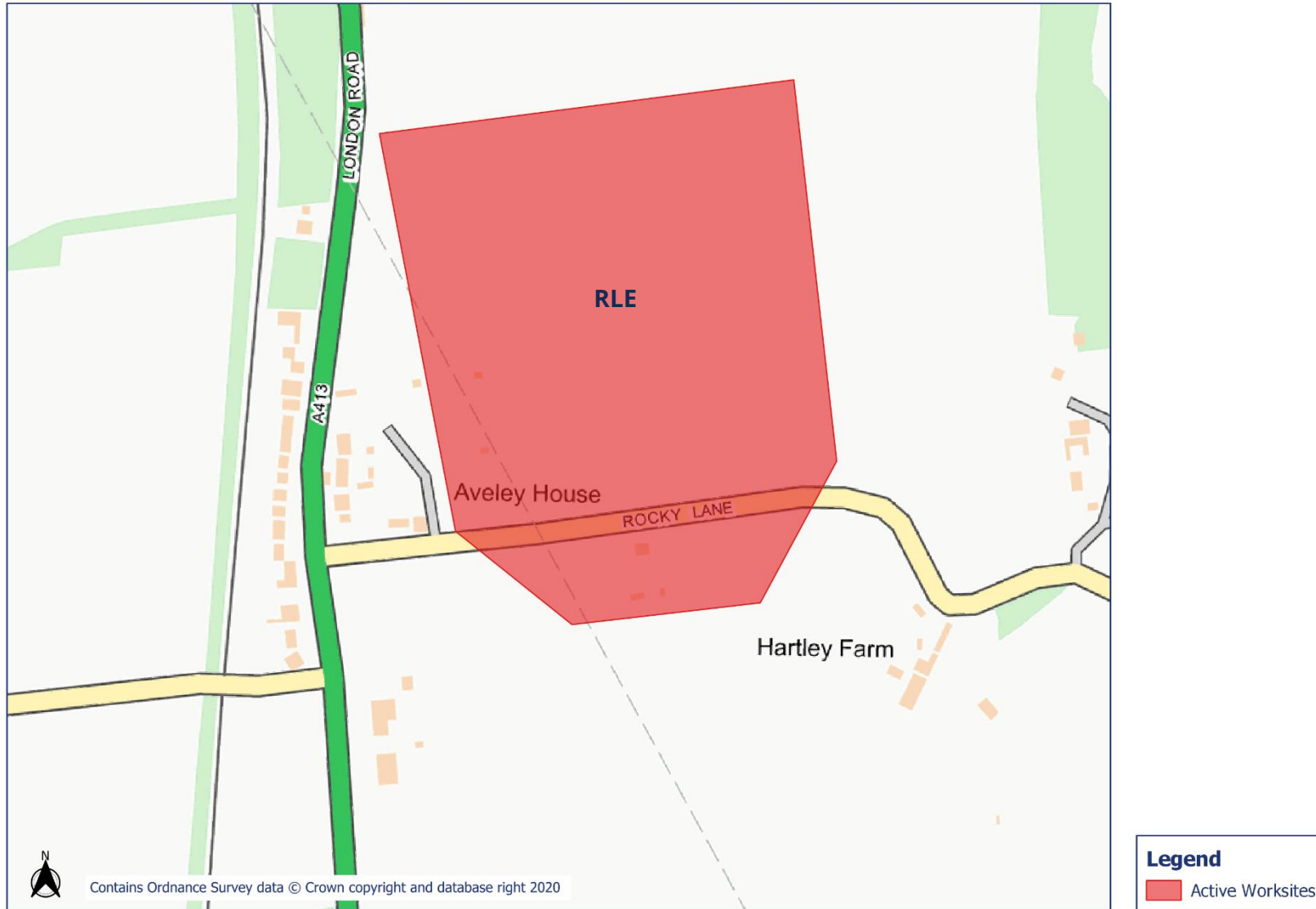


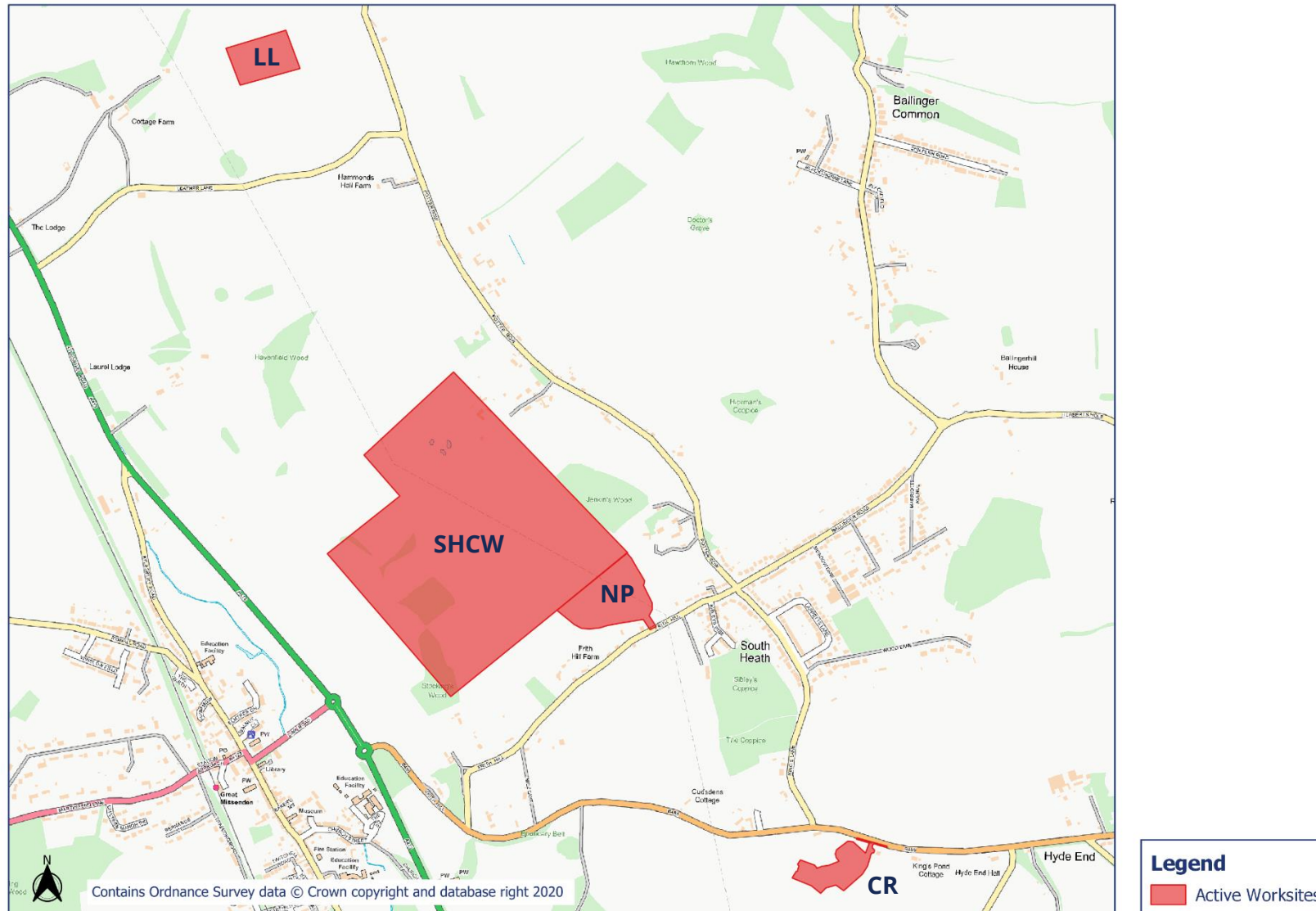








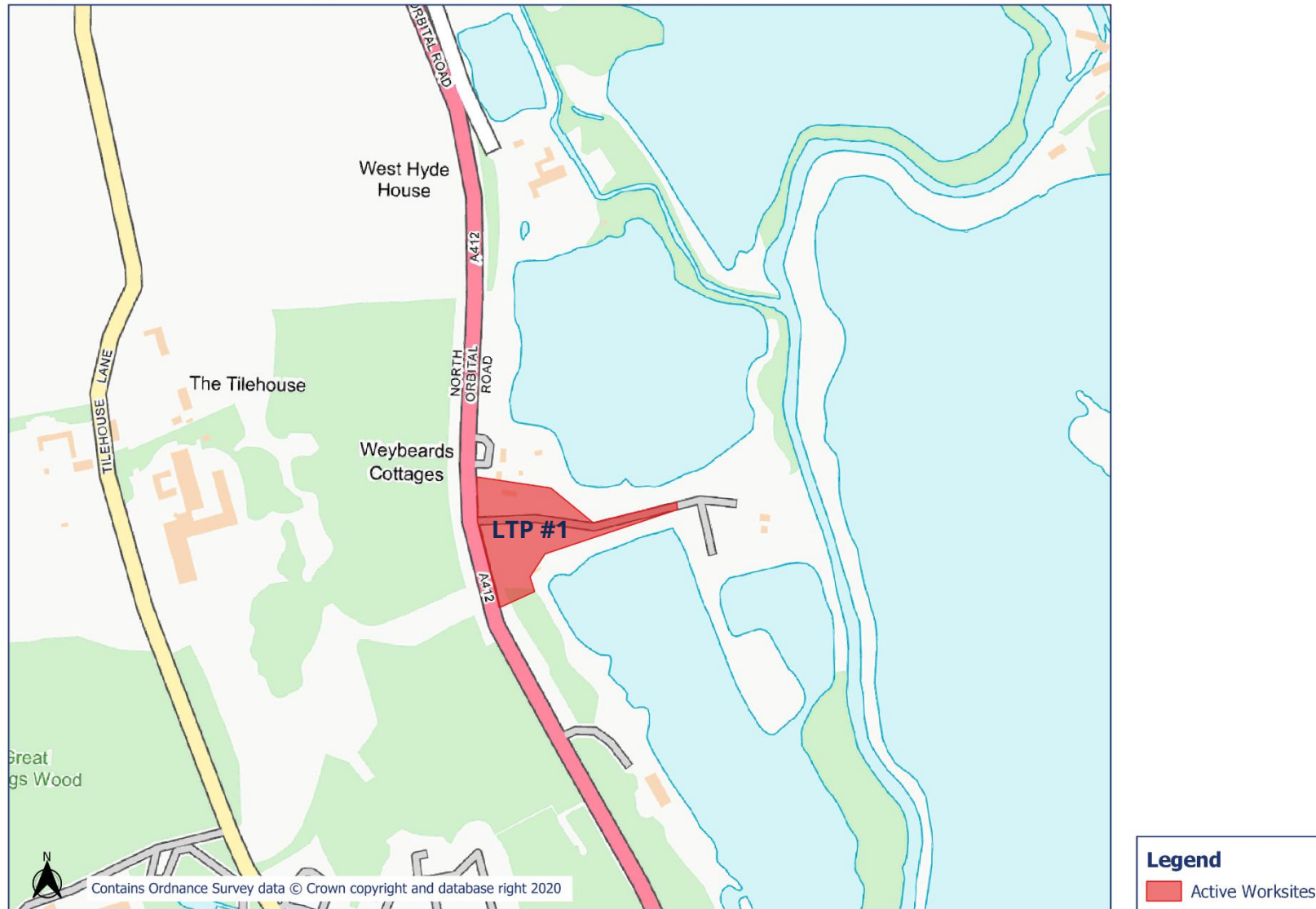




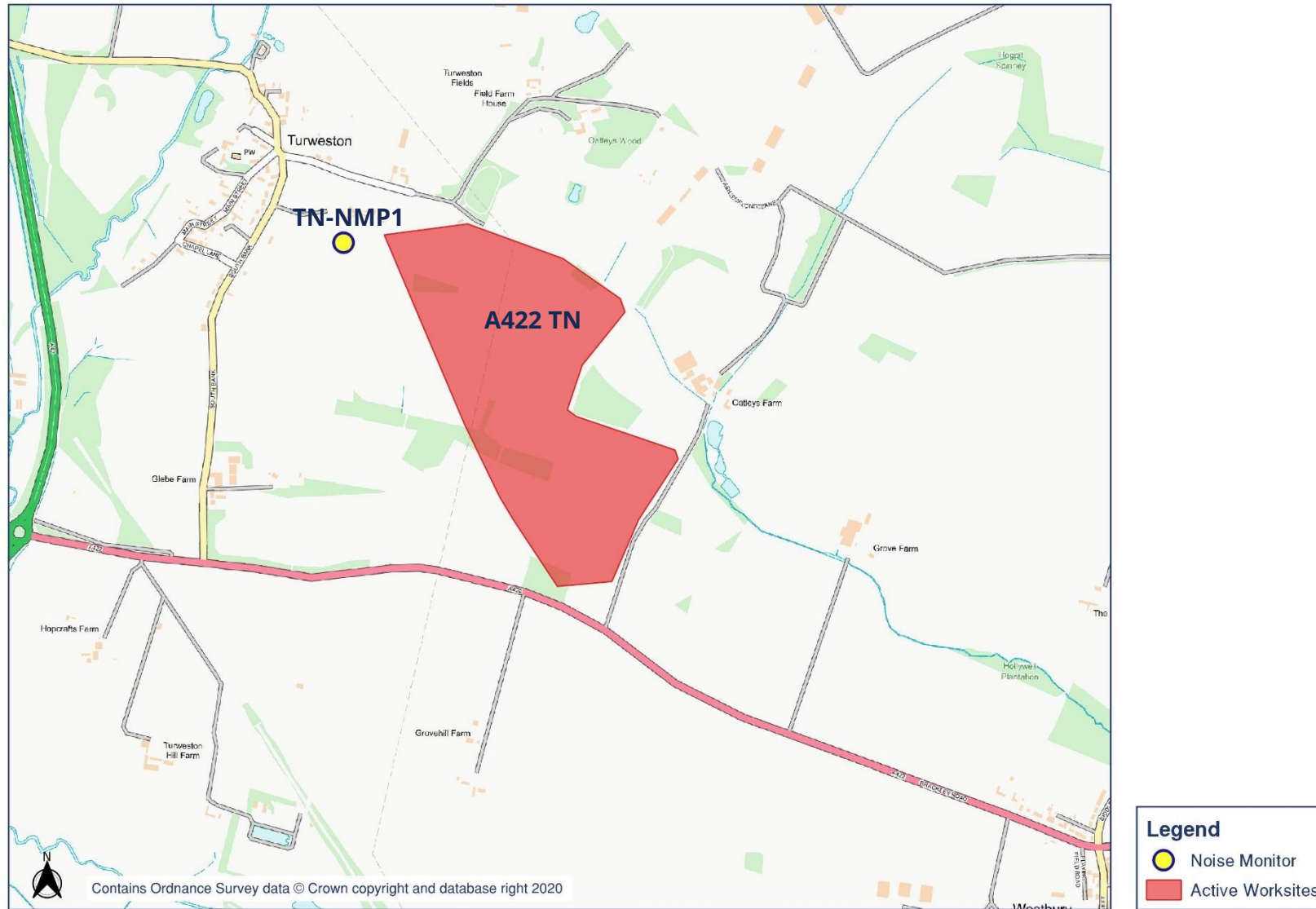


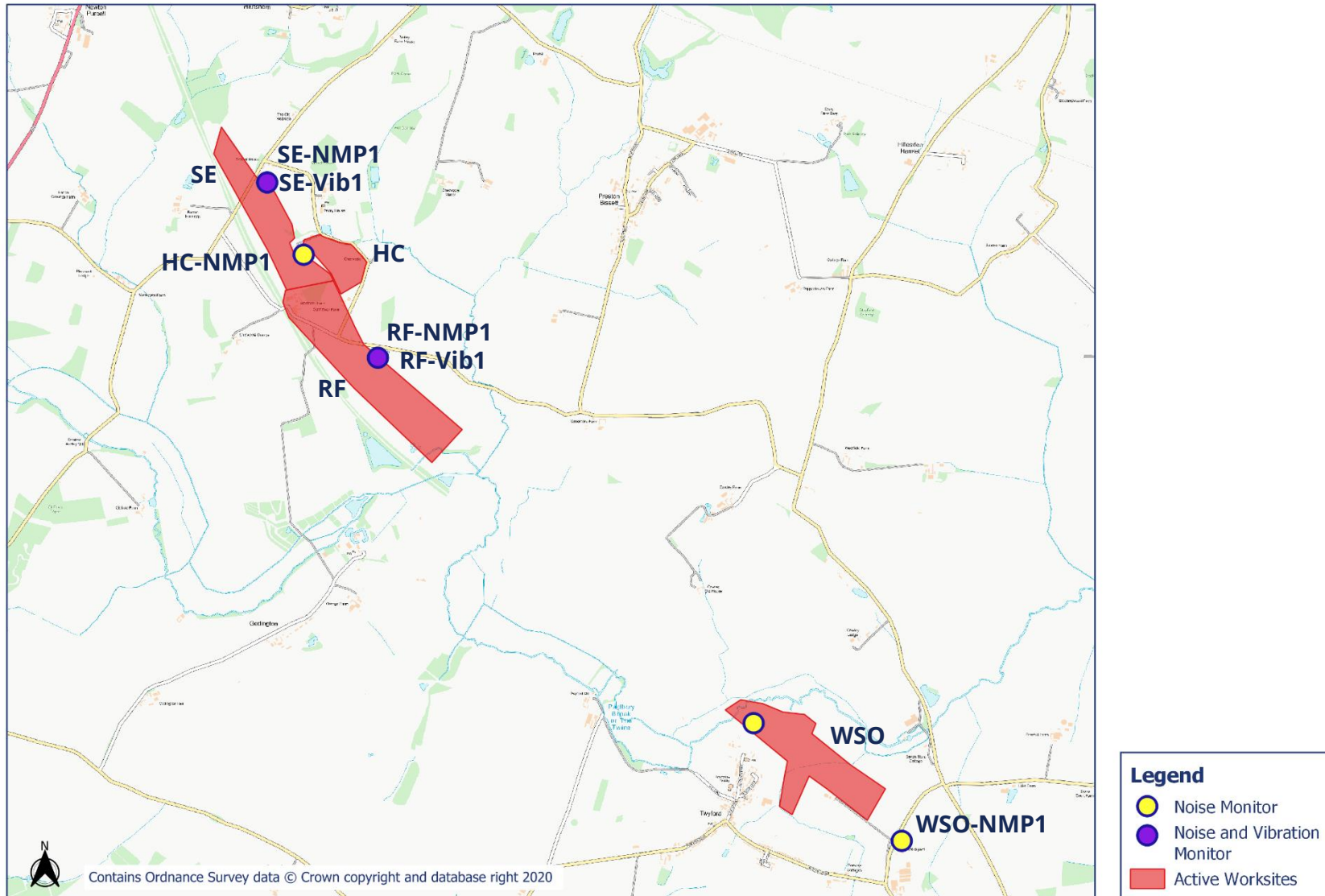




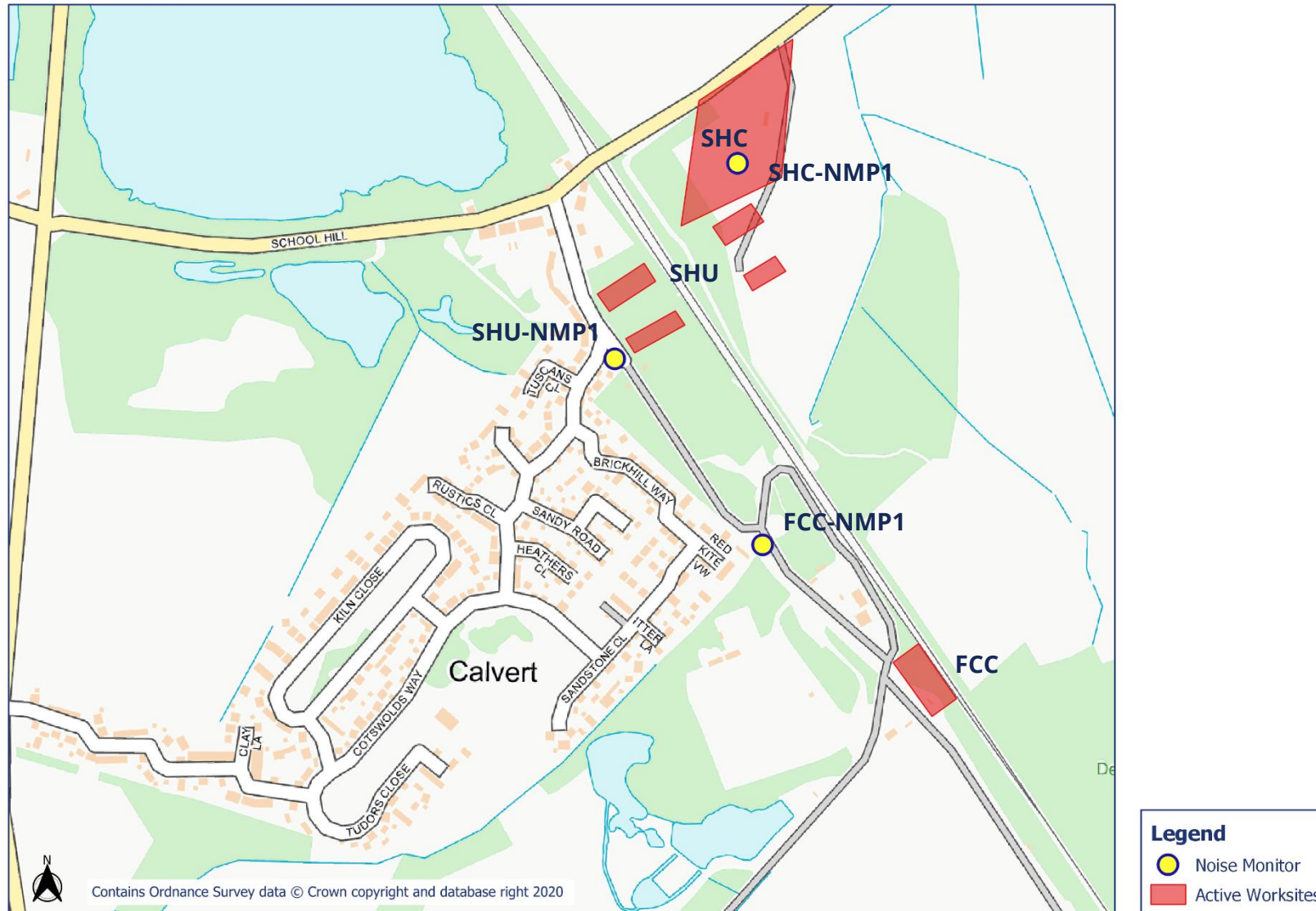


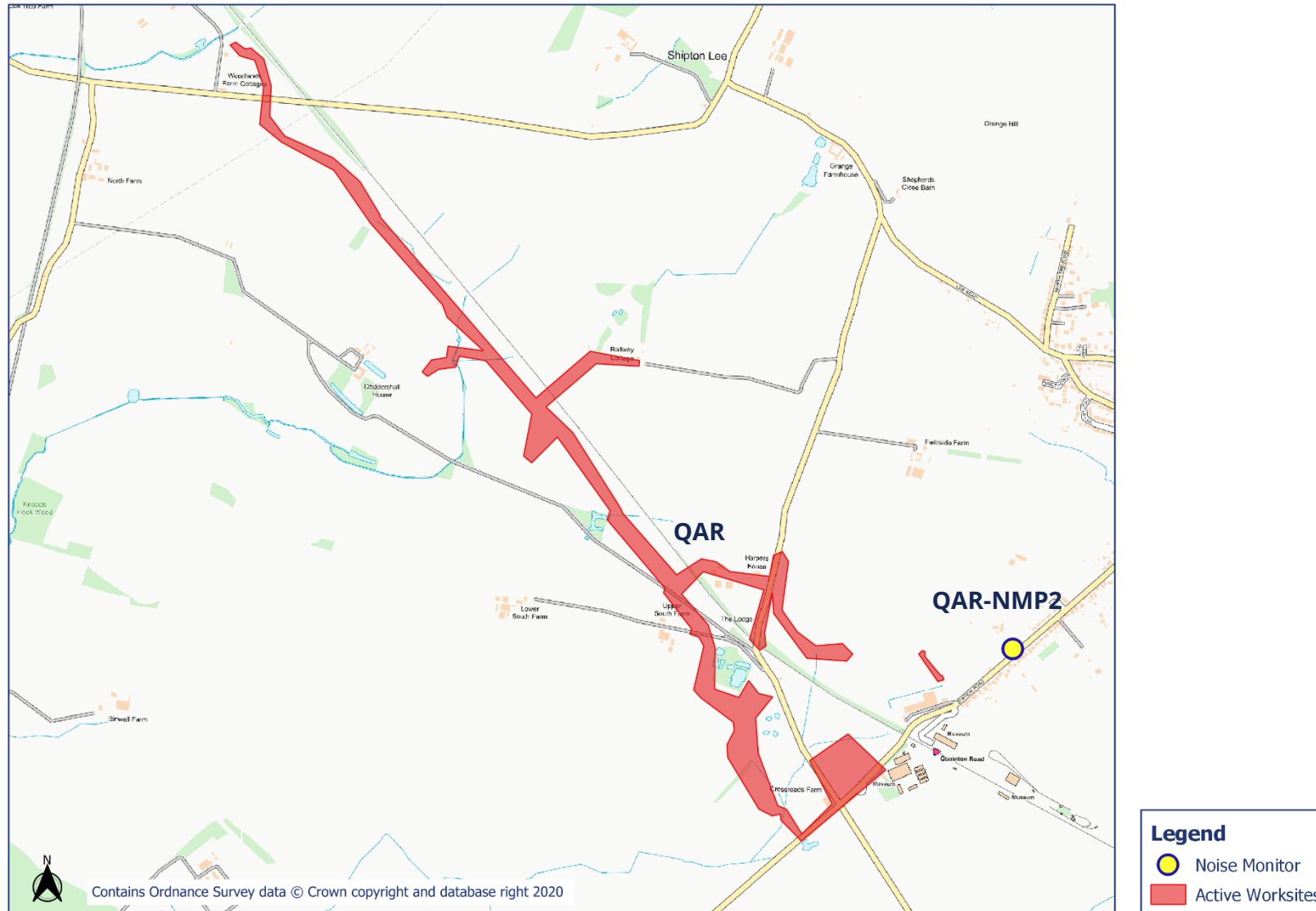
Appendix B Monitoring Locations

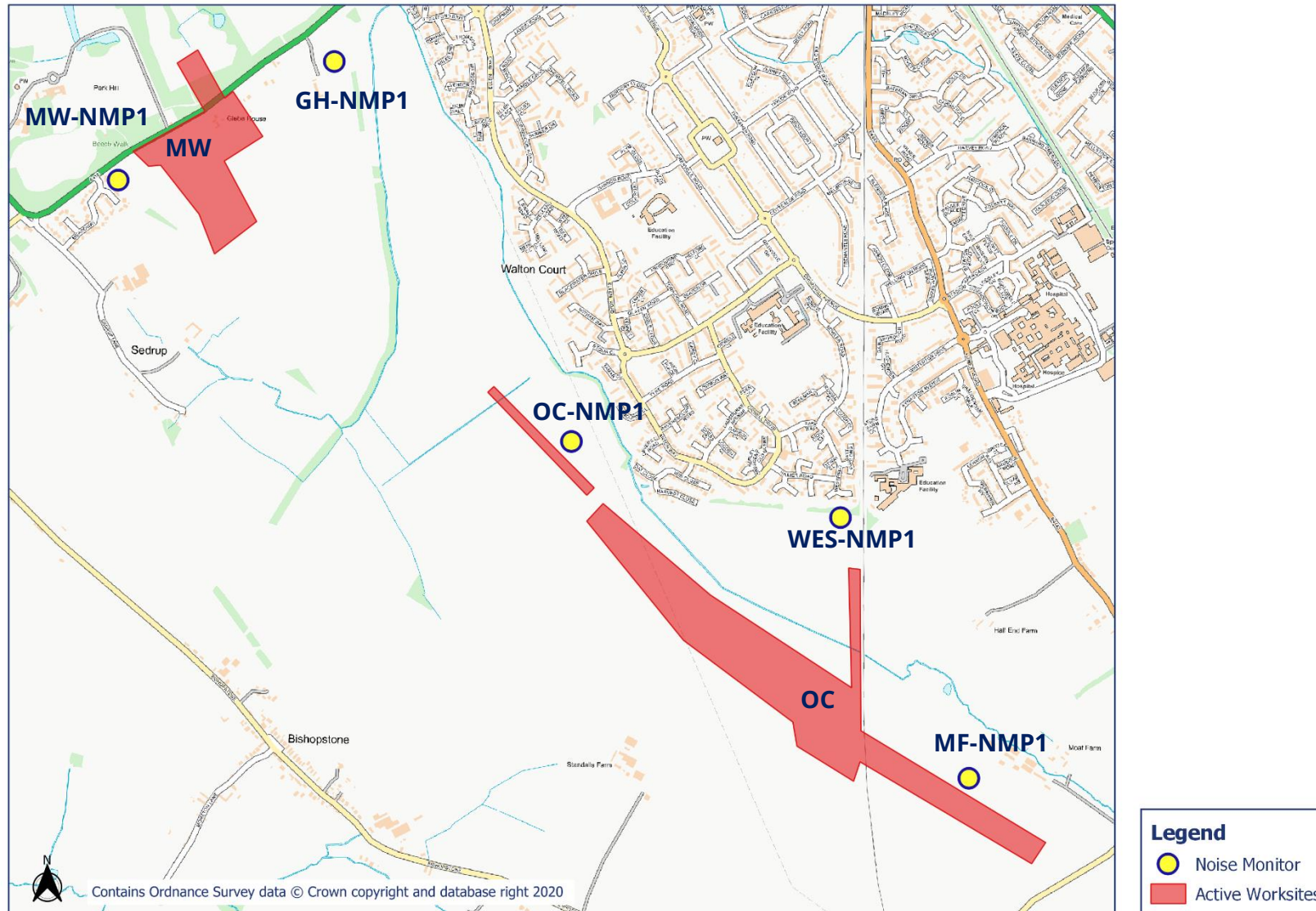


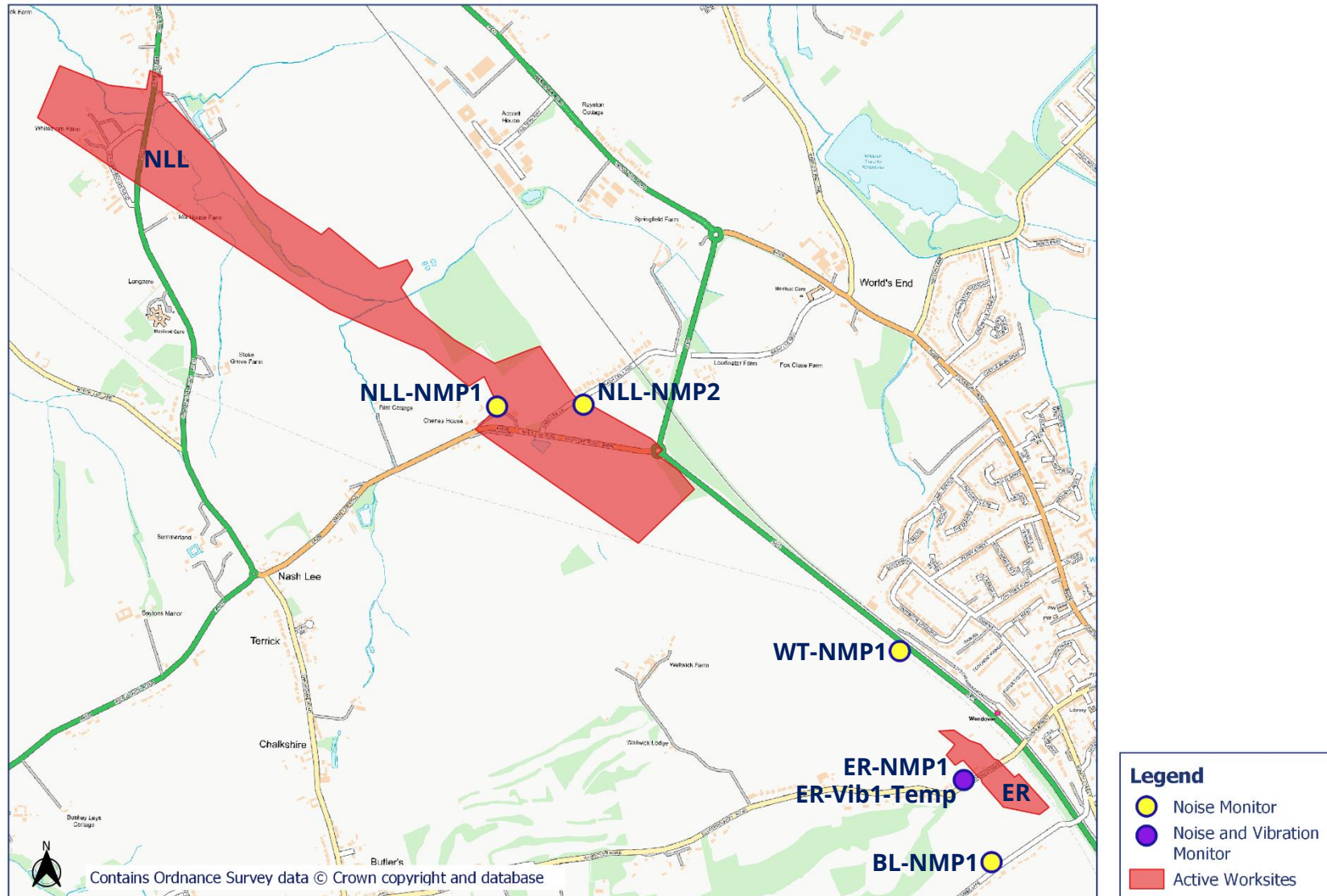


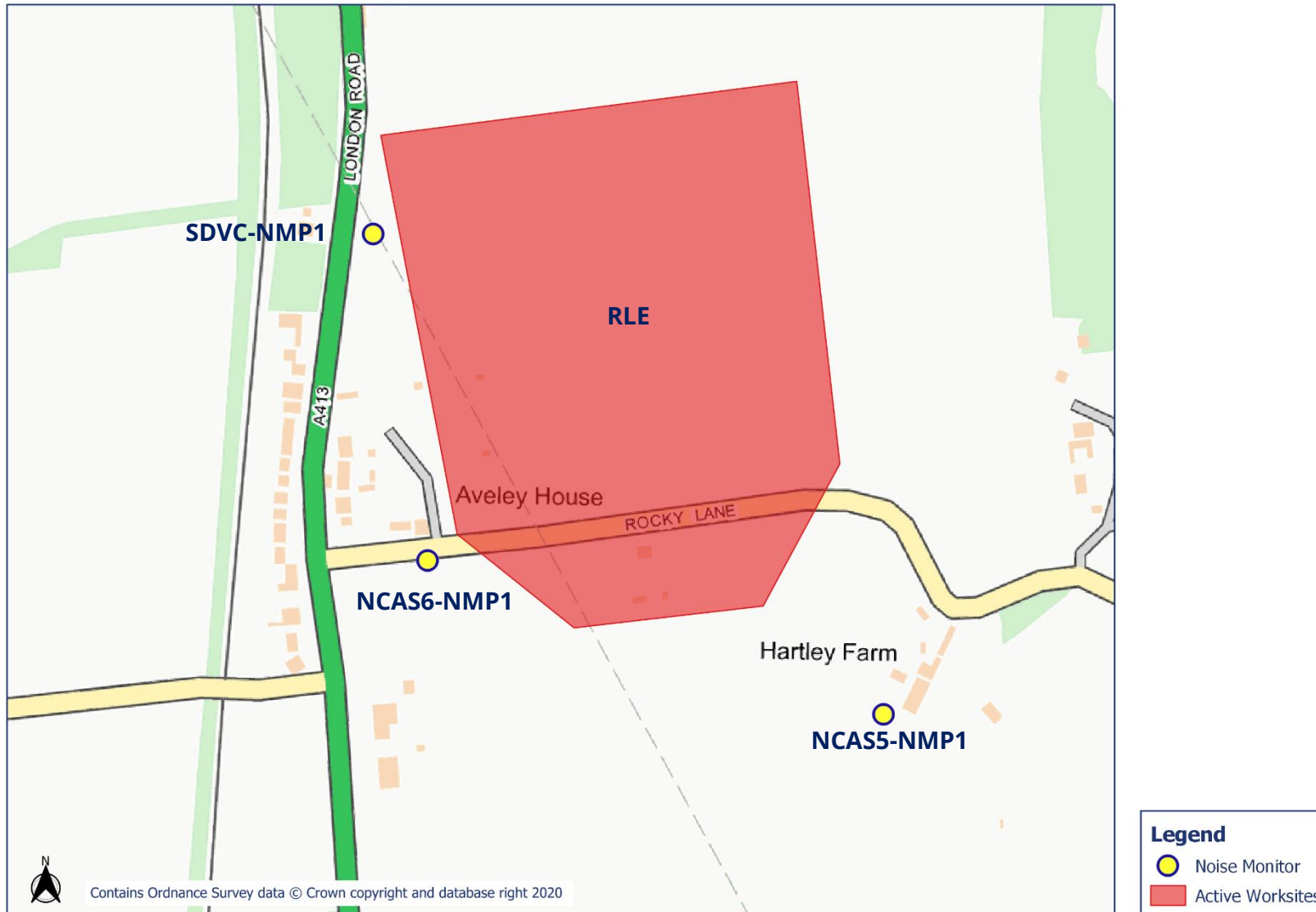




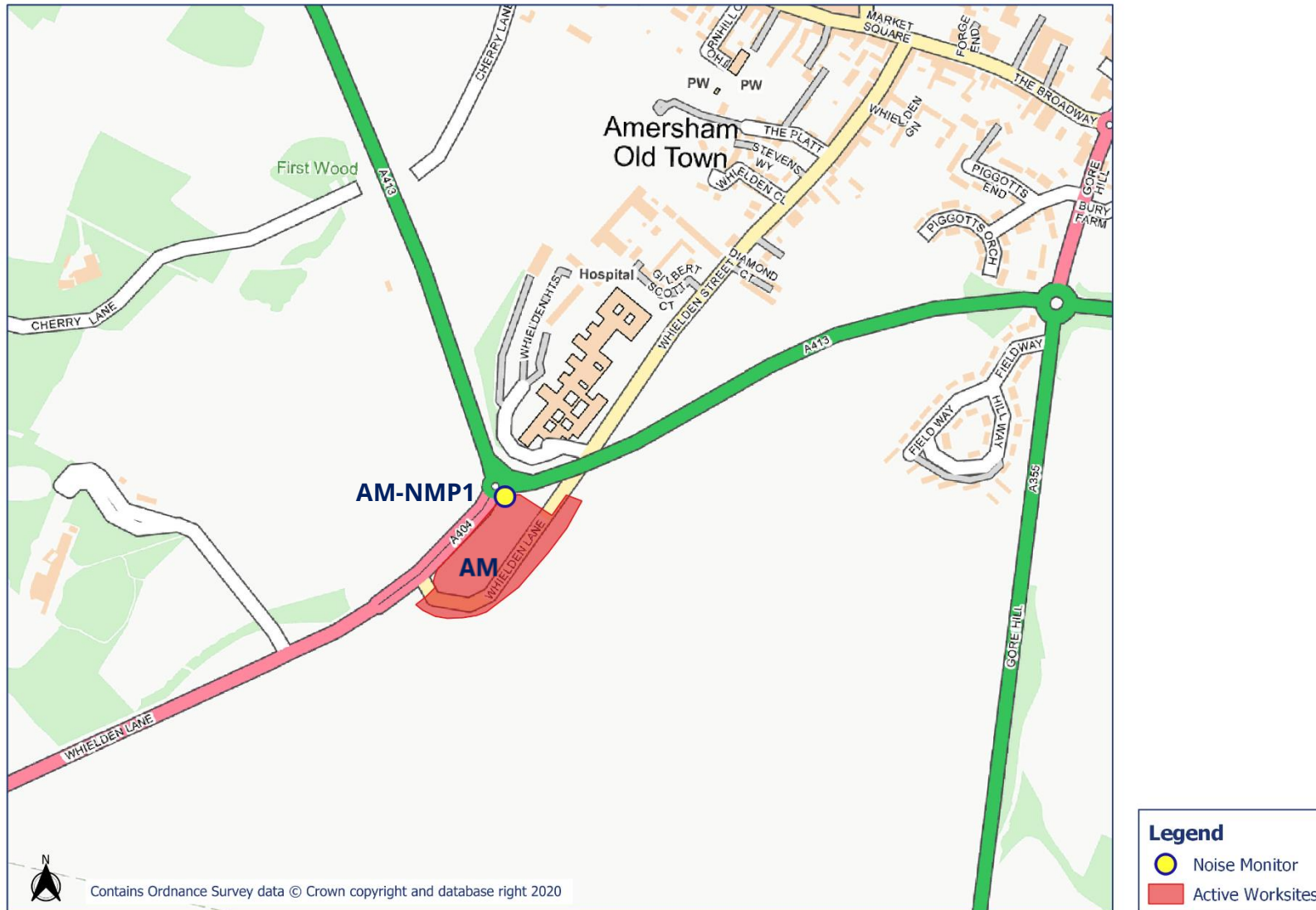


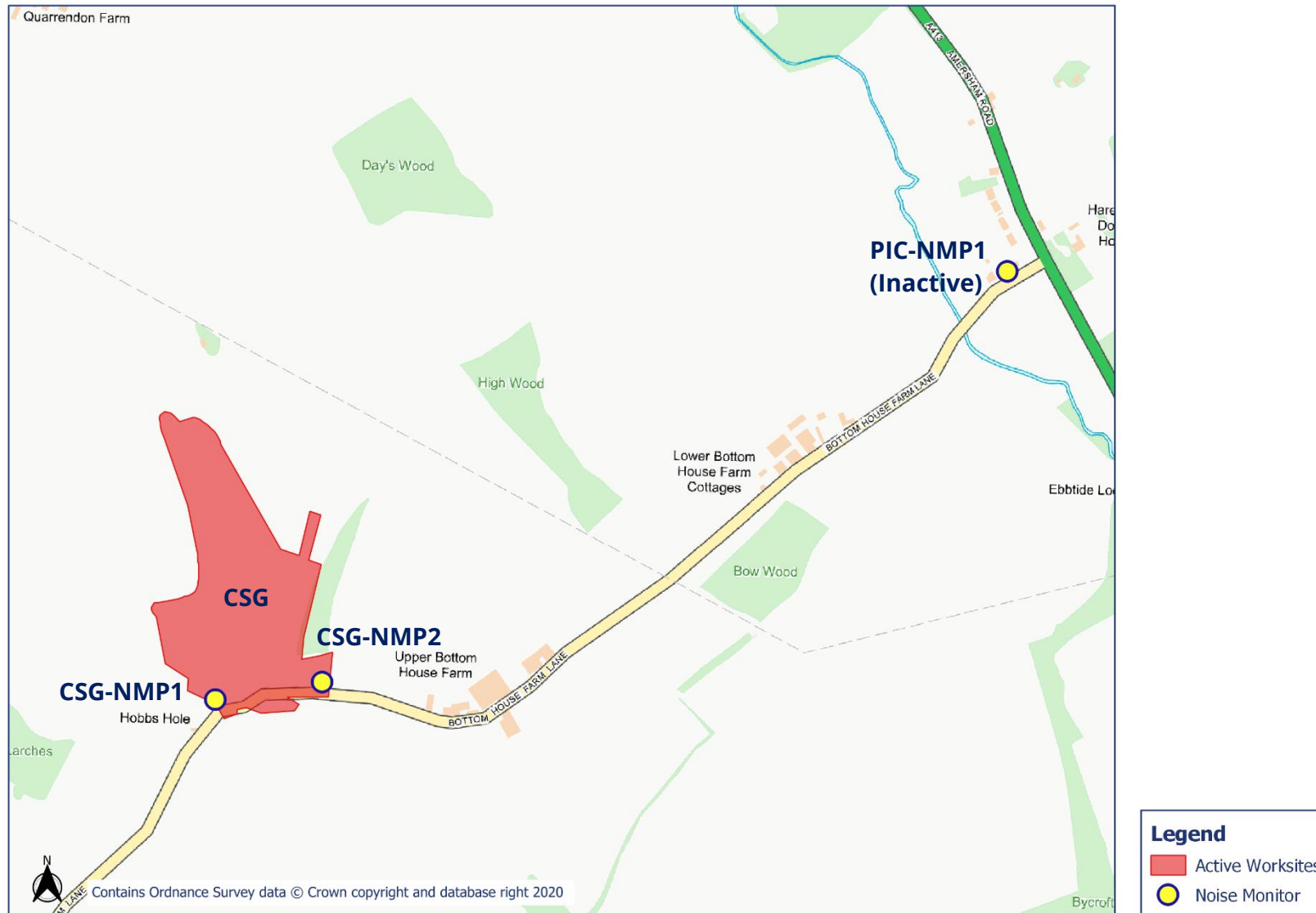




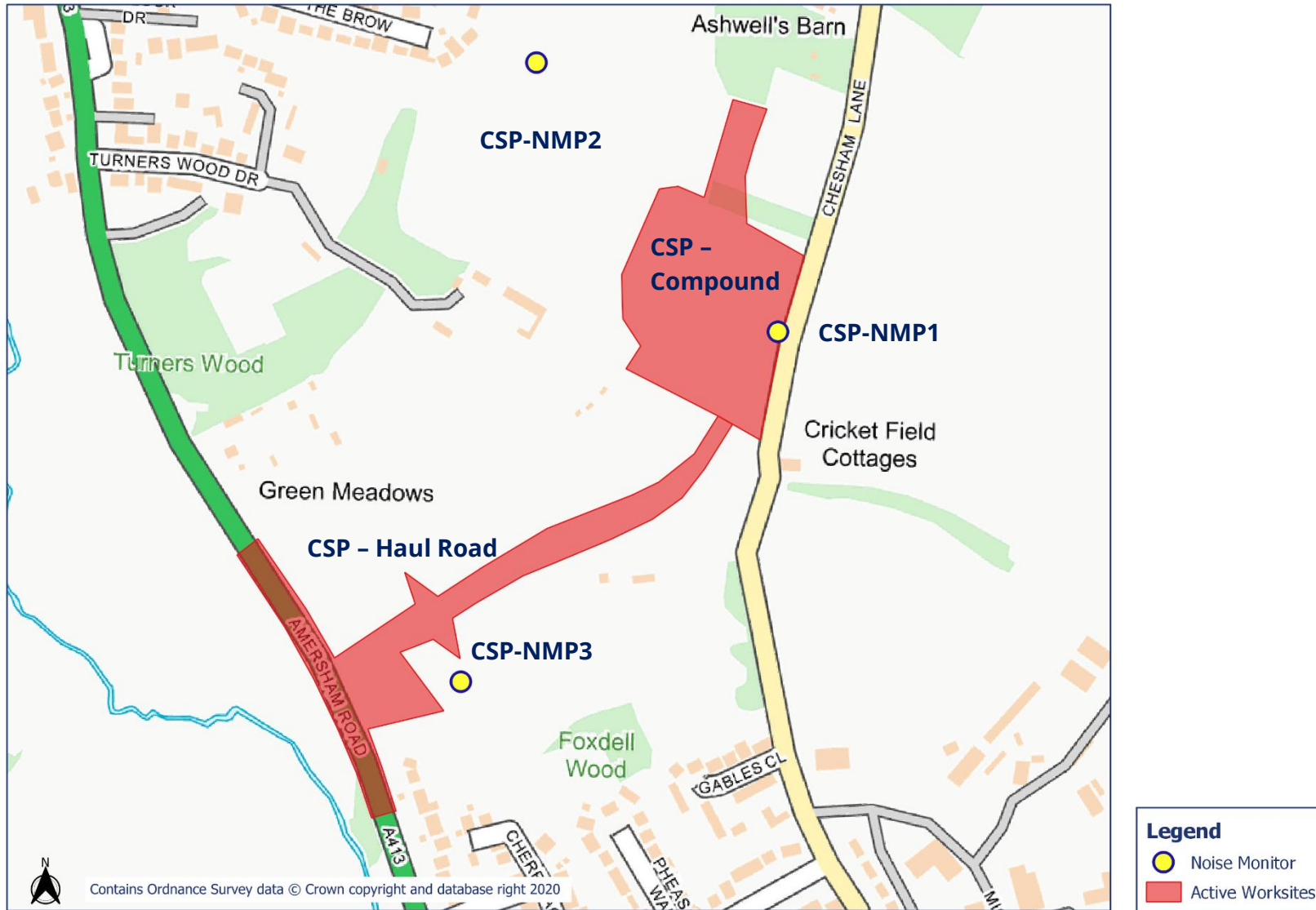


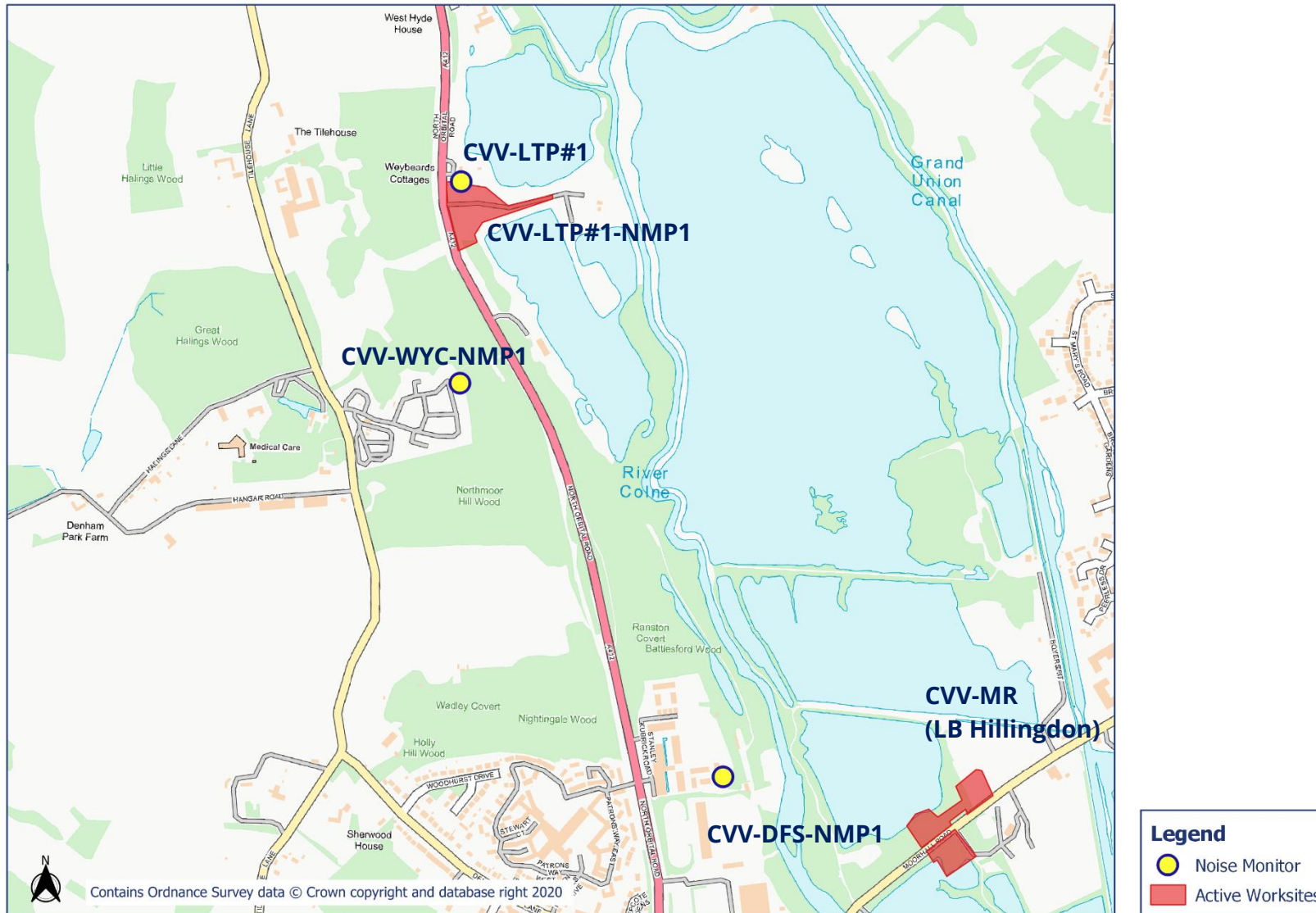


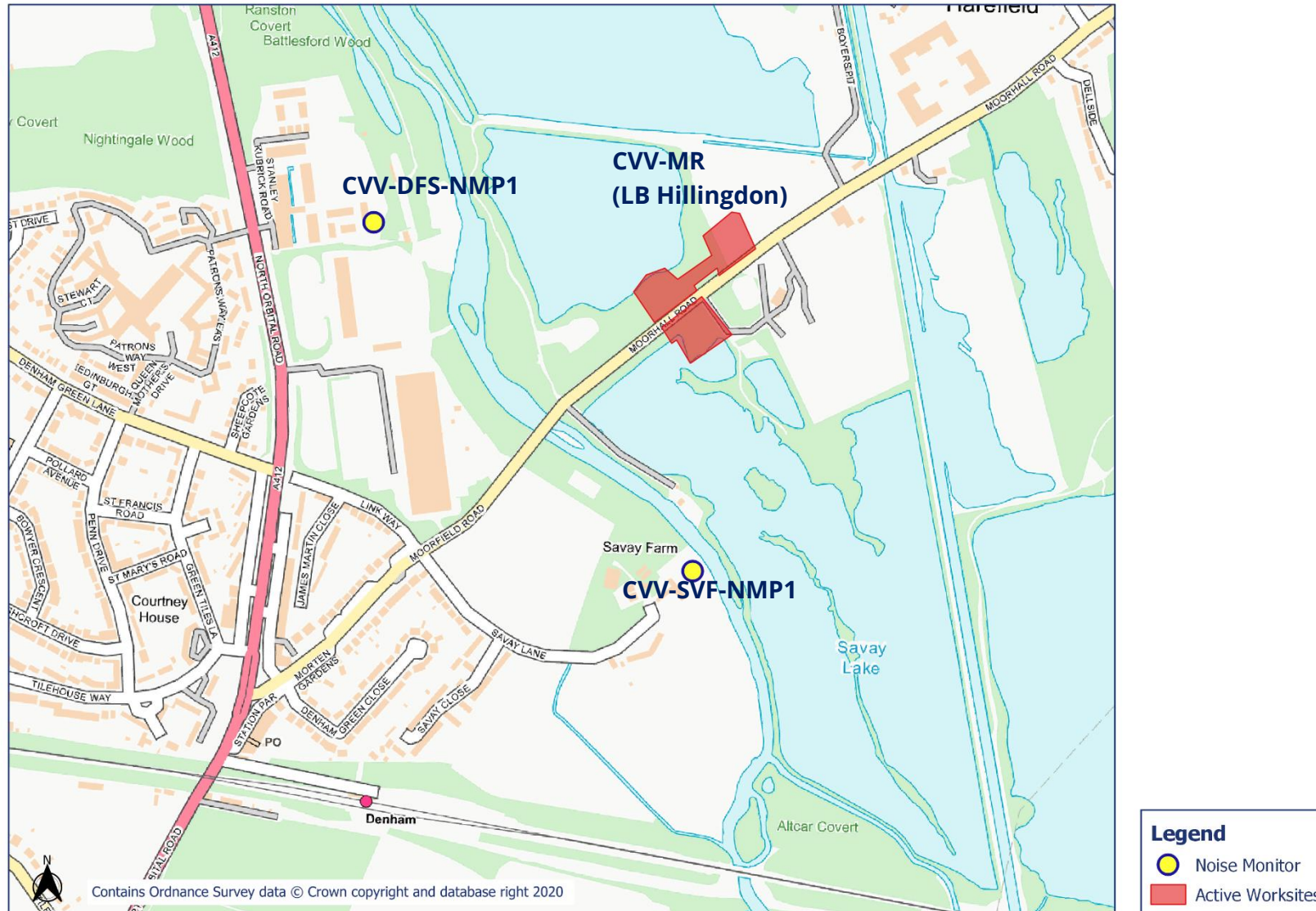




HS2 Noise and Vibration Monitoring Plan - 13





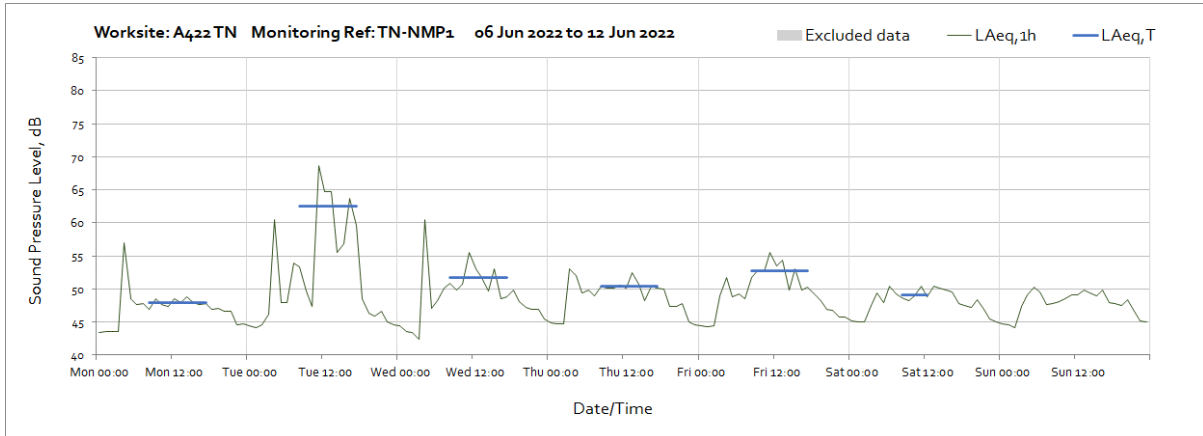
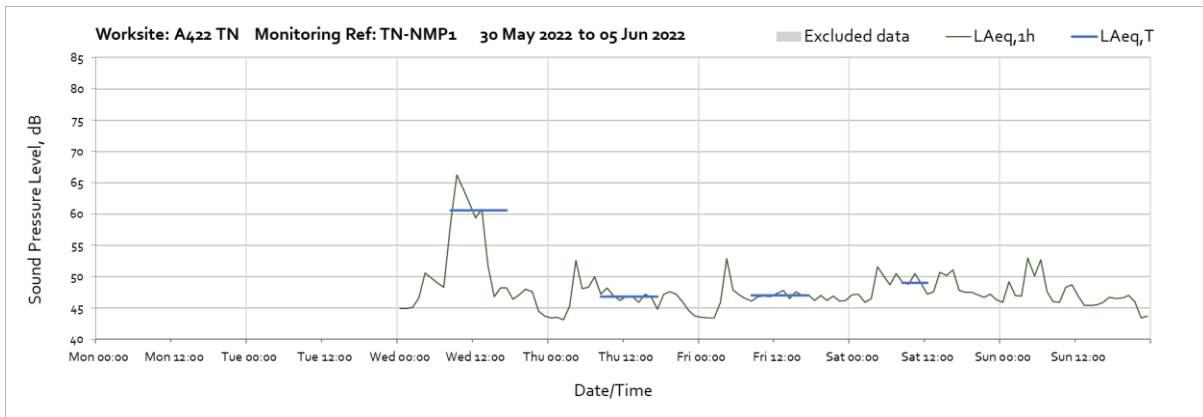


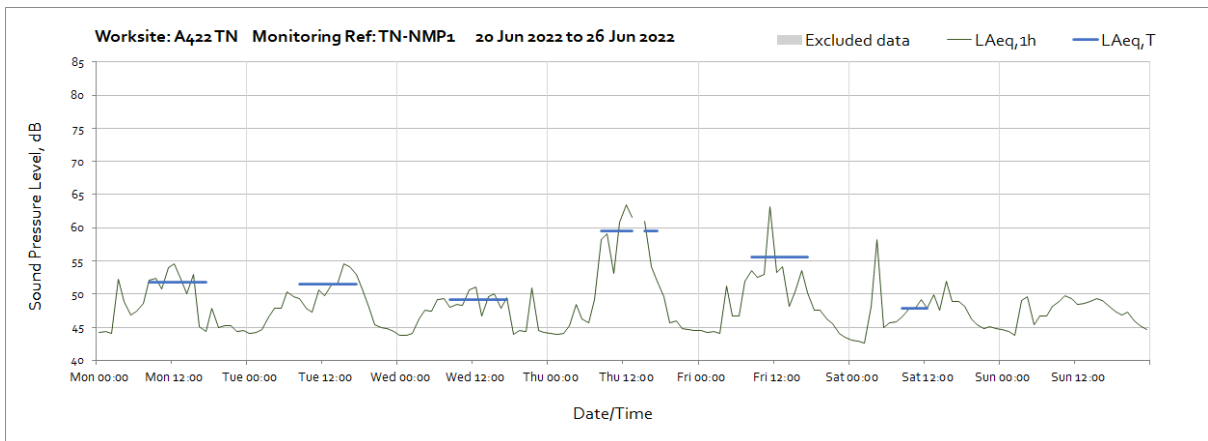
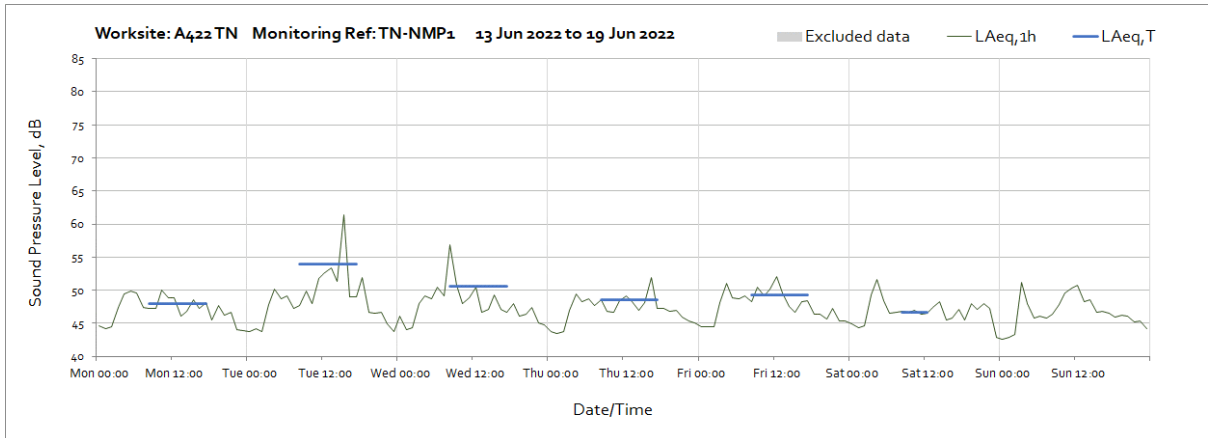
Appendix C Data

Noise

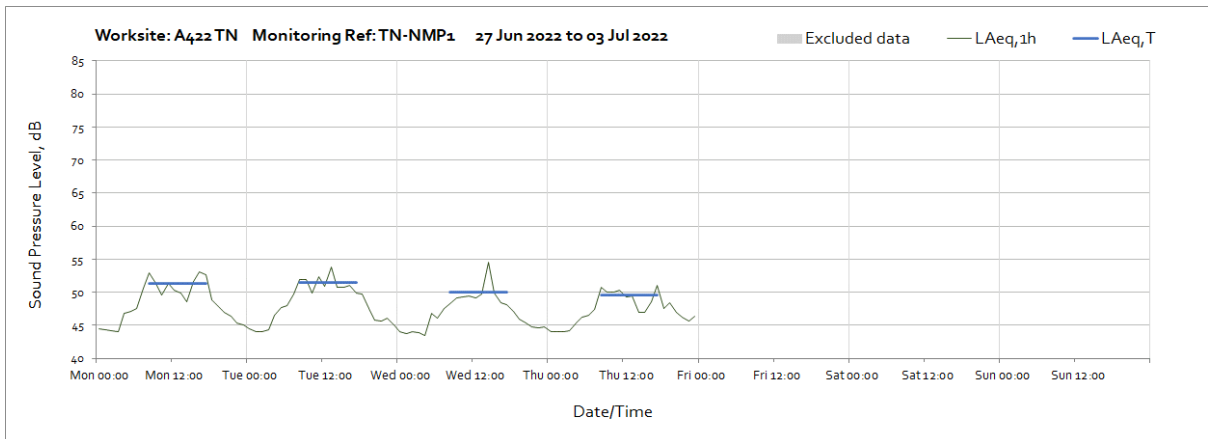
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have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

Worksite: A422 TN – Monitoring Ref: TN-NMP1

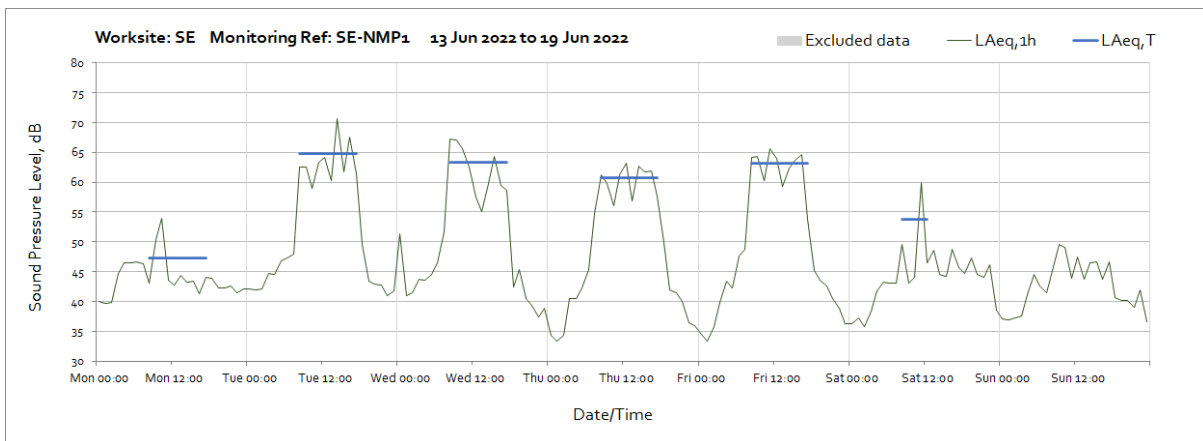
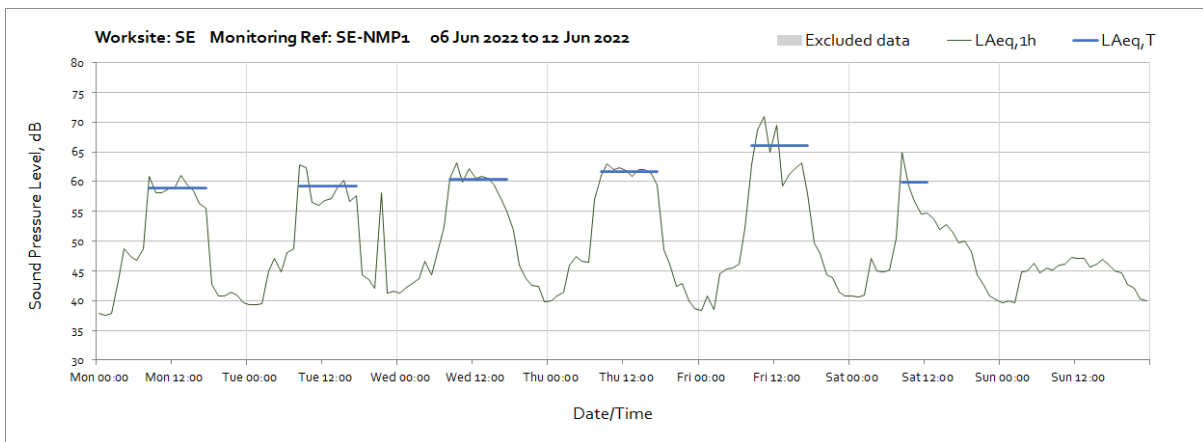
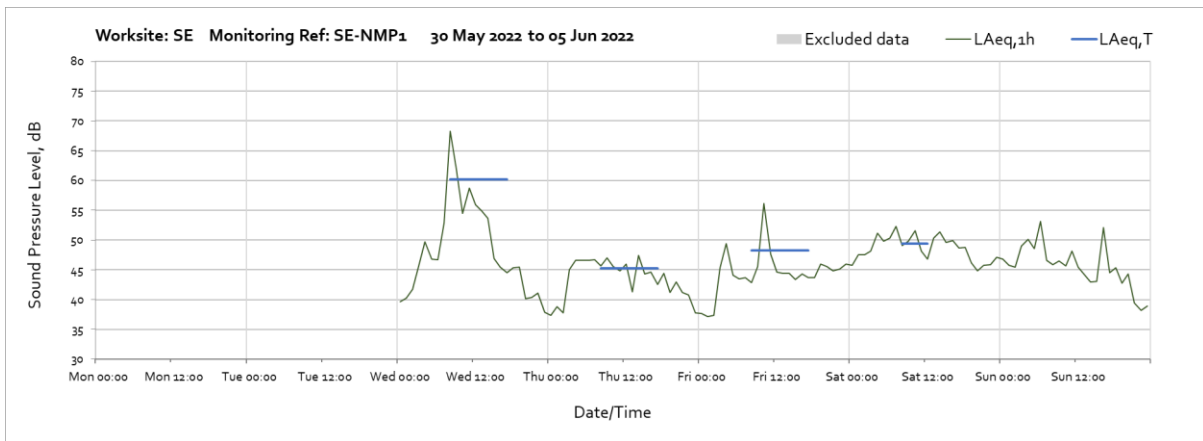




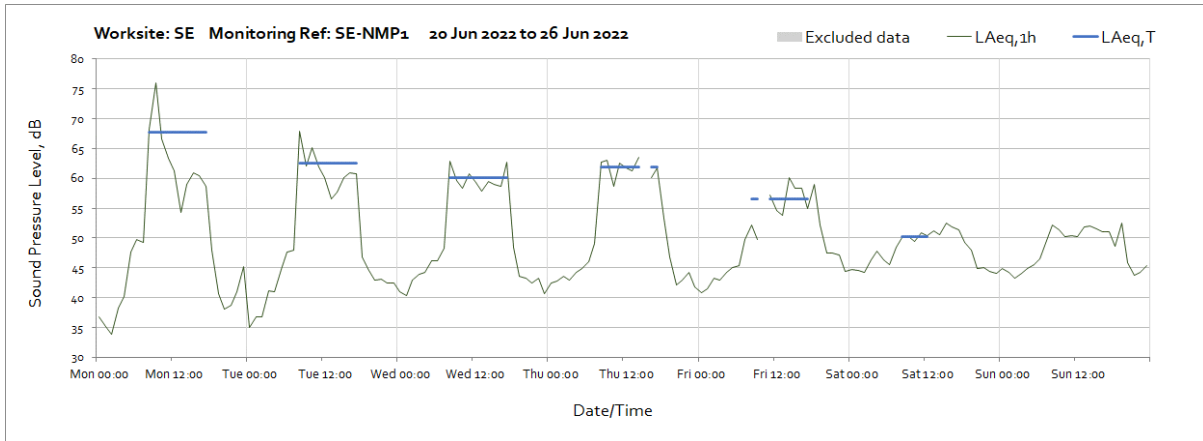
Note: Missing data at 14:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



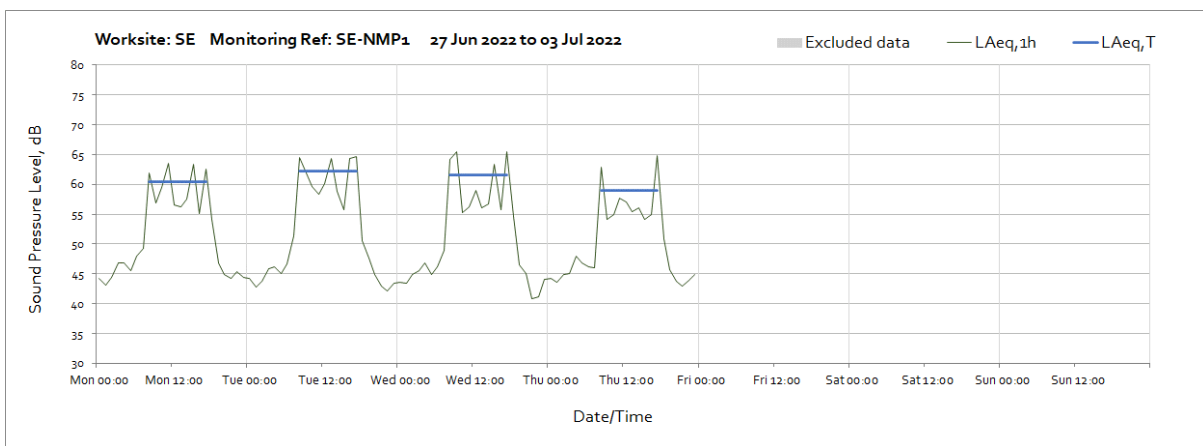
Worksite: SE – Monitoring Ref: SE-NMP1



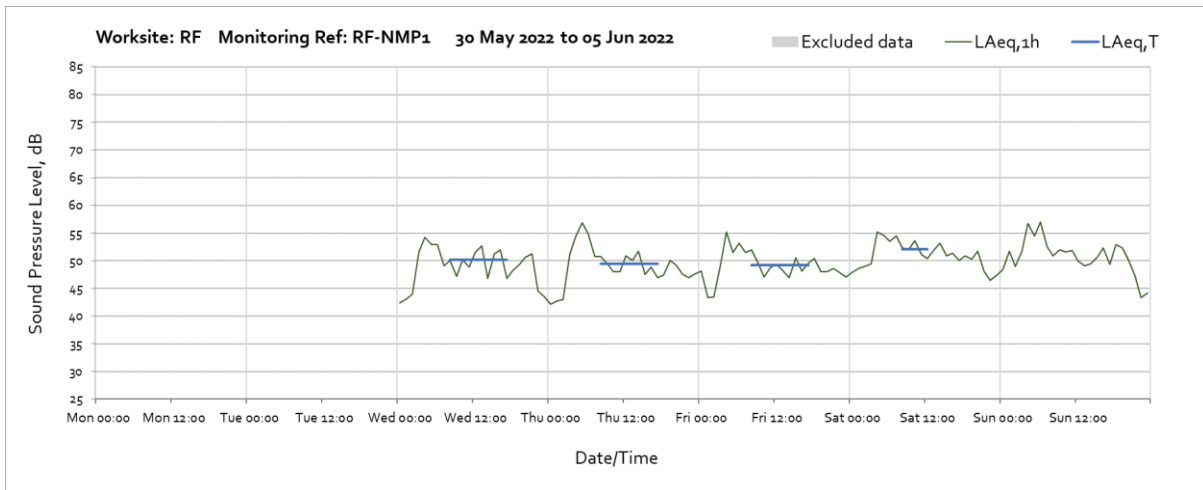
OFFICIAL

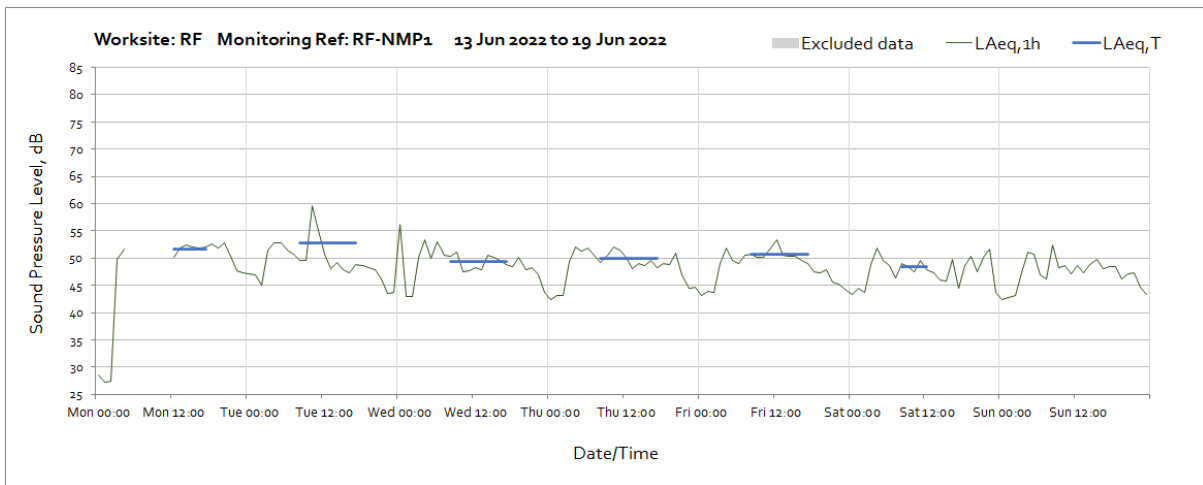
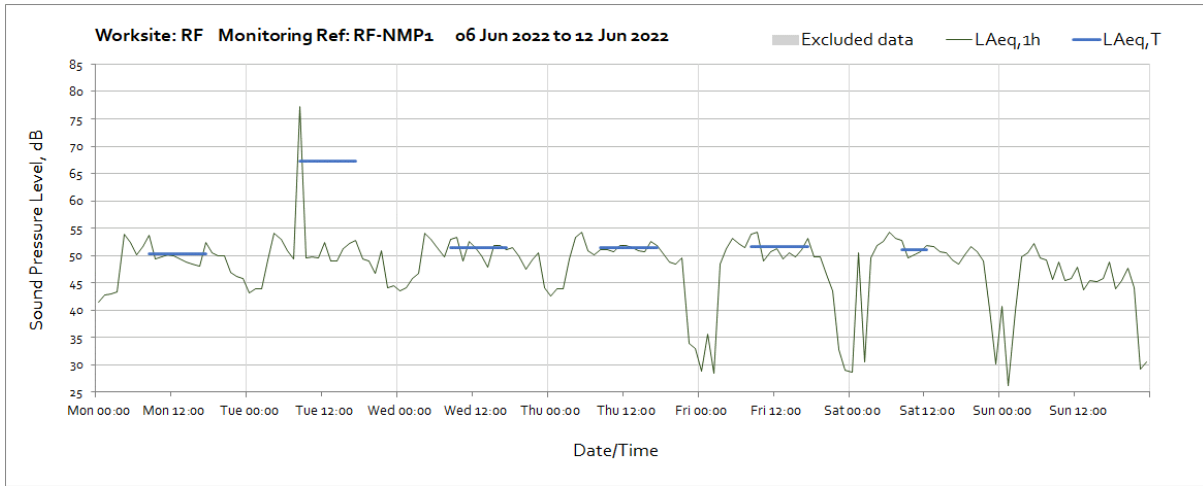


Note: Missing data at 15:00 on Thursday 23rd June and at 11:00 on Friday 24th June was due to maintenance of the monitoring equipment.

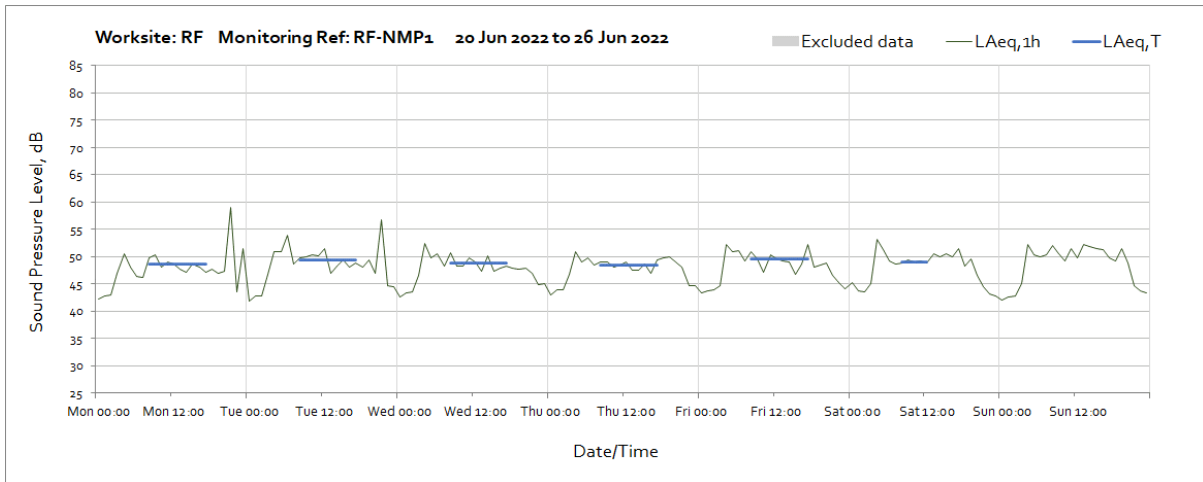


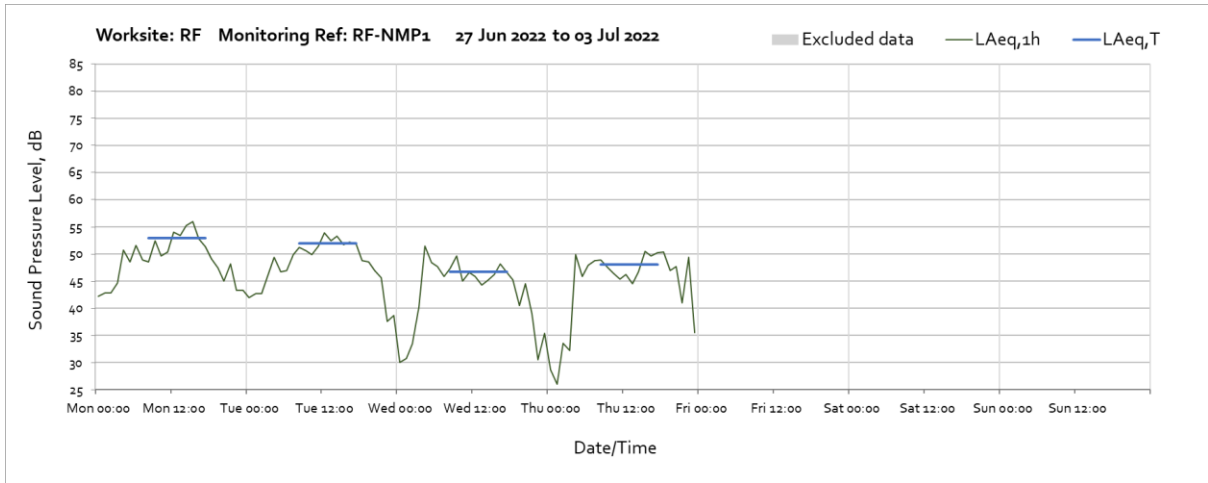
Worksite: RF – Monitoring Ref: RF-NMP1



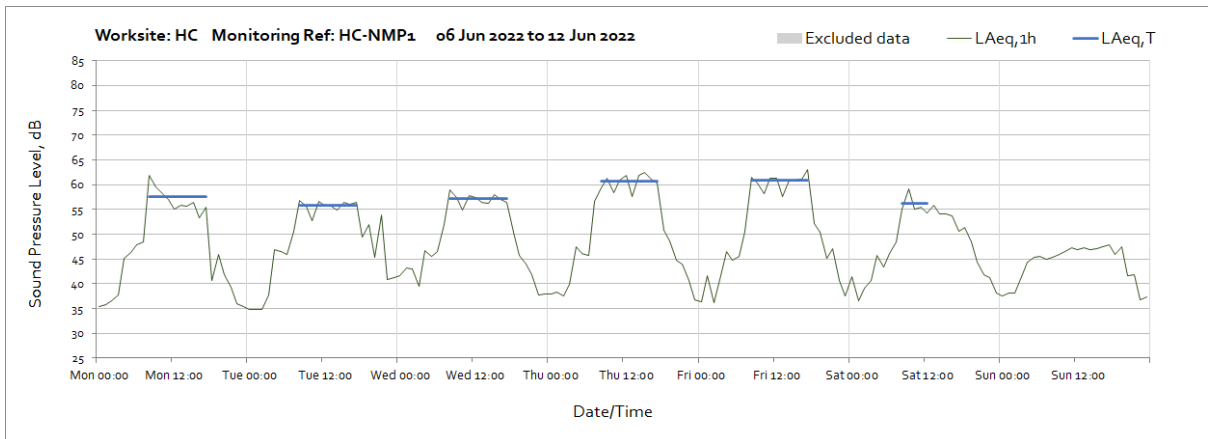
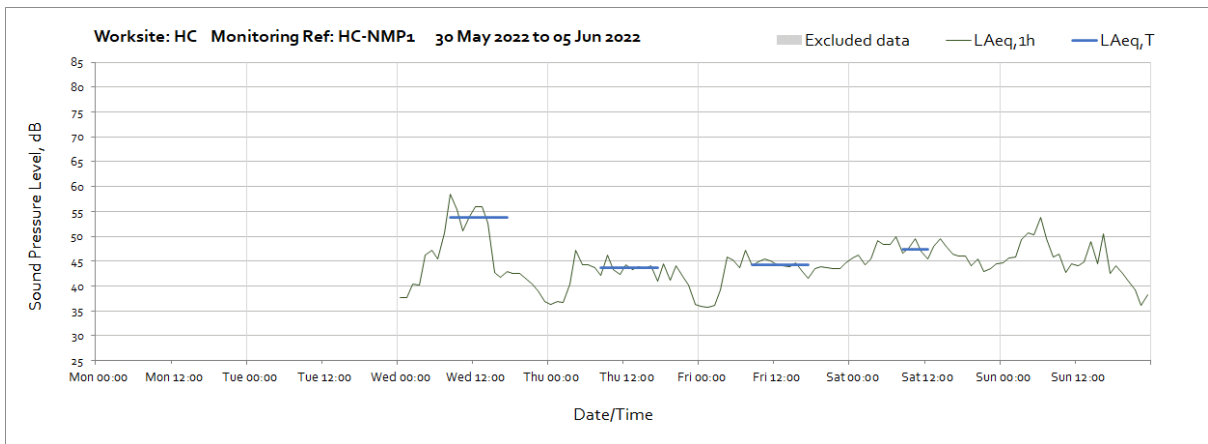


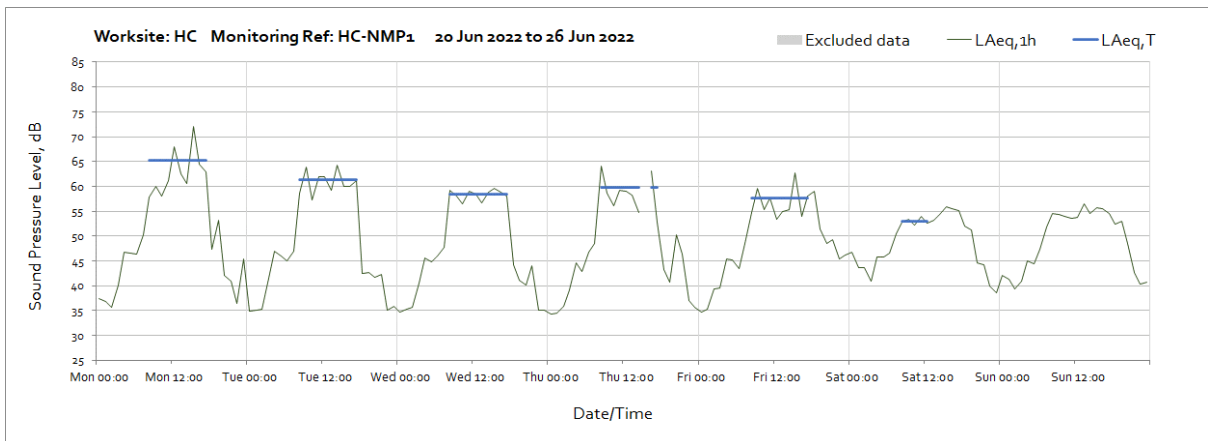
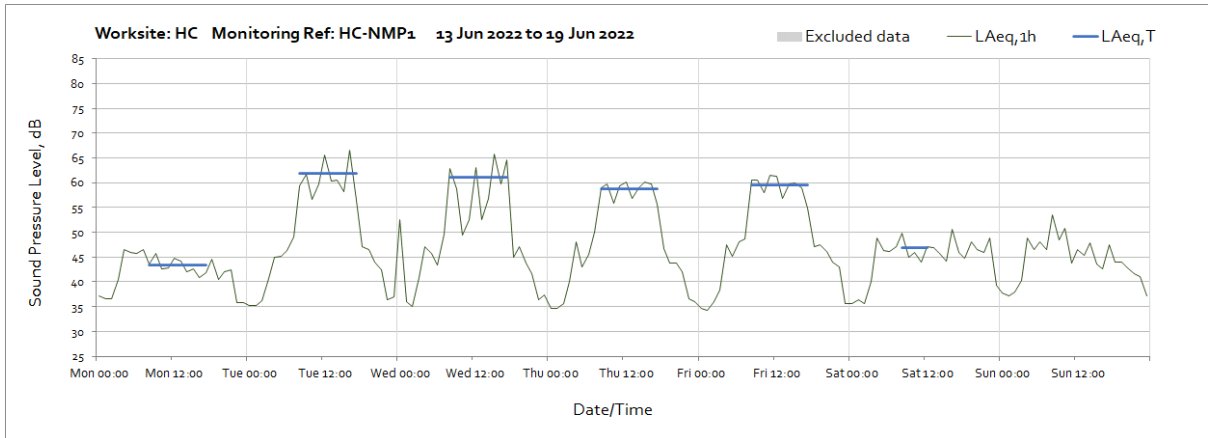
Note: Missing data between 05:00 and 12:00 on Monday 13th June was due to loss of power at the monitoring station.



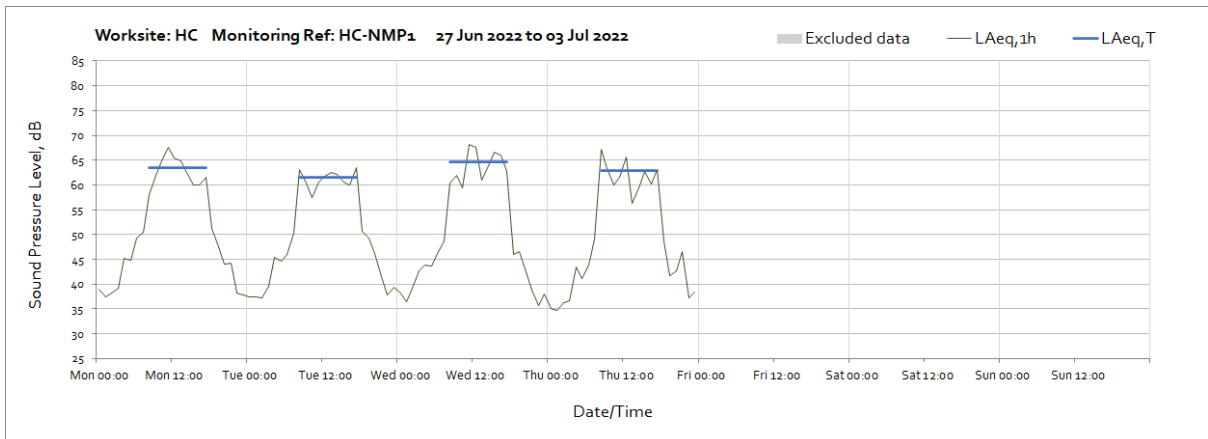


Worksite: HC - Monitoring Ref: HC-NMP1

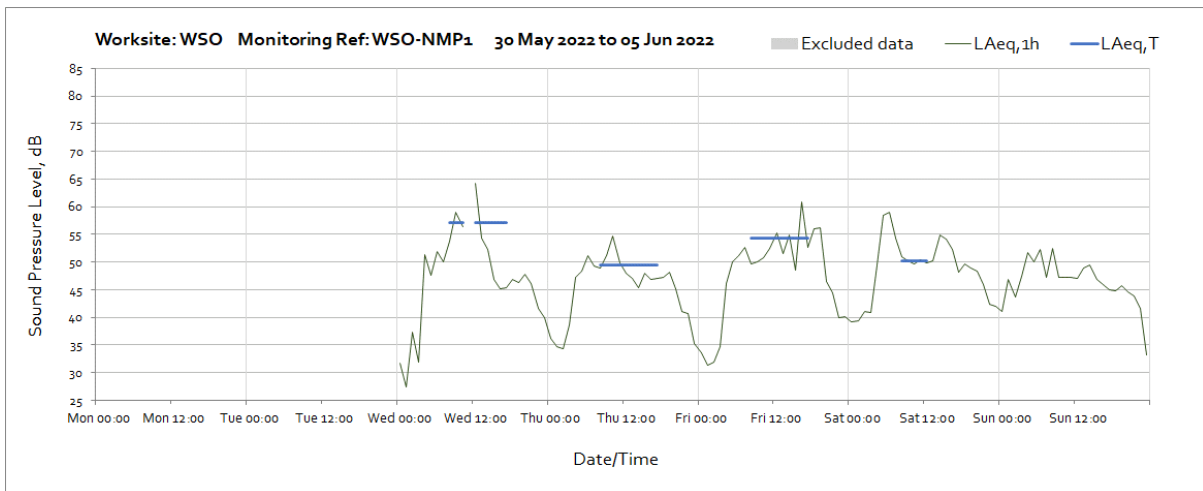




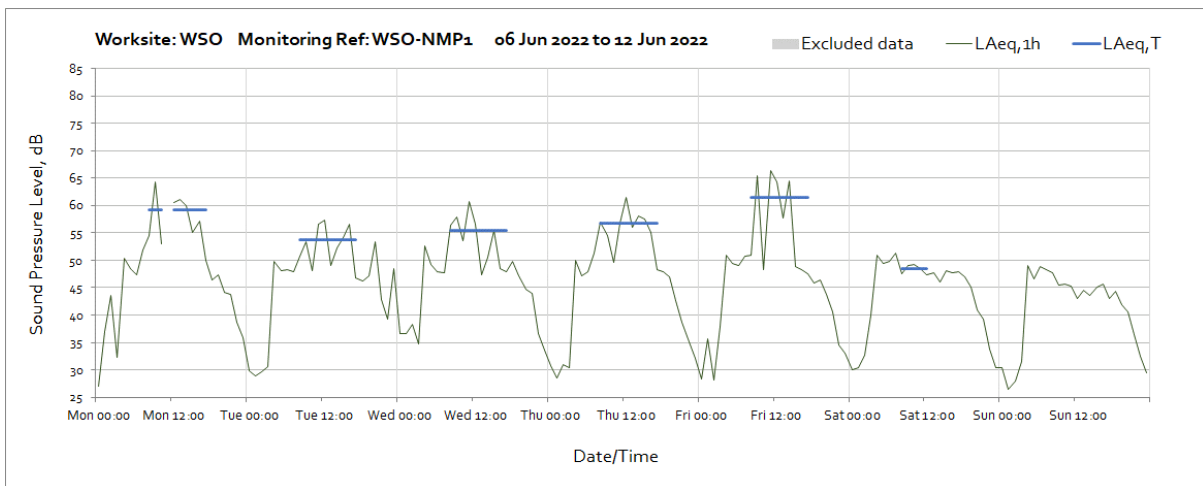
Note: Missing data at 15:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



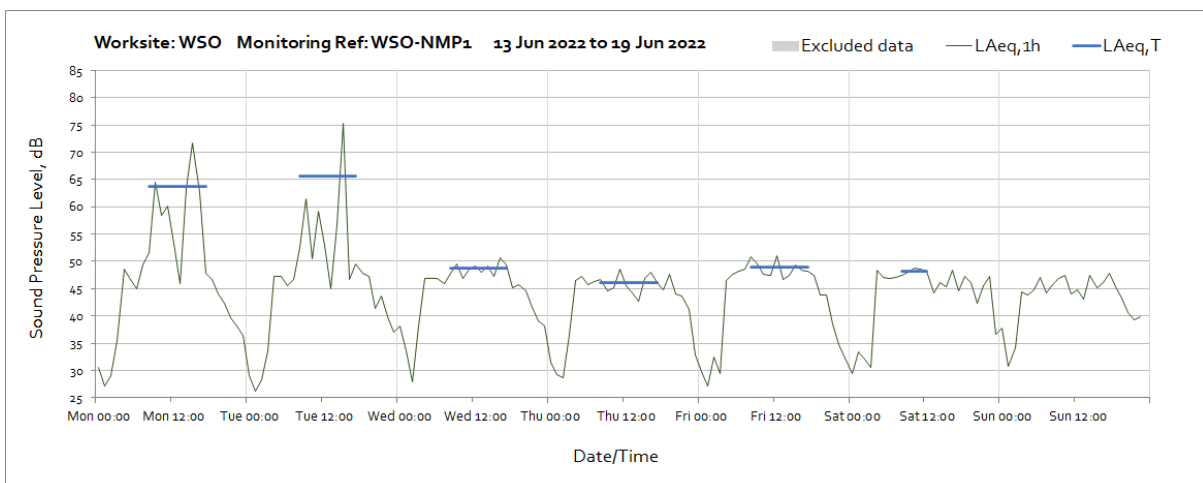
Worksite: WSO – Monitoring Ref: WSO-NMP1



Note: Missing data at 11:00 on Wednesday 1st June was due to maintenance of the monitoring equipment.

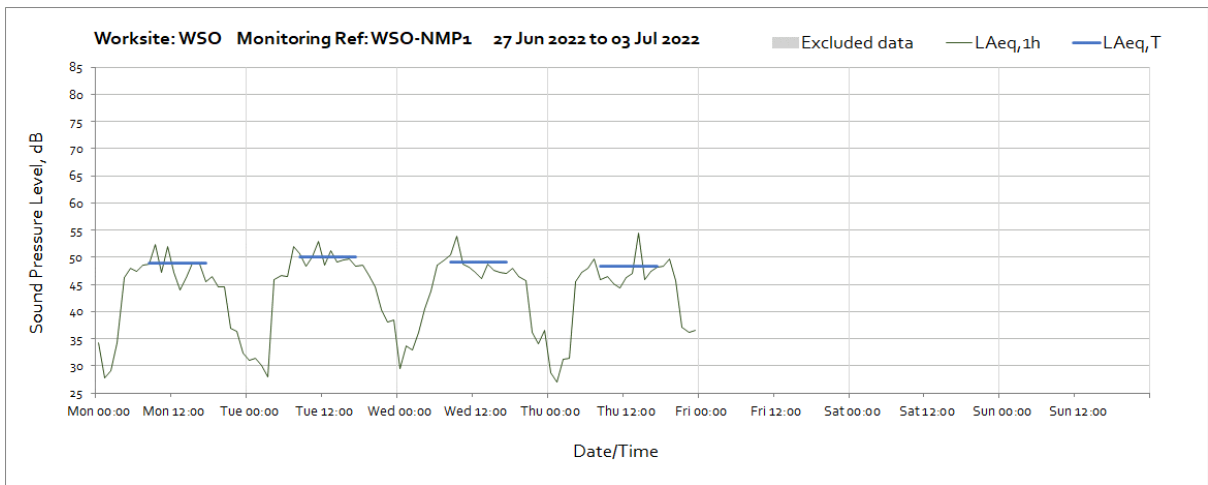
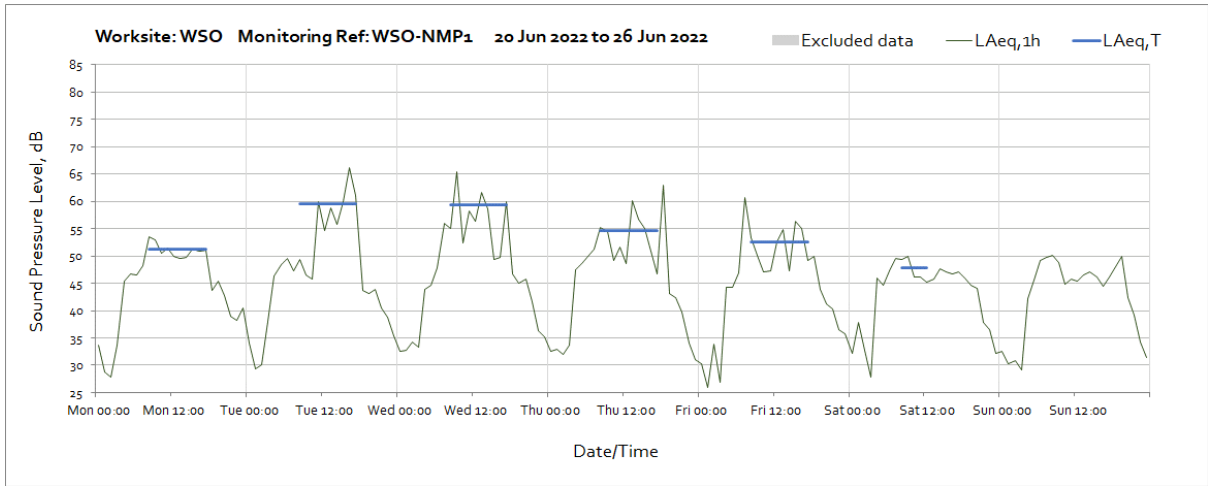


Note: Missing data at 11:00 on Monday 6th June was due to maintenance of the monitoring equipment.

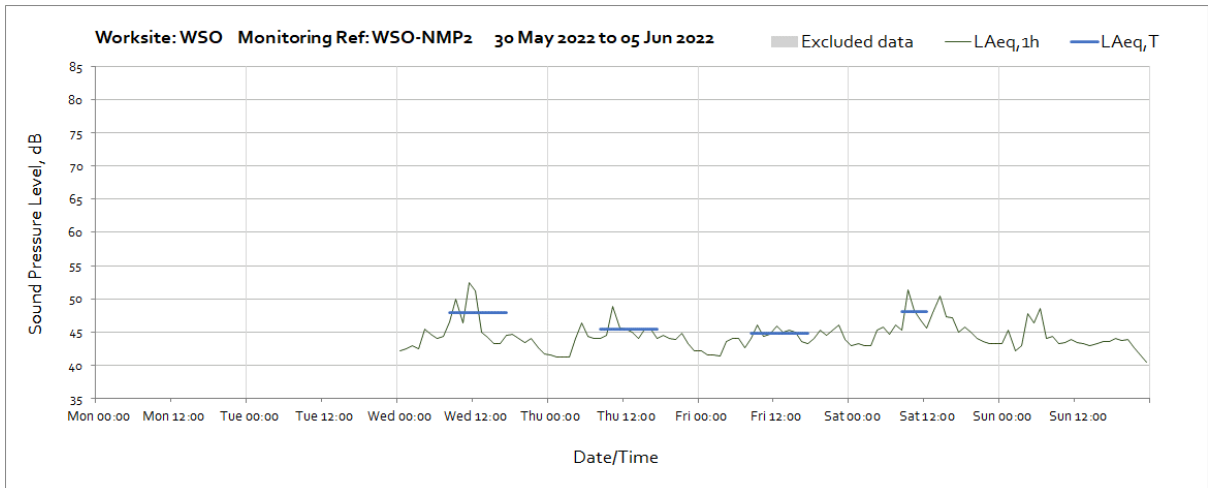


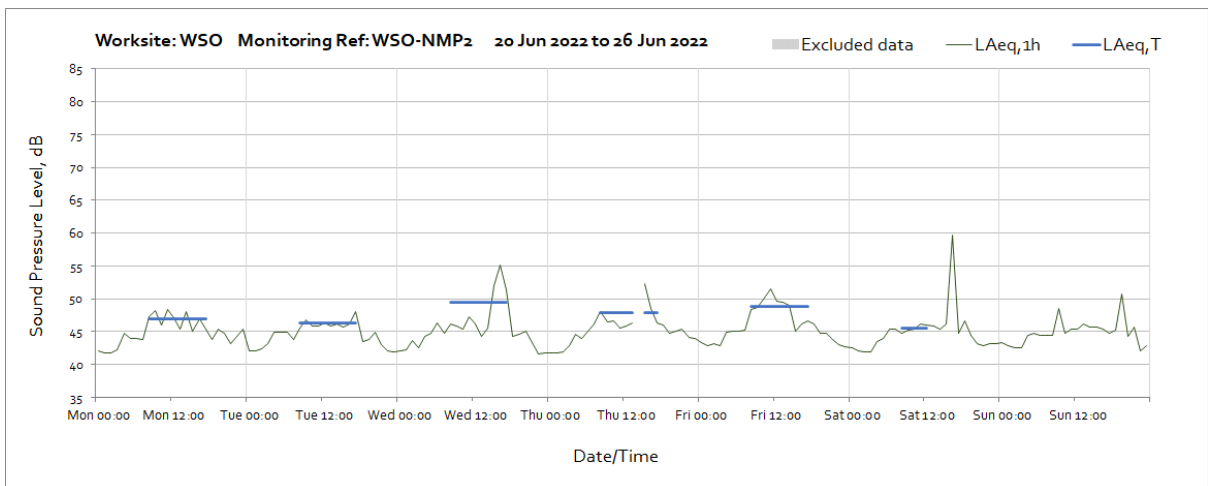
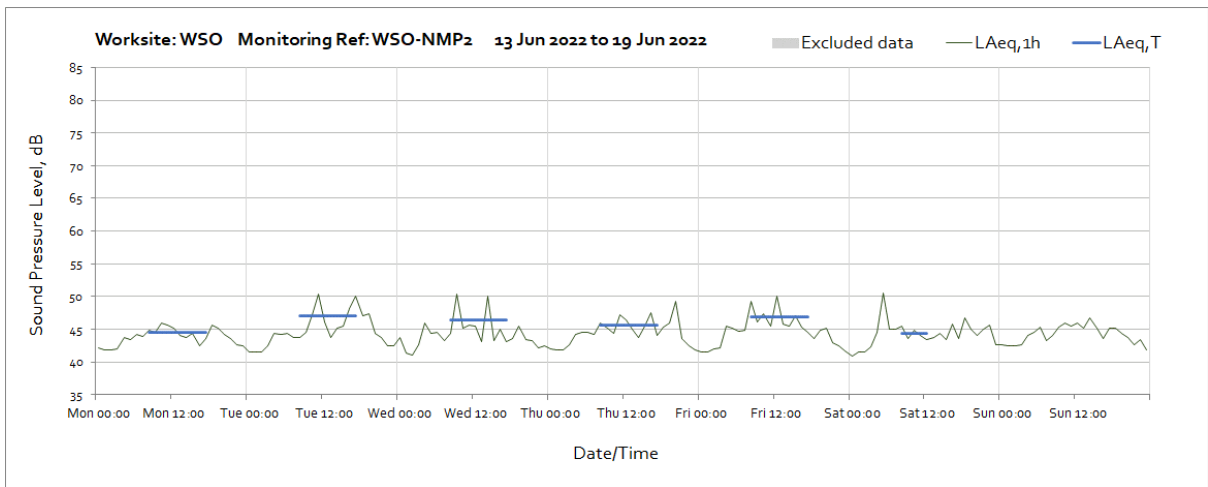
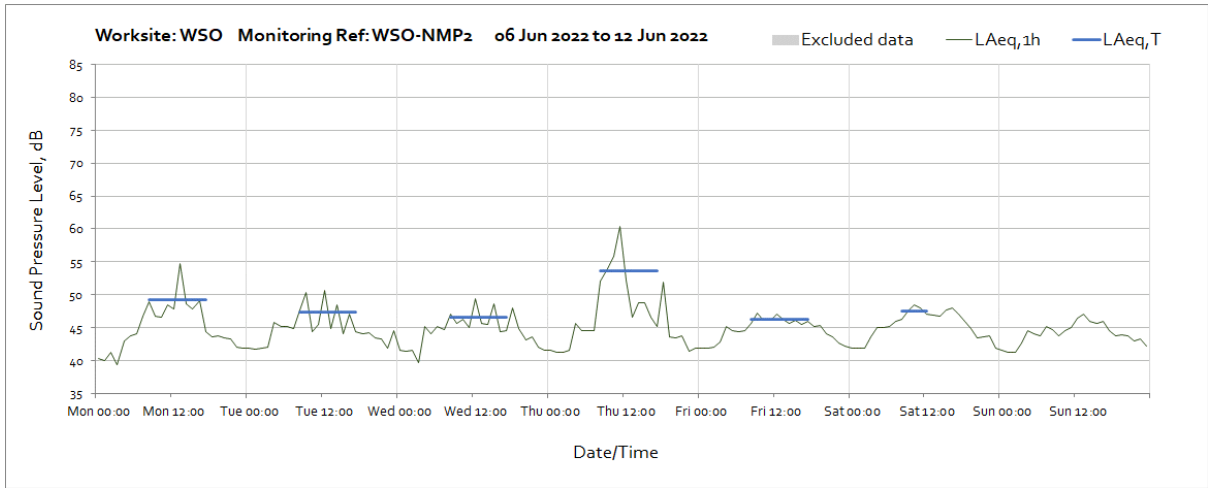
Note: Missing data at 23:00 on Sunday 19th June was due to a system glitch.

OFFICIAL

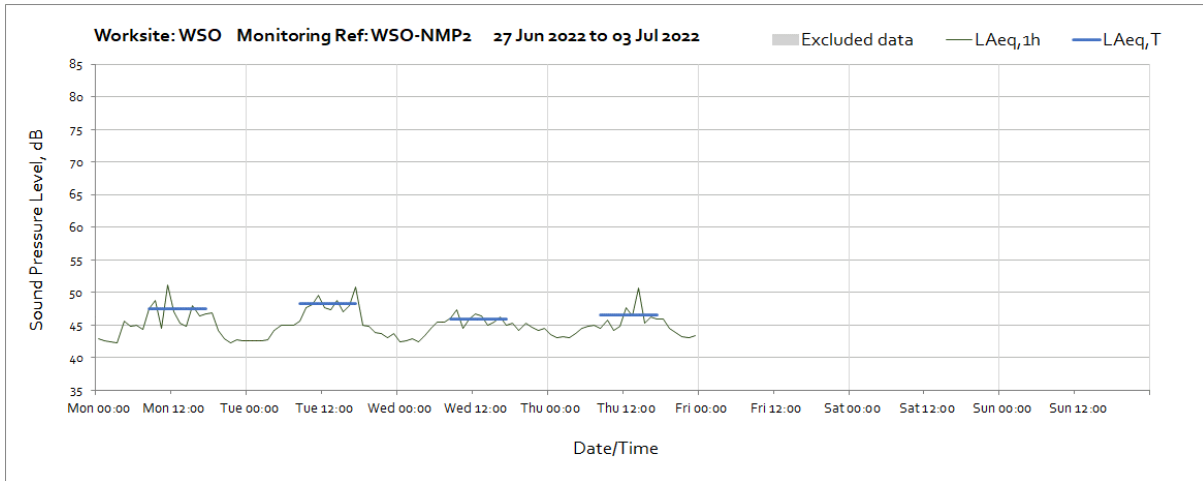


Worksite: WSO - Monitoring Ref: WSO-NMP2

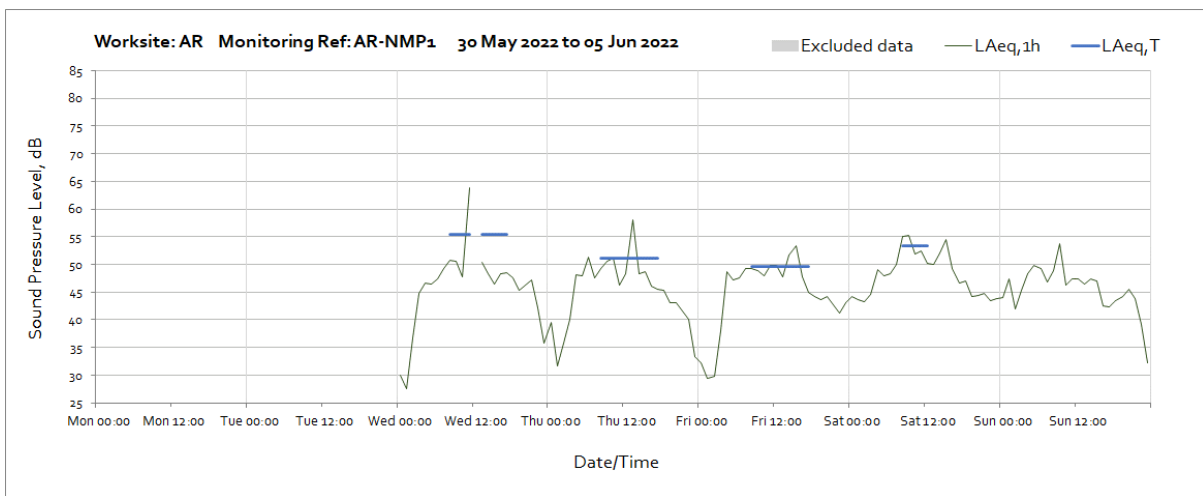




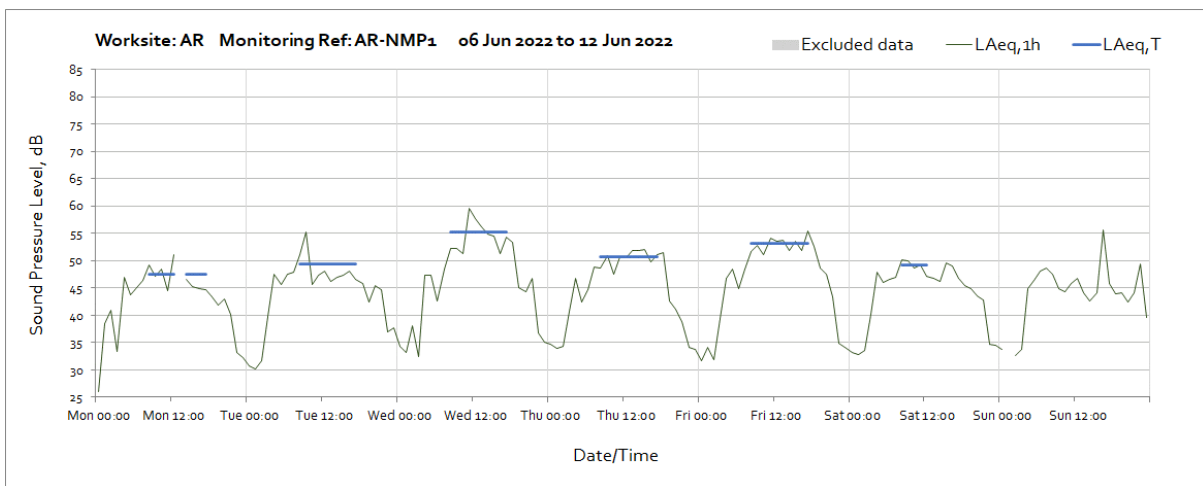
Note: Missing data at 14:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



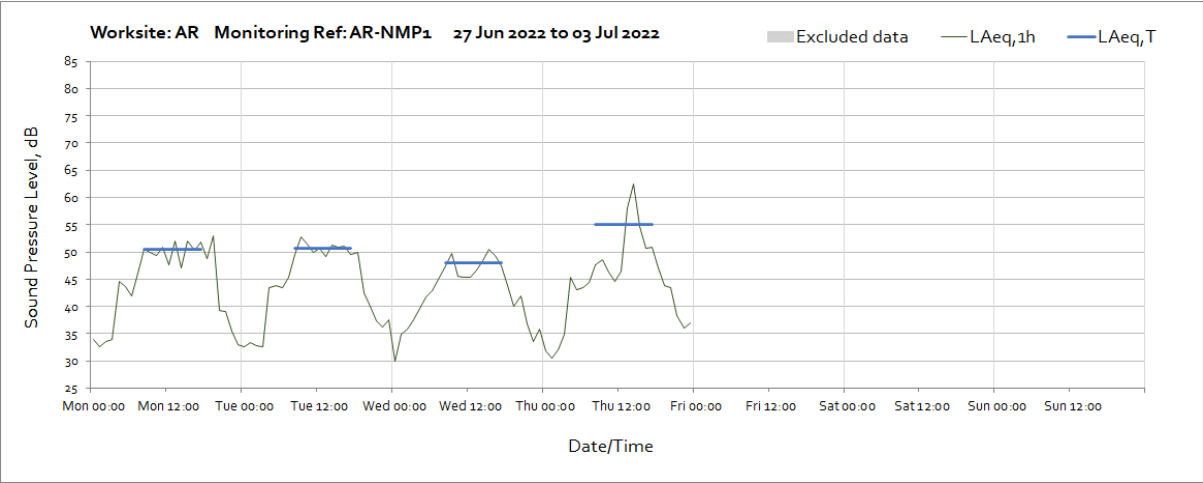
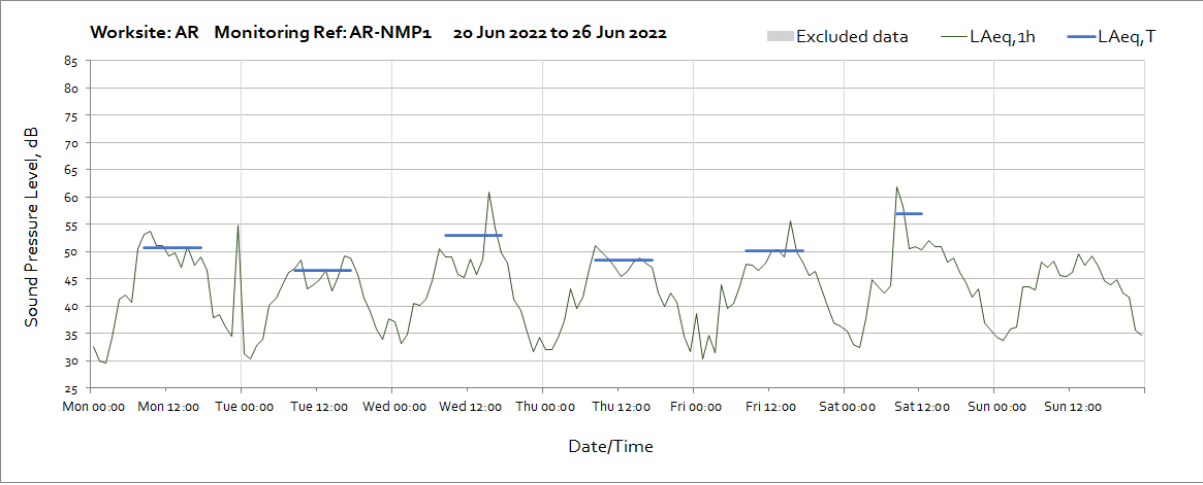
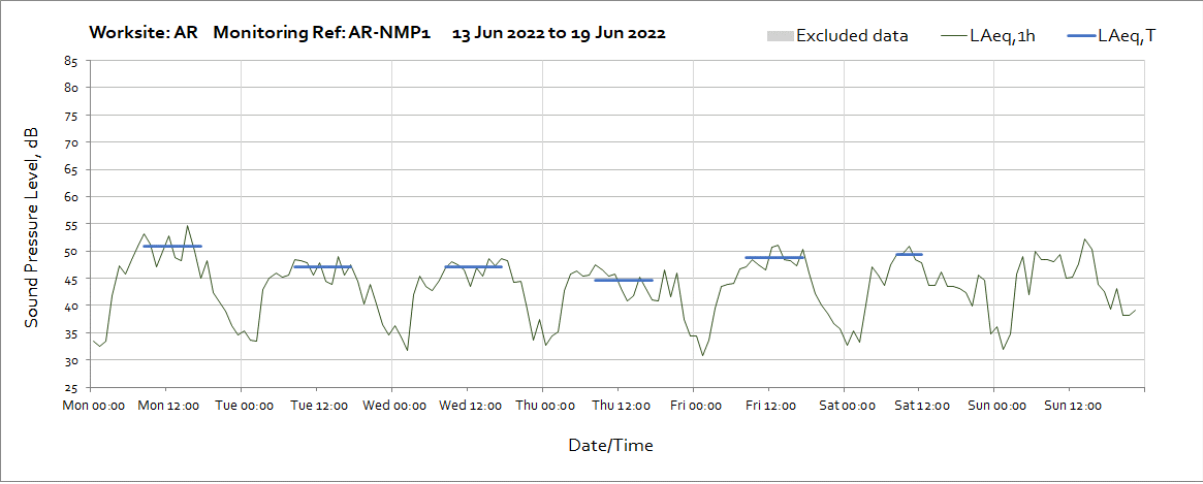
Worksite: AR – Monitoring Ref: AR-NMP1



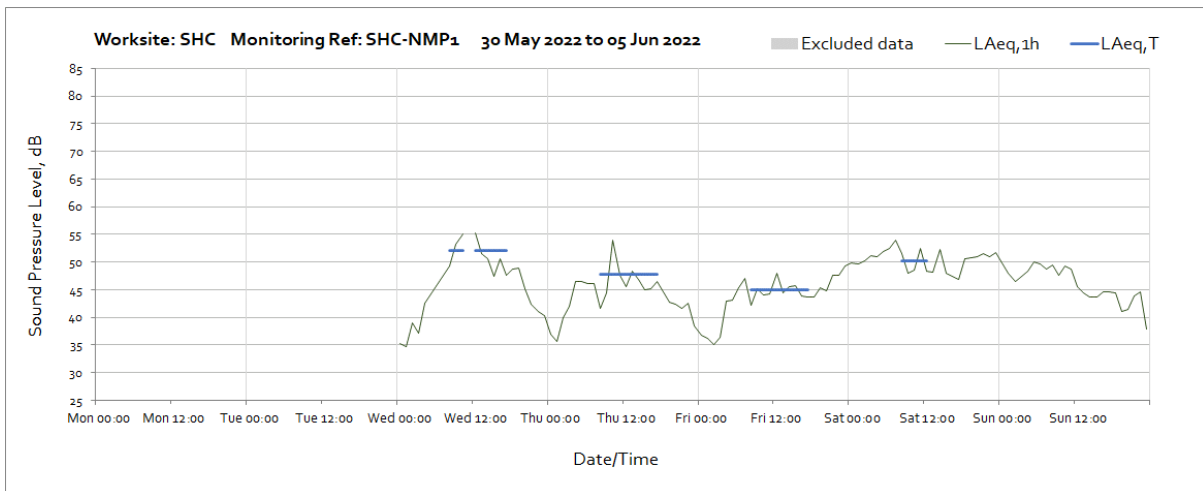
Note: Missing data at 13:00 on Wednesday 1st June was due to a system fault.



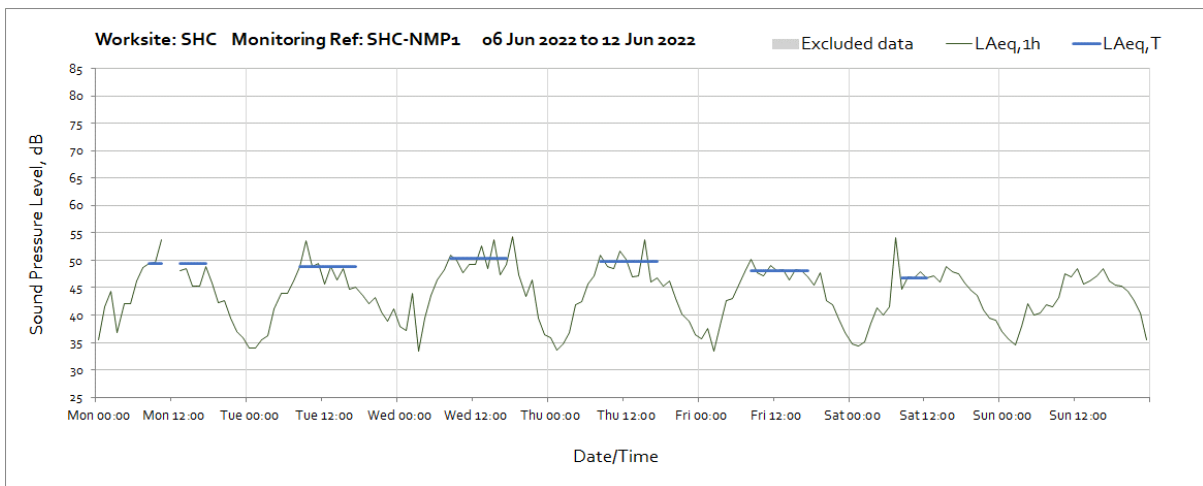
Note: Missing data at 13:00 on Monday 6th June was due to maintenance of the monitoring equipment.



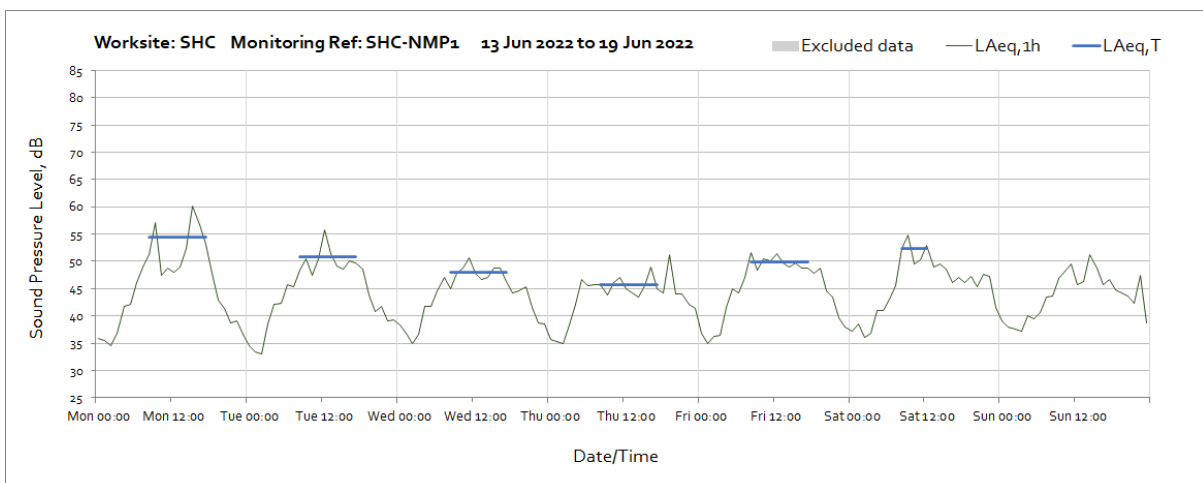
Worksite: SHC – Monitoring Ref: SHC-NMP1

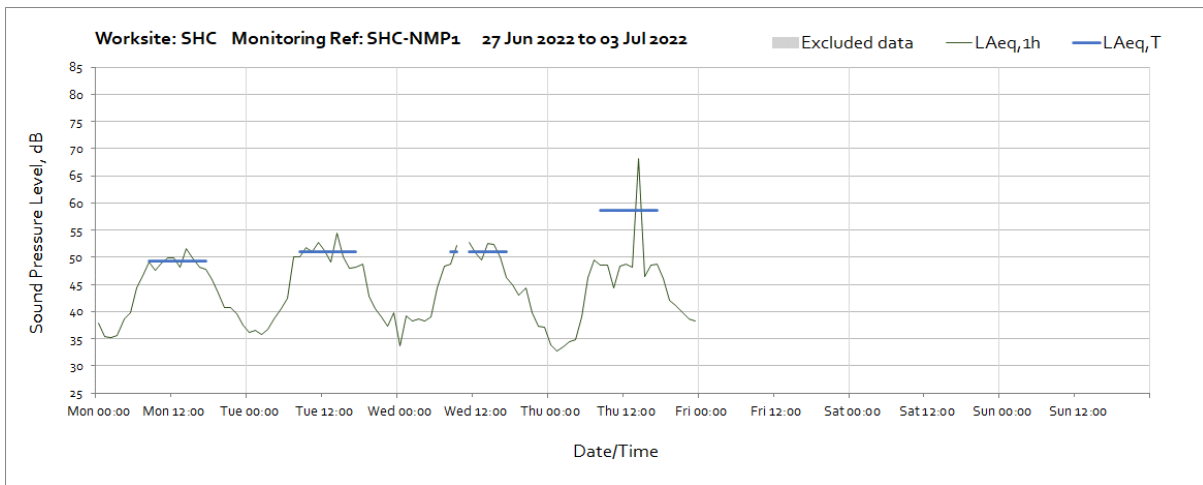
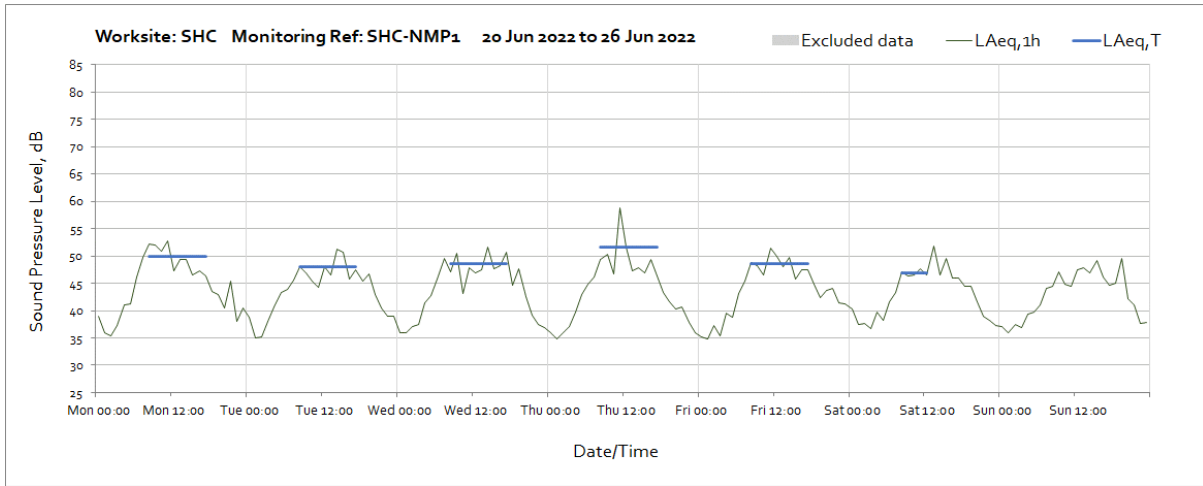


Note: Missing data at 11:00 on Wednesday 1st June was due to maintenance of the monitoring equipment.



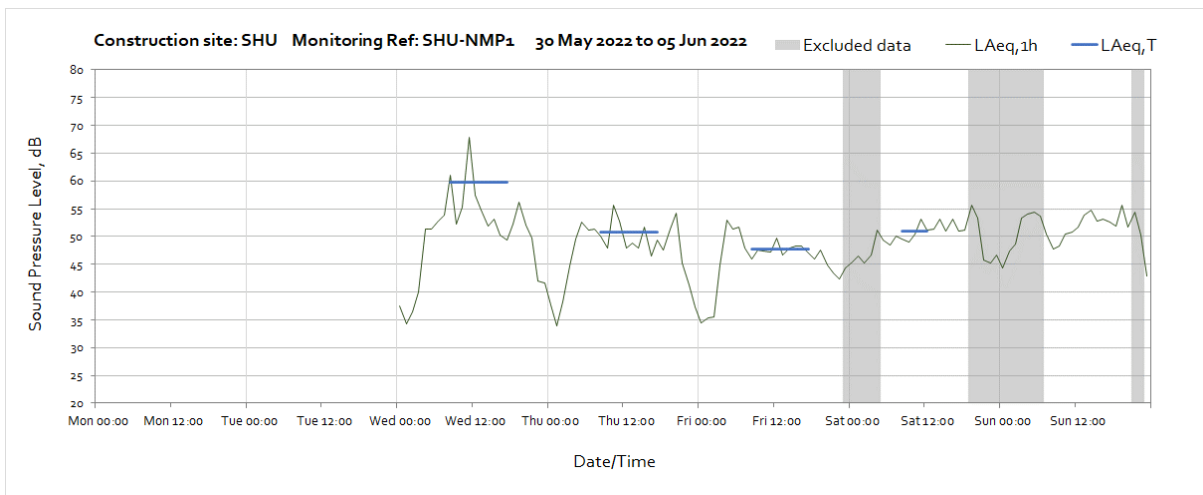
Note: Missing data between 11:00 and 12:00 on Monday 6th June was due to a system fault.

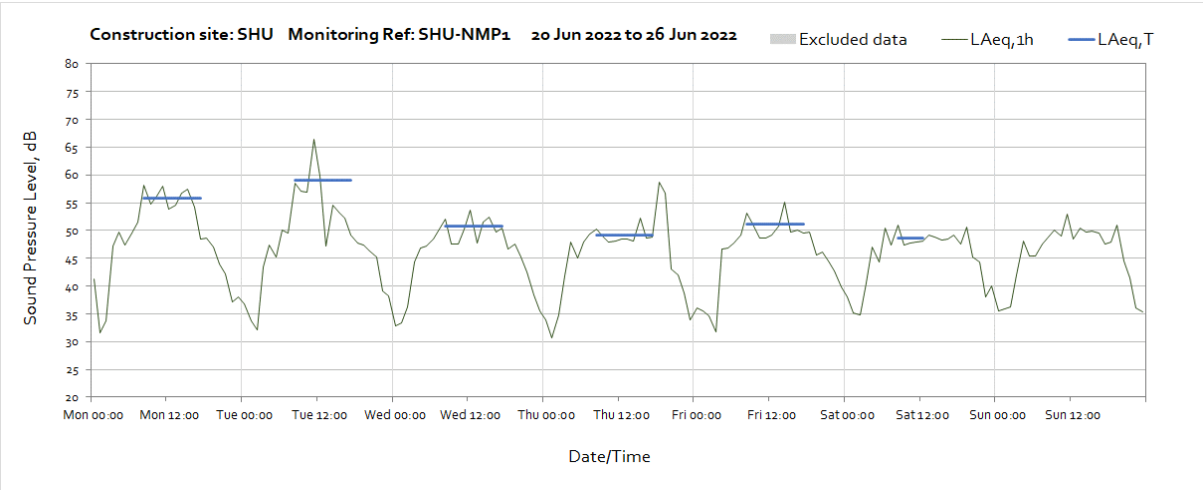
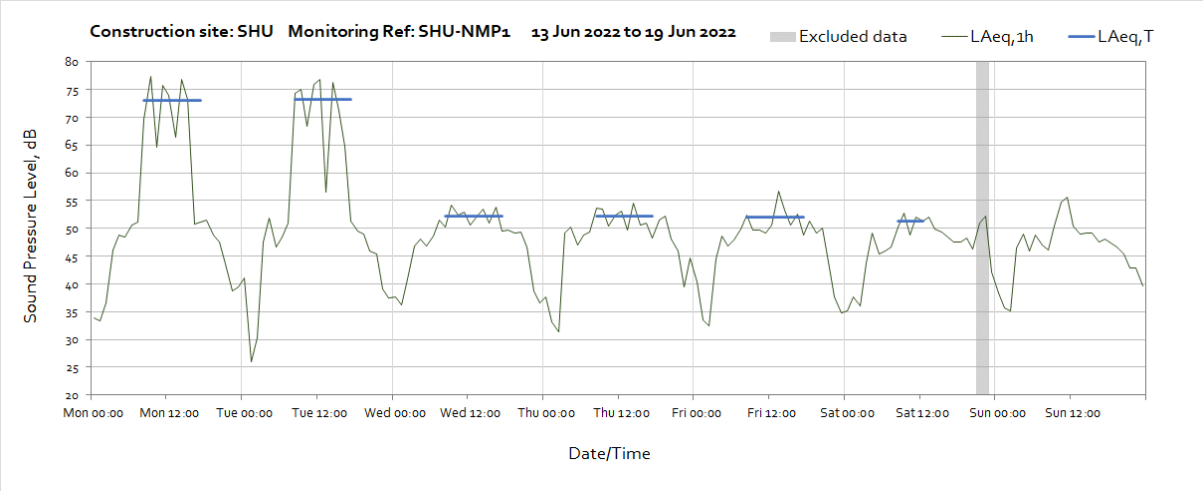
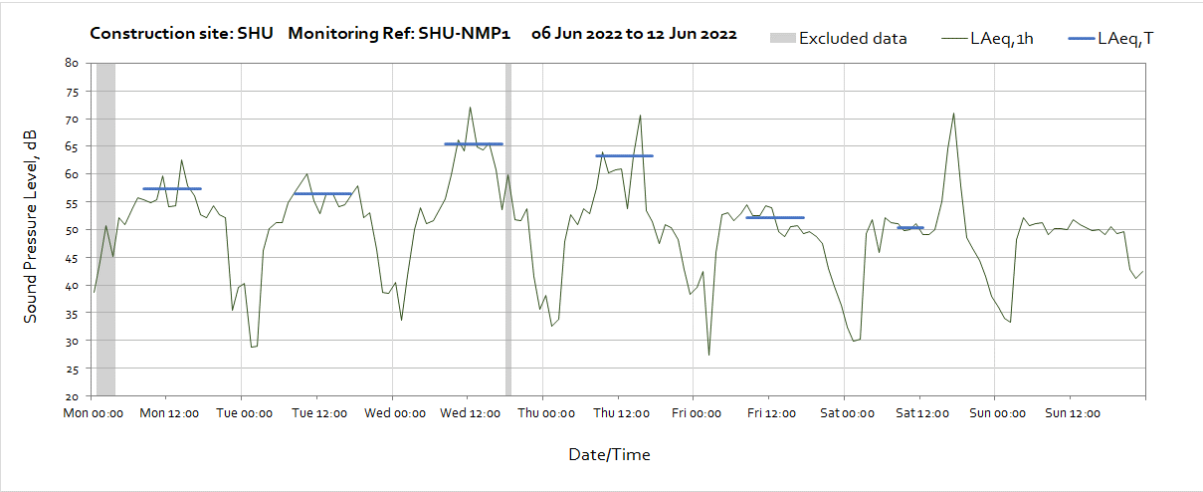


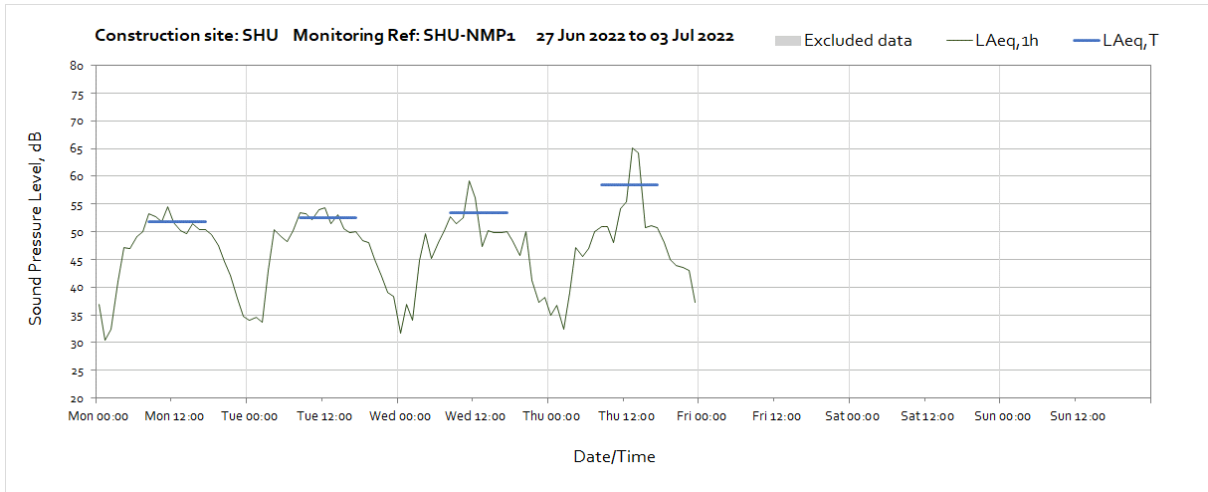


Note: Missing data at 10:00 on Wednesday 29th June was due to maintenance of the monitoring equipment.

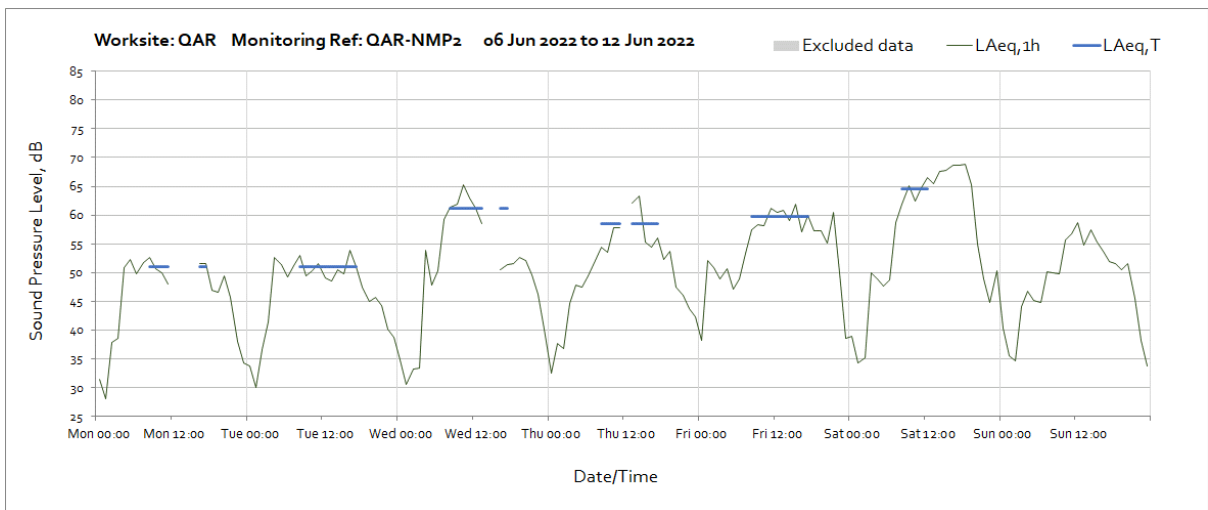
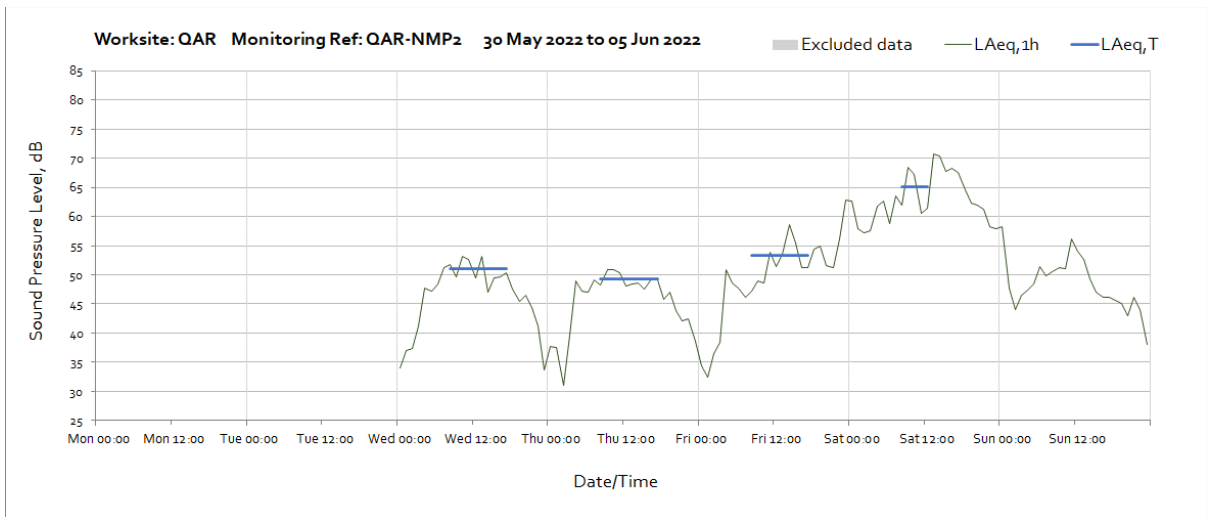
Worksite: SHU – Monitoring Ref: SHU-NMP1



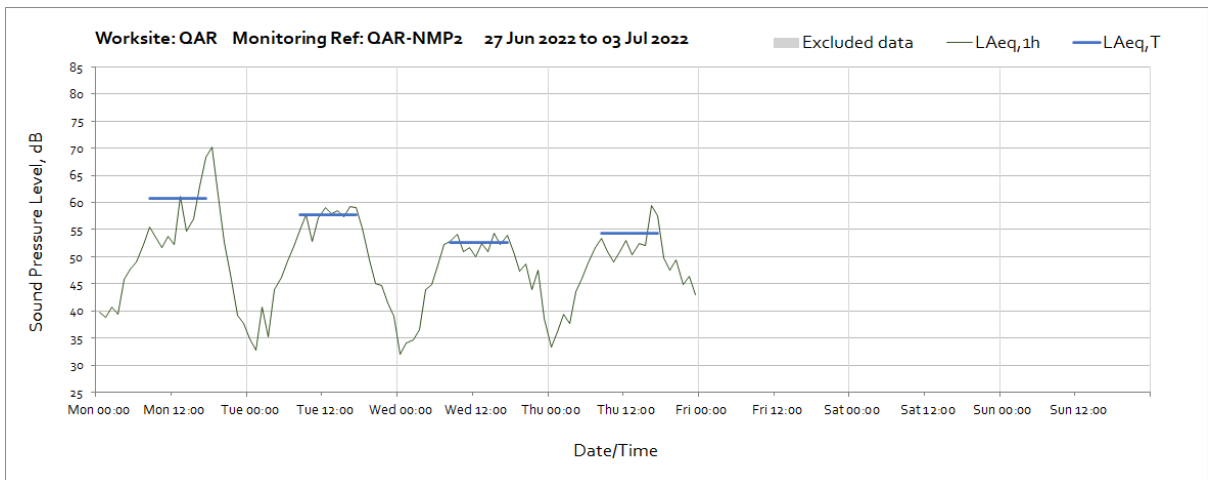
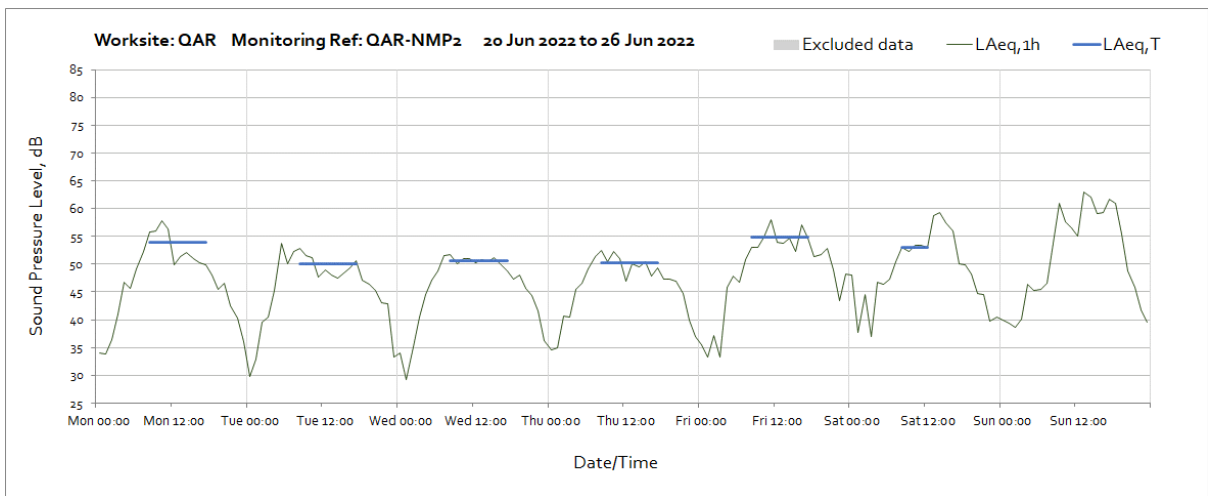
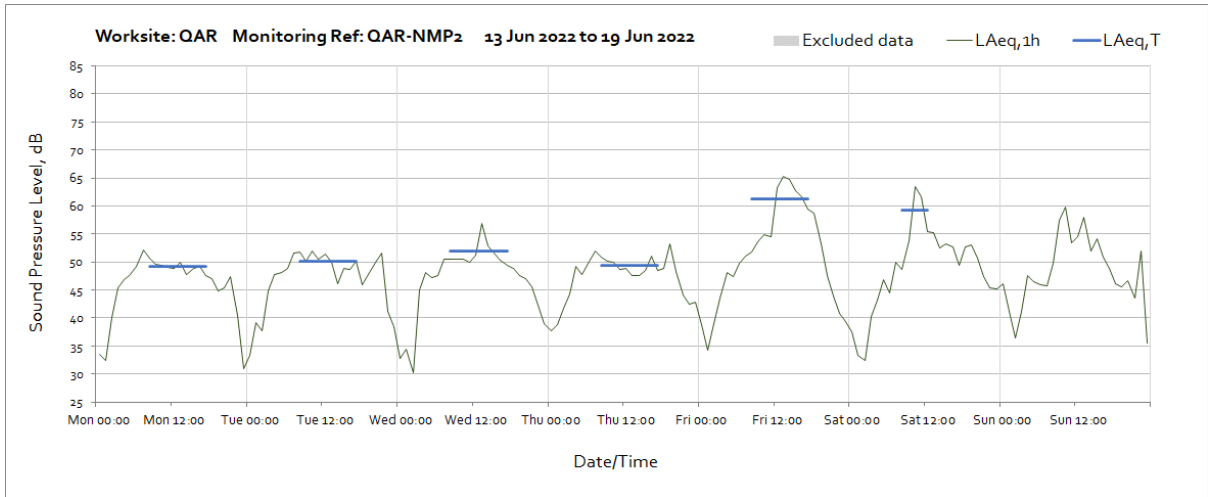




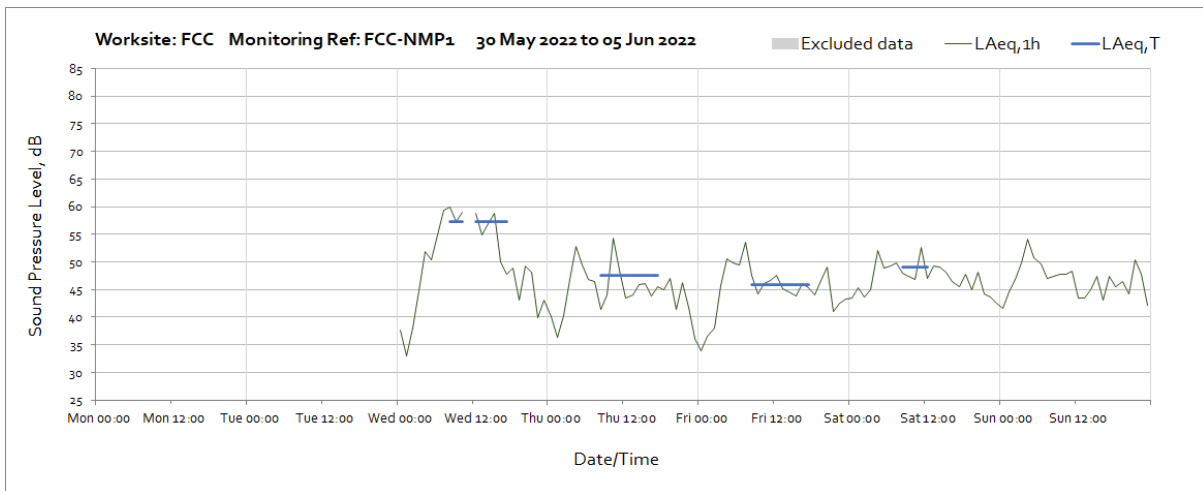
Worksite: QAR – Monitoring Ref: QAR-NMP2



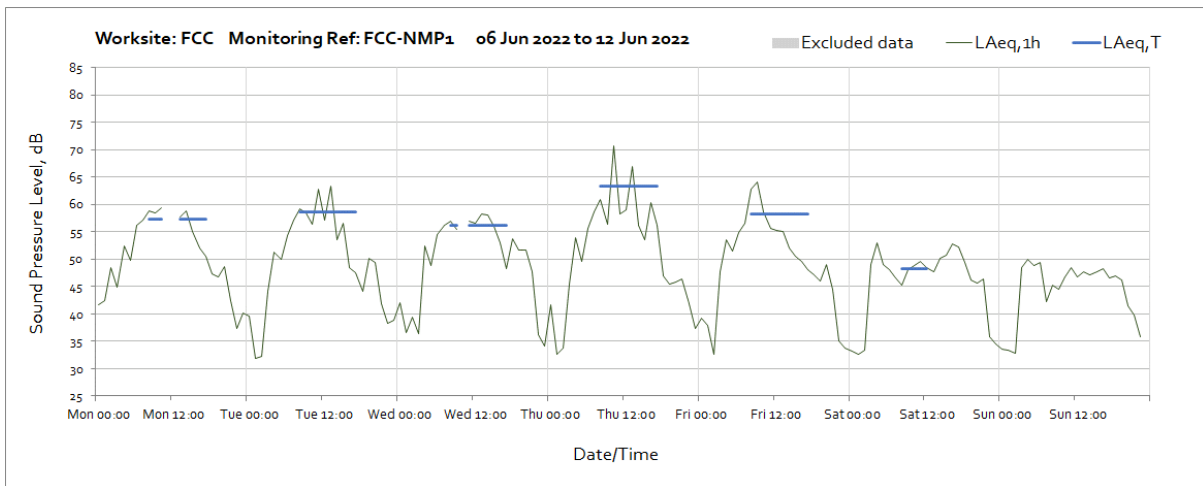
Note: Missing data throughout the week were due to a system fault.



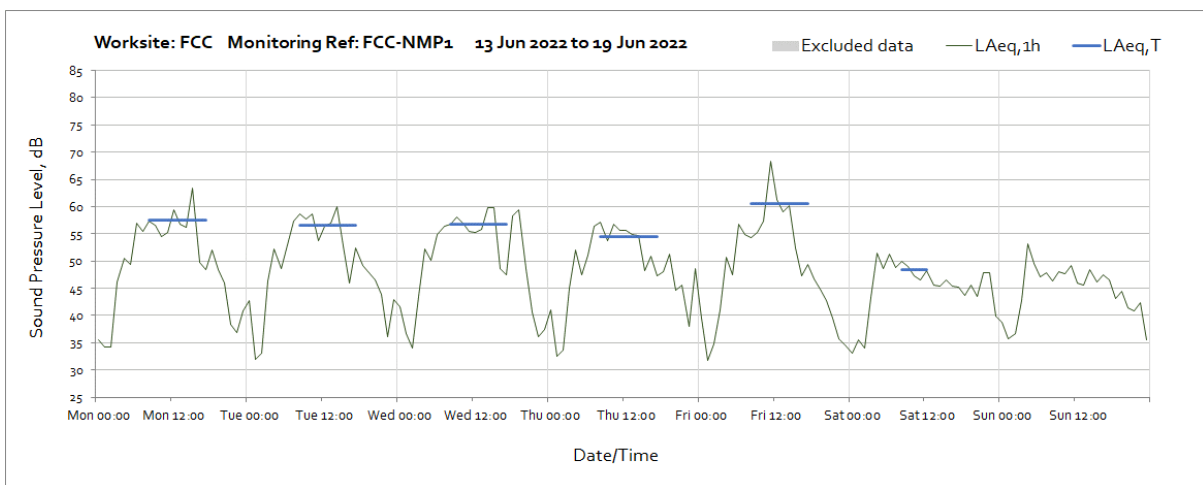
Worksite: FCC – Monitoring Ref: FCC-NMP1

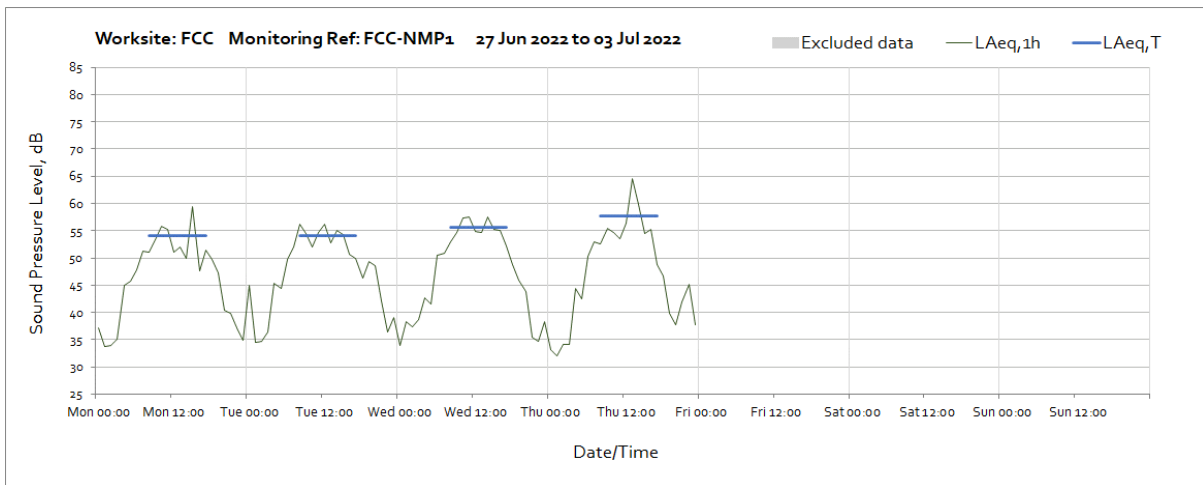
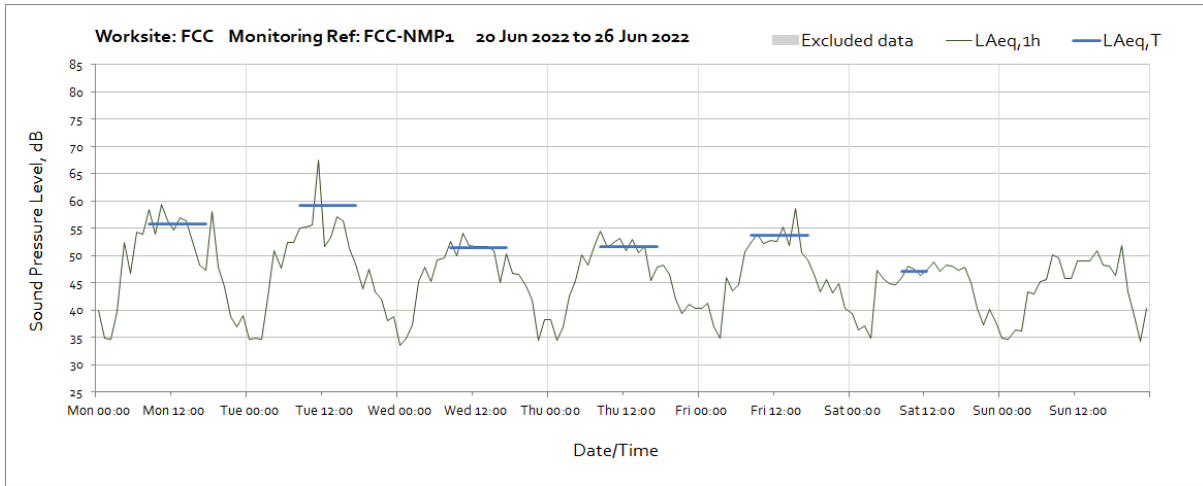


Note: Missing data at 11:00 on Wednesday 1st June was due to maintenance of the monitoring equipment.

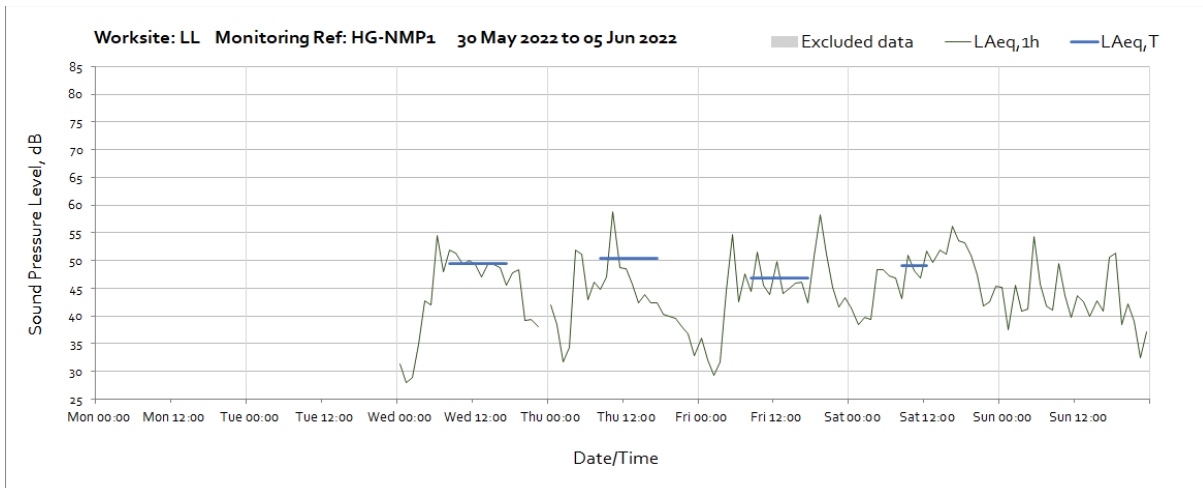


Note: Missing data between 11:00 and 13:00 on Monday 6th June and at 08:00 on Wednesday 8th June was due to maintenance of the monitoring equipment. Missing data at 23:00 on Sunday 12th June was due to a system fault.

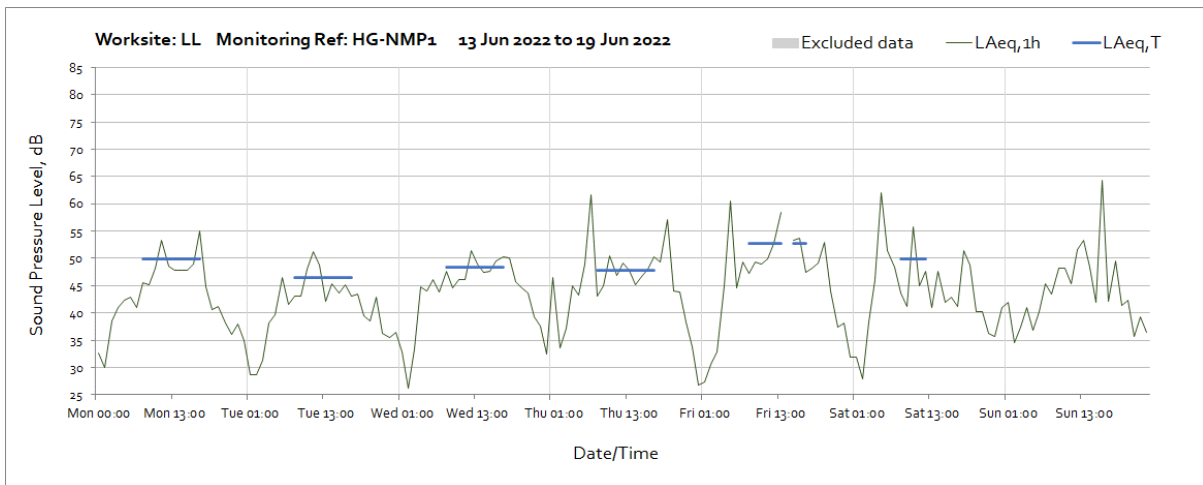
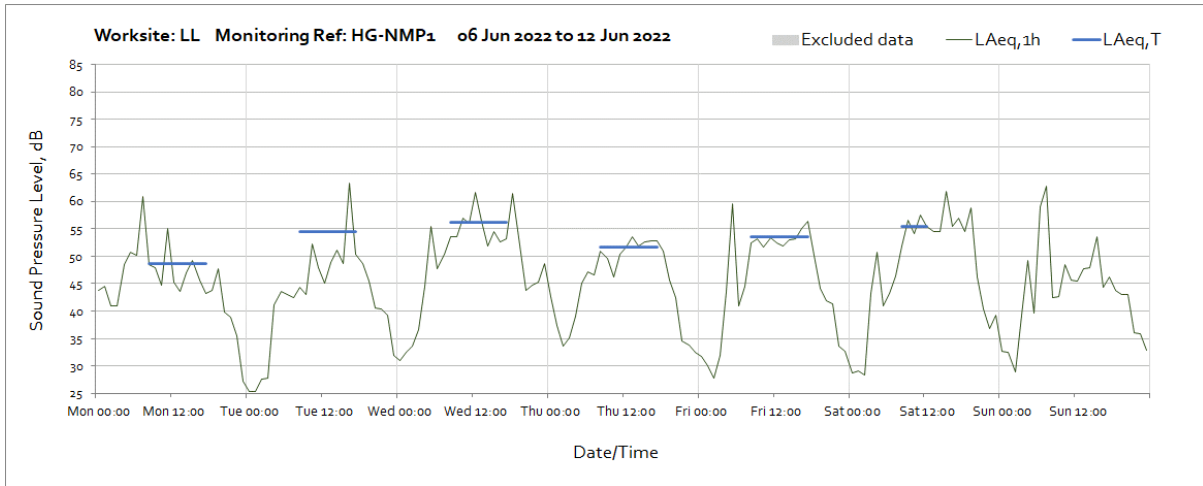




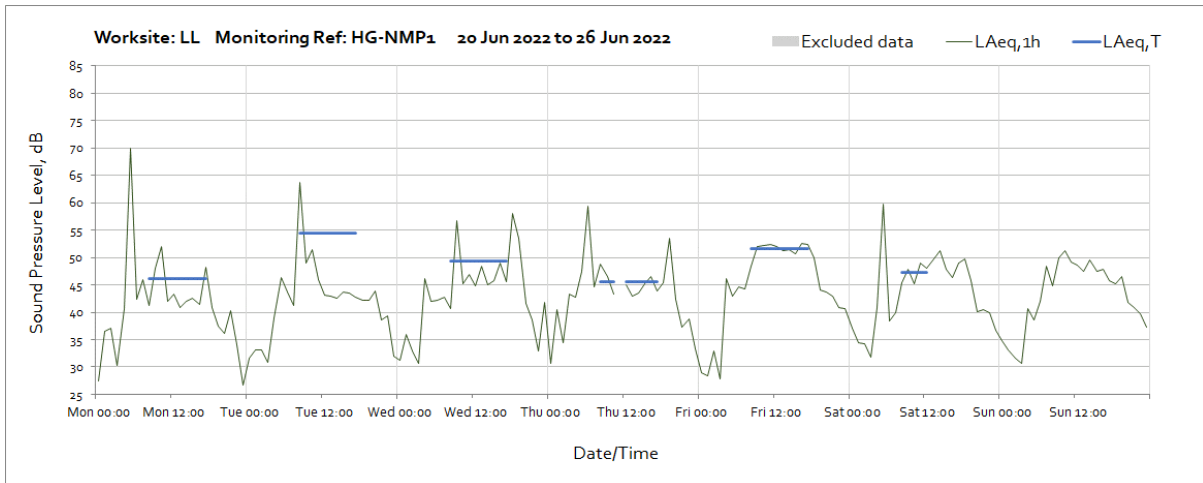
Worksite: LL - Monitoring Ref: HG-NMP1



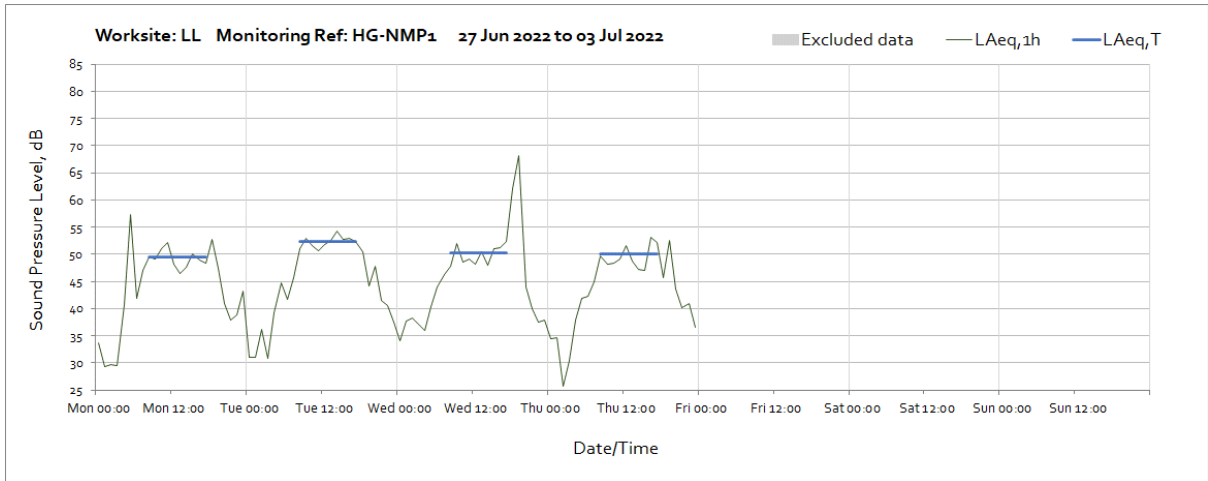
Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.



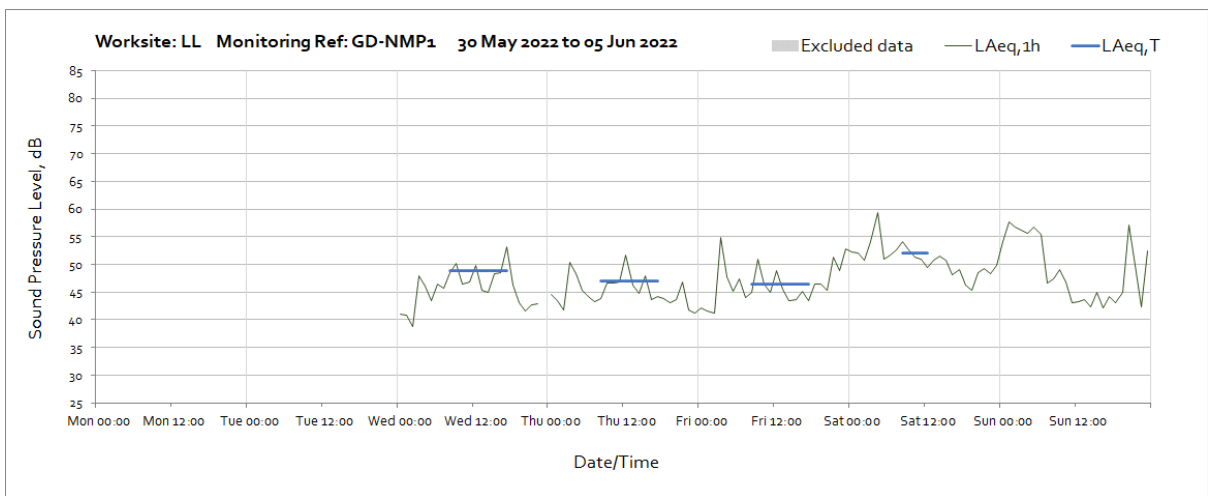
Note: Missing data at 14:00 on Friday 17th June was due to maintenance of the monitoring equipment.



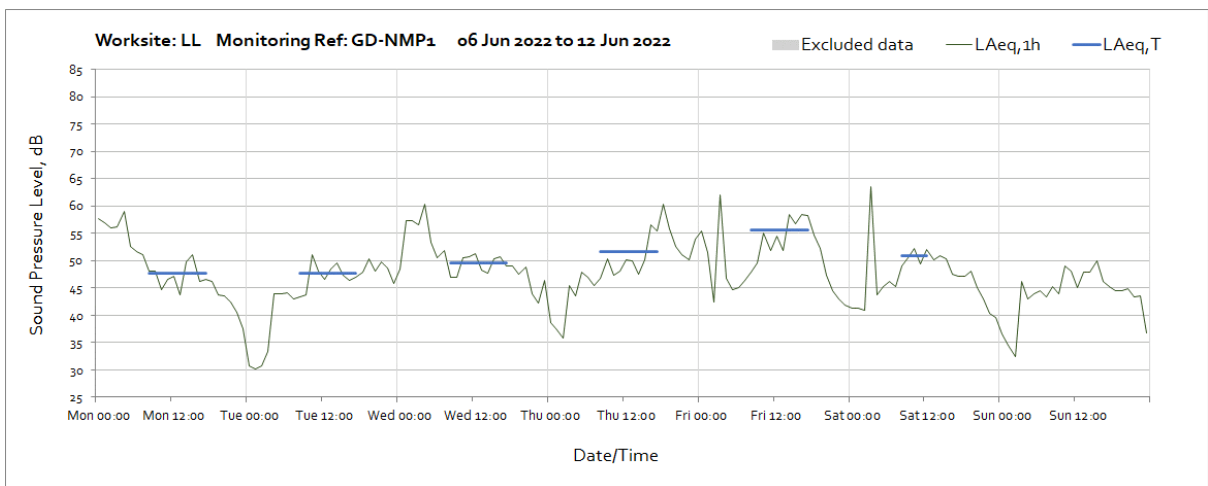
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.

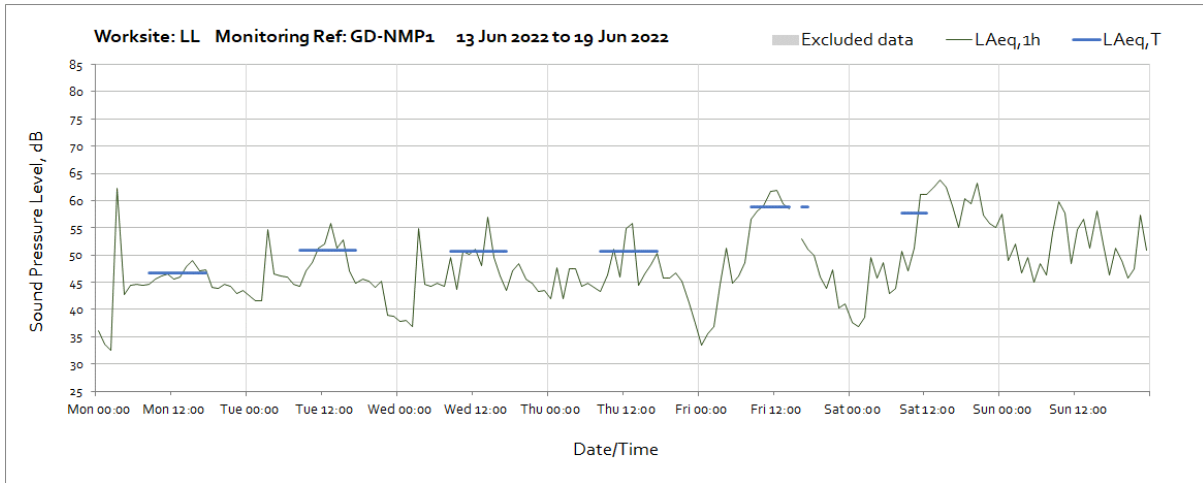


Worksite: LL - Monitoring Ref: GD-NMP1

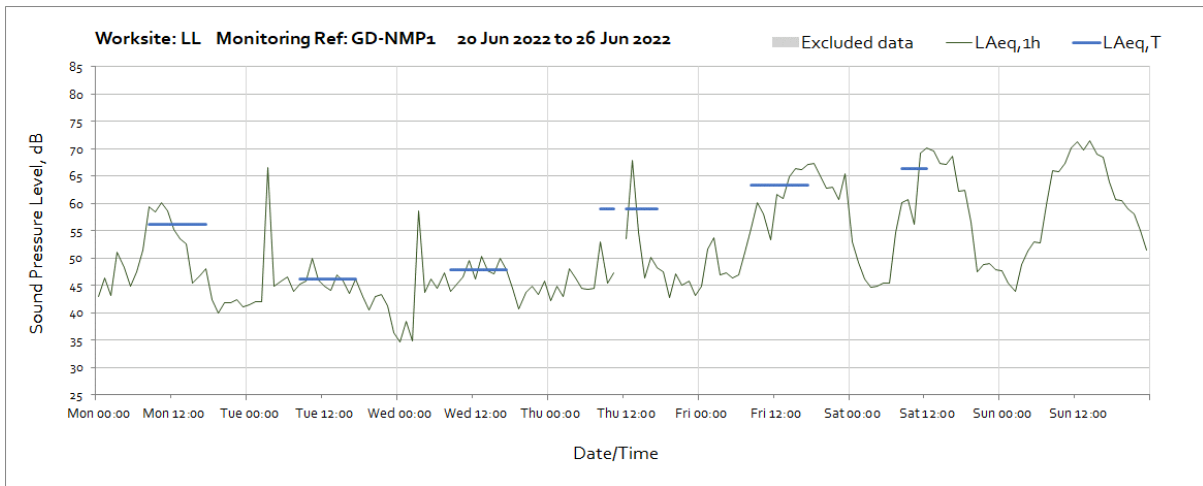


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.

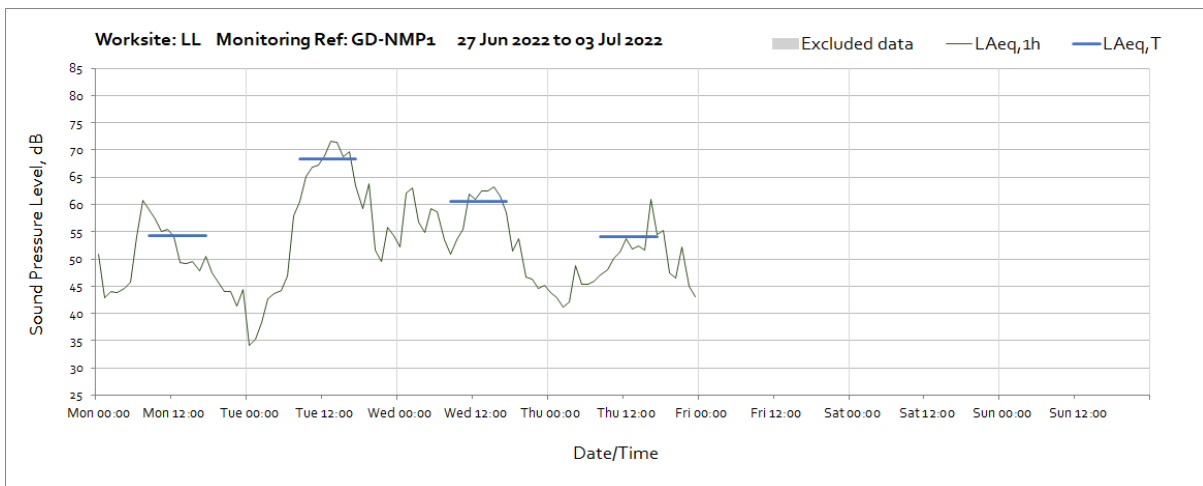




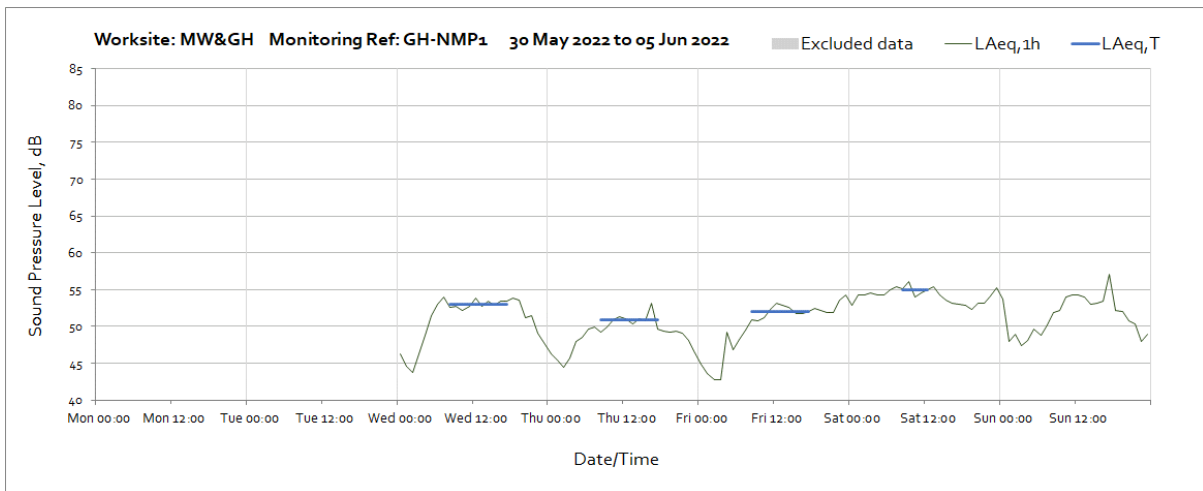
Note: Missing data at 15:00 on Friday 17th June was due to maintenance of the monitoring equipment.



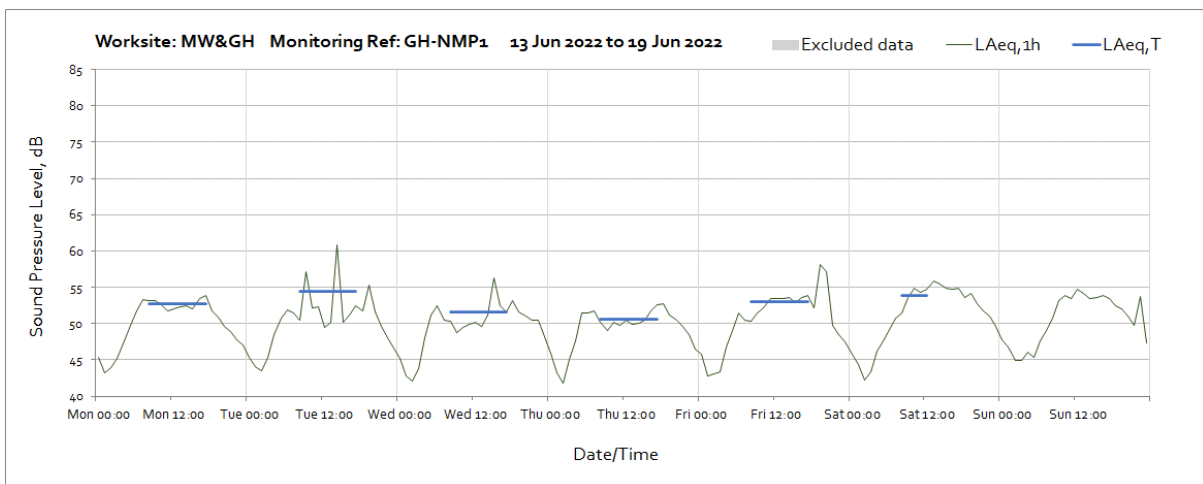
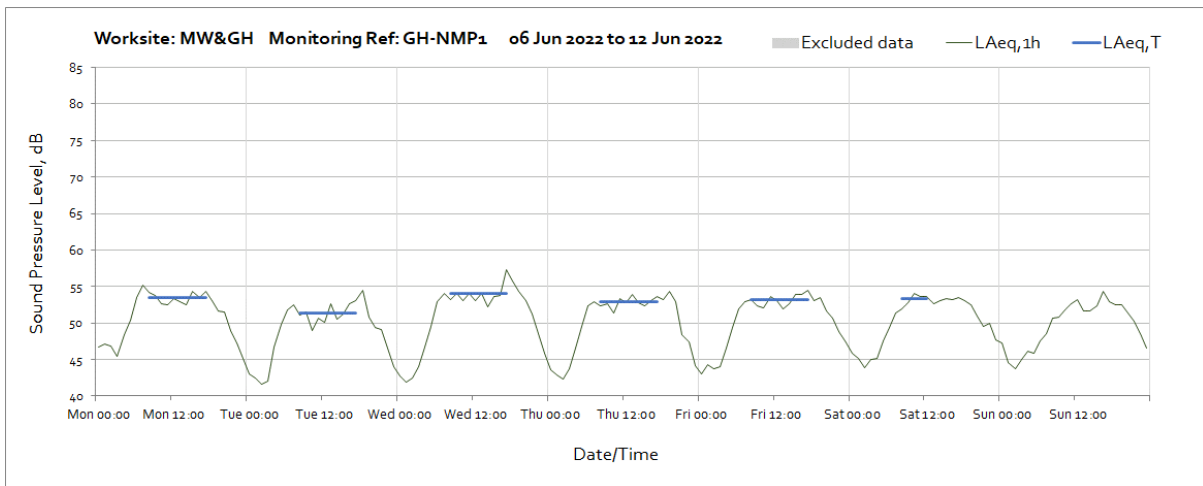
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.

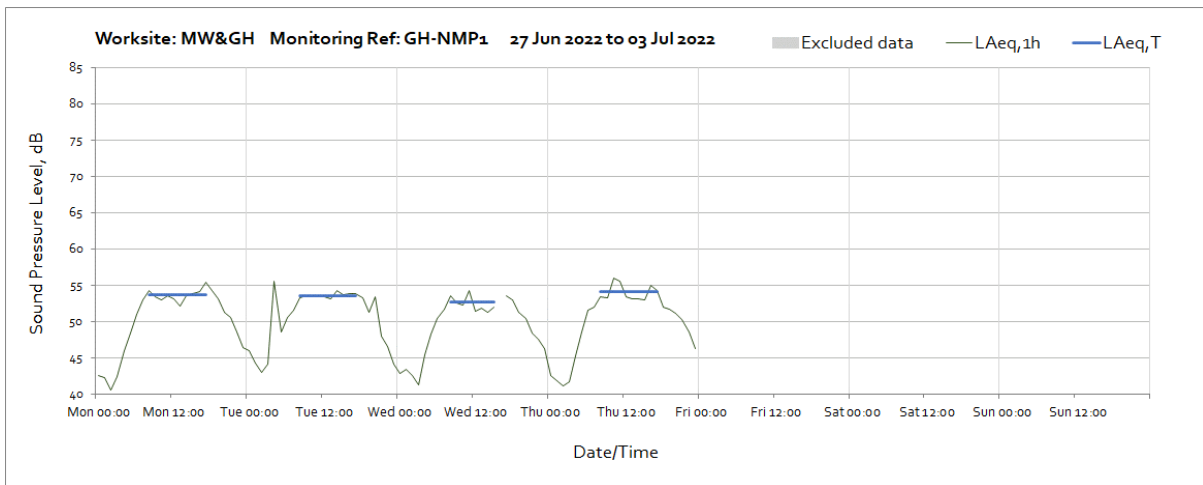
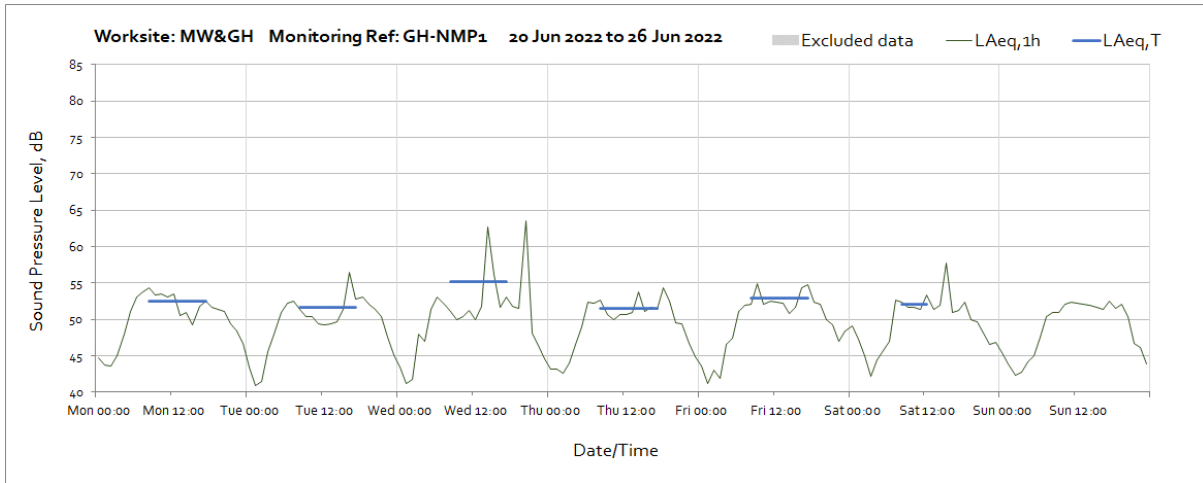


Worksite: MW&GH – Monitoring Ref: GH-NMP1



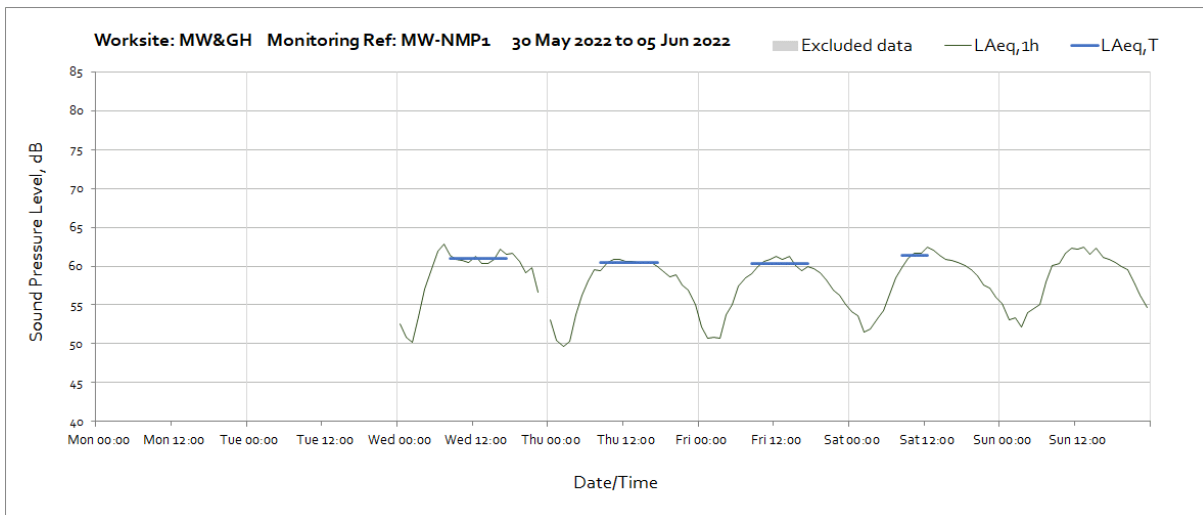
Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.



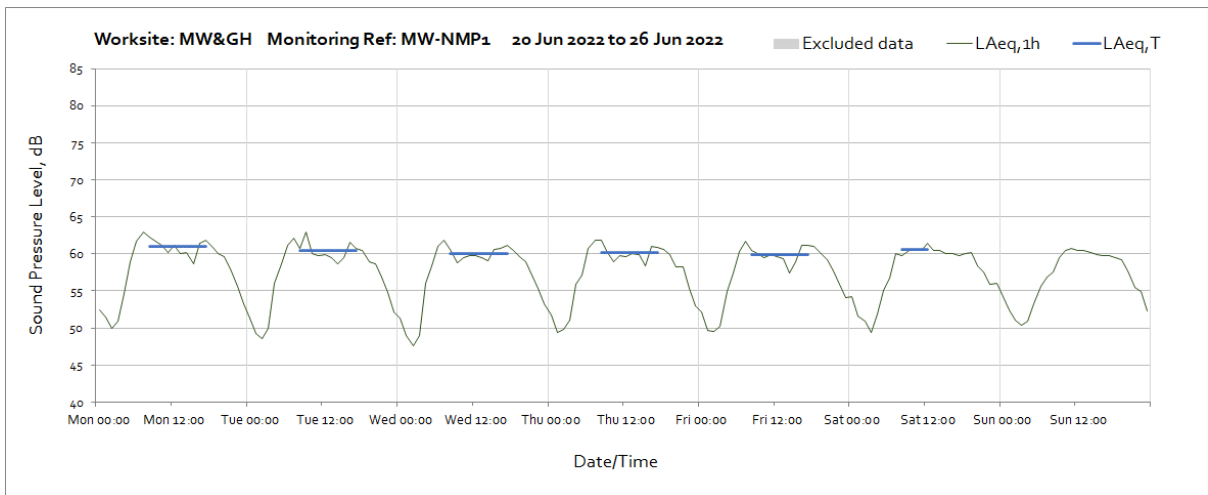
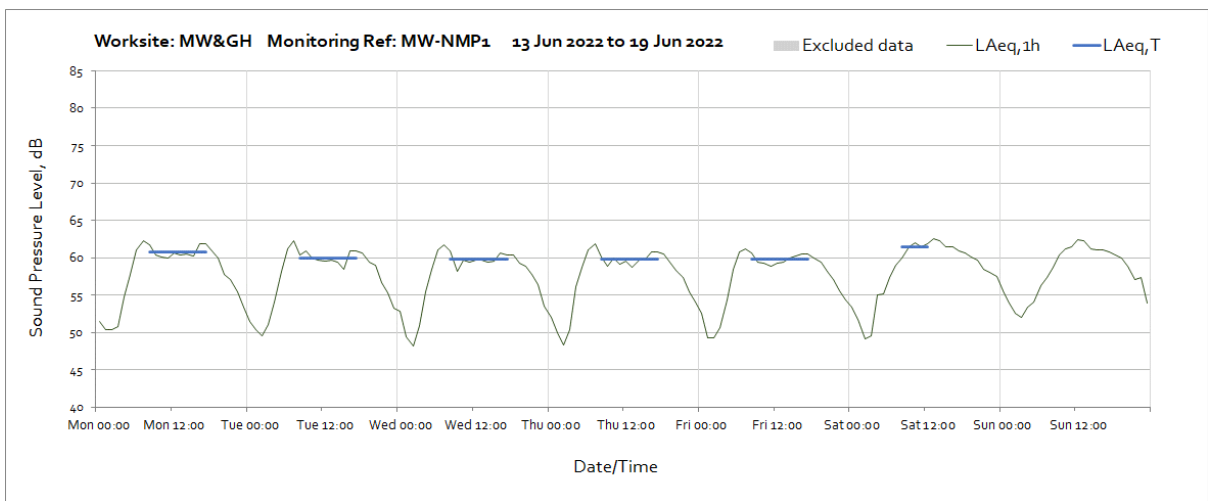
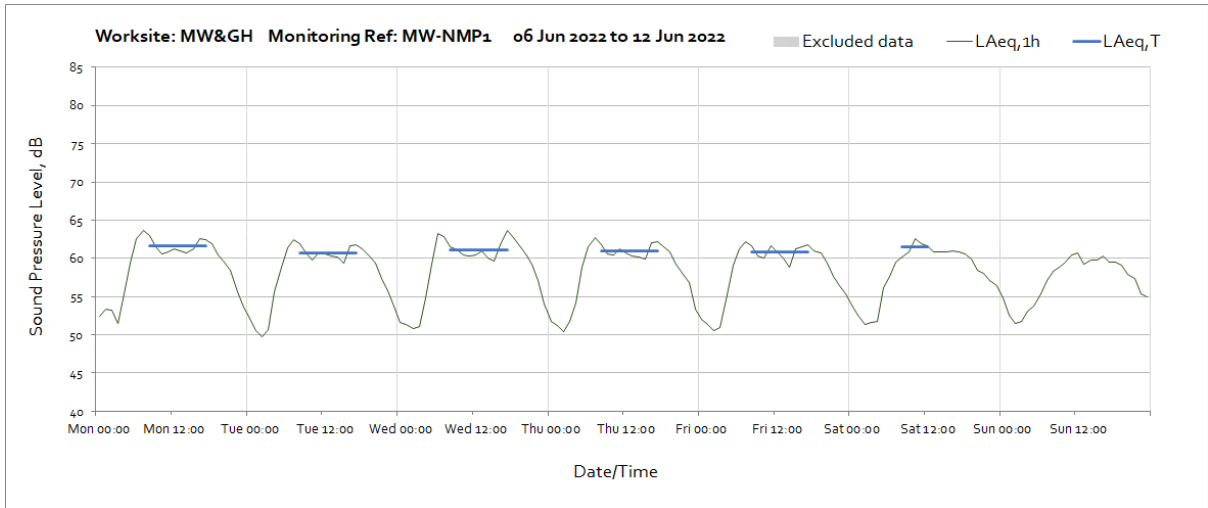


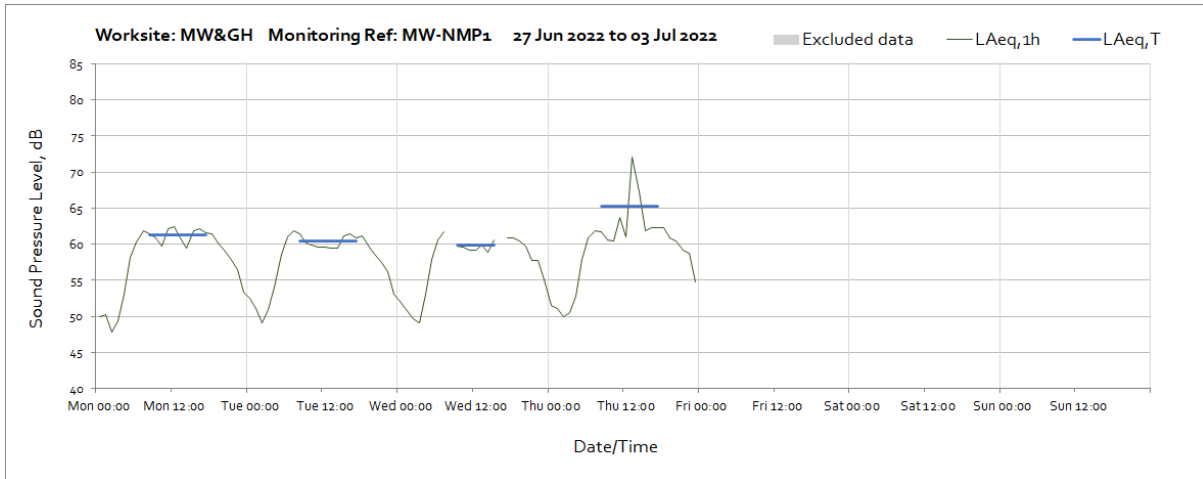
Note: Missing data at 16:00 on Wednesday 29th June was due to maintenance of the monitoring equipment.

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



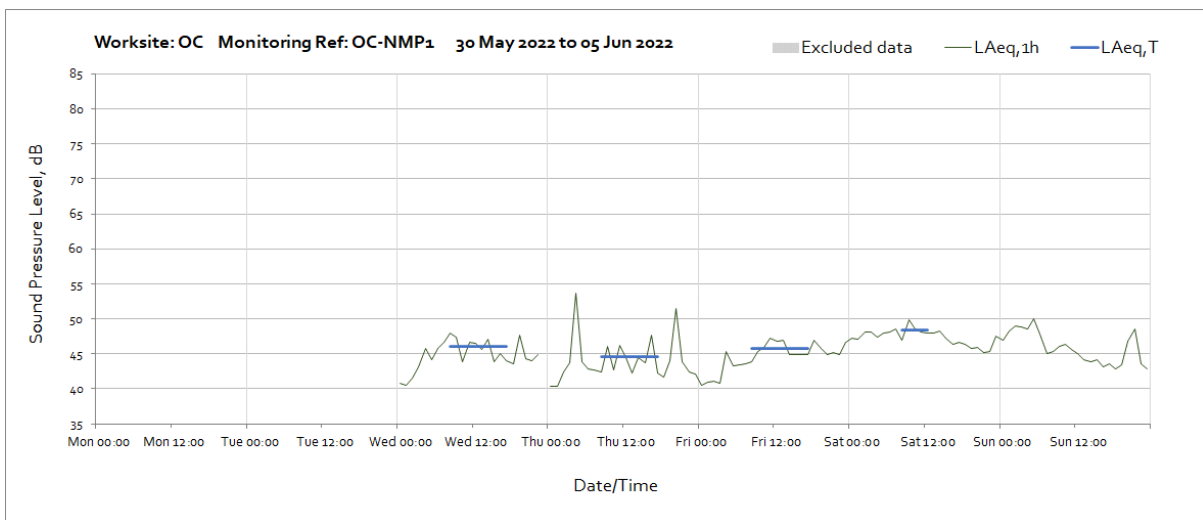
Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.



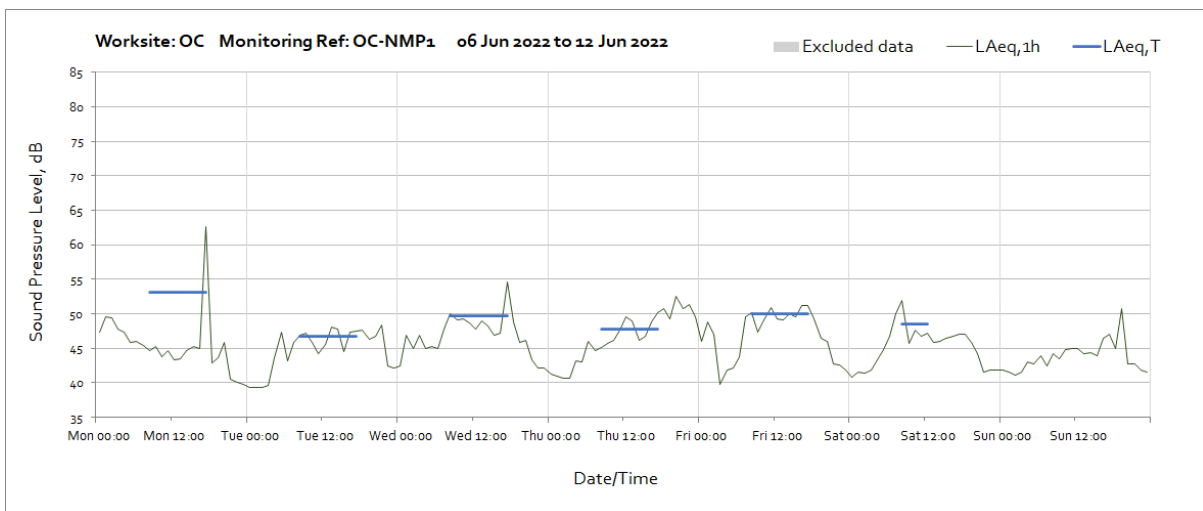


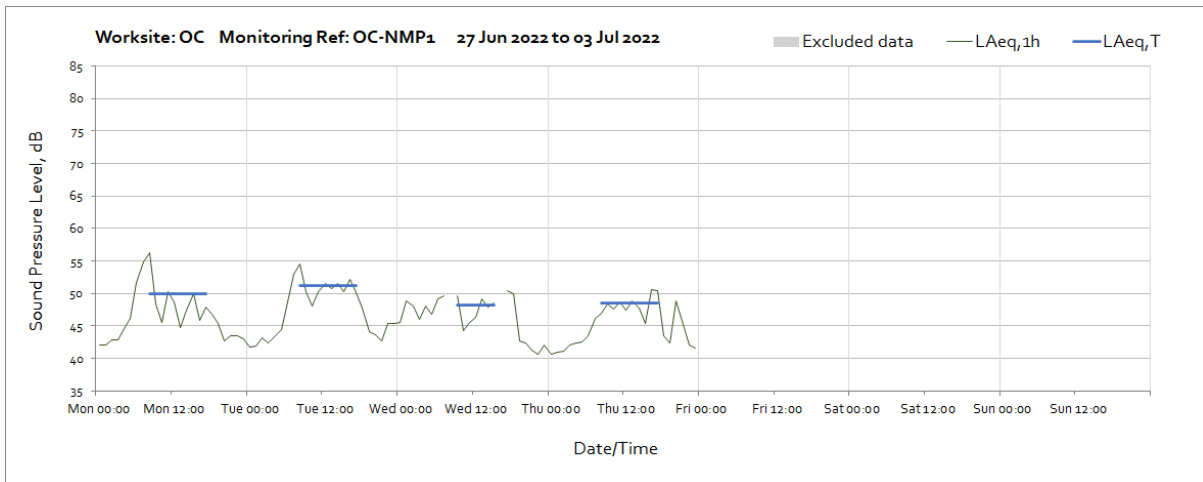
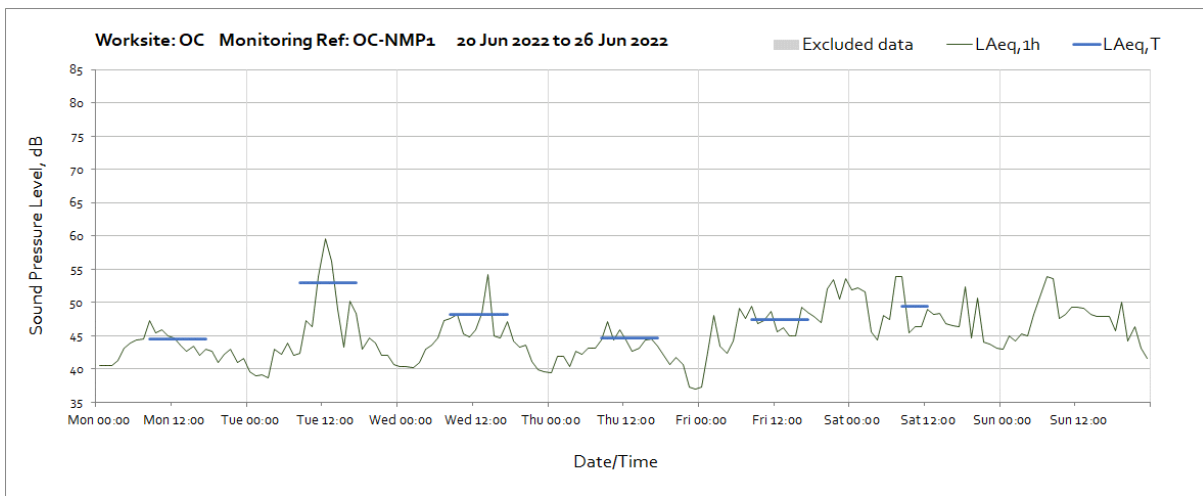
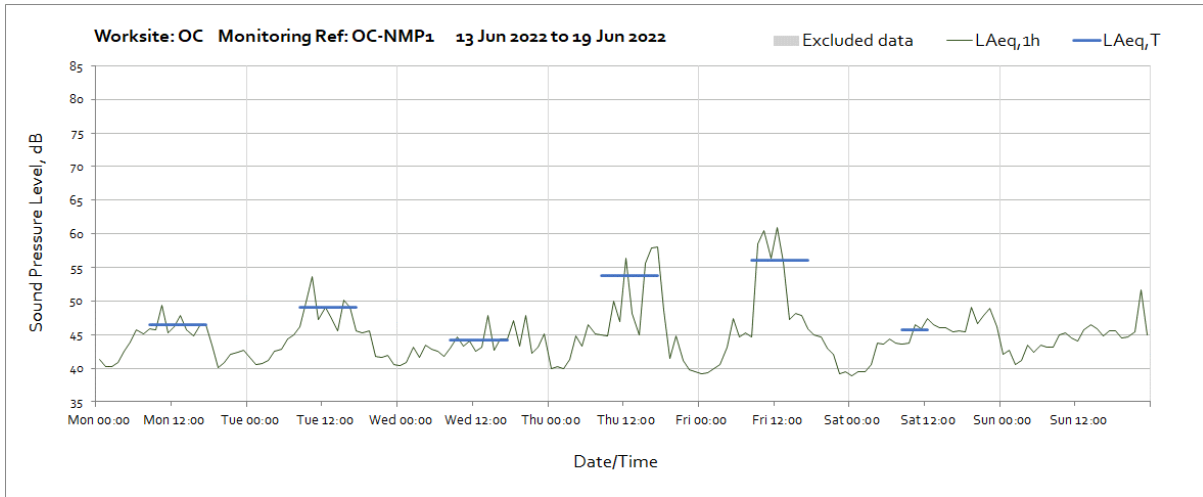
Note: Missing data at 08:00 and at 16:00 on Wednesday 29th June was due to maintenance of the monitoring equipment.

Worksite: OC - Monitoring Ref: OC-NMP1



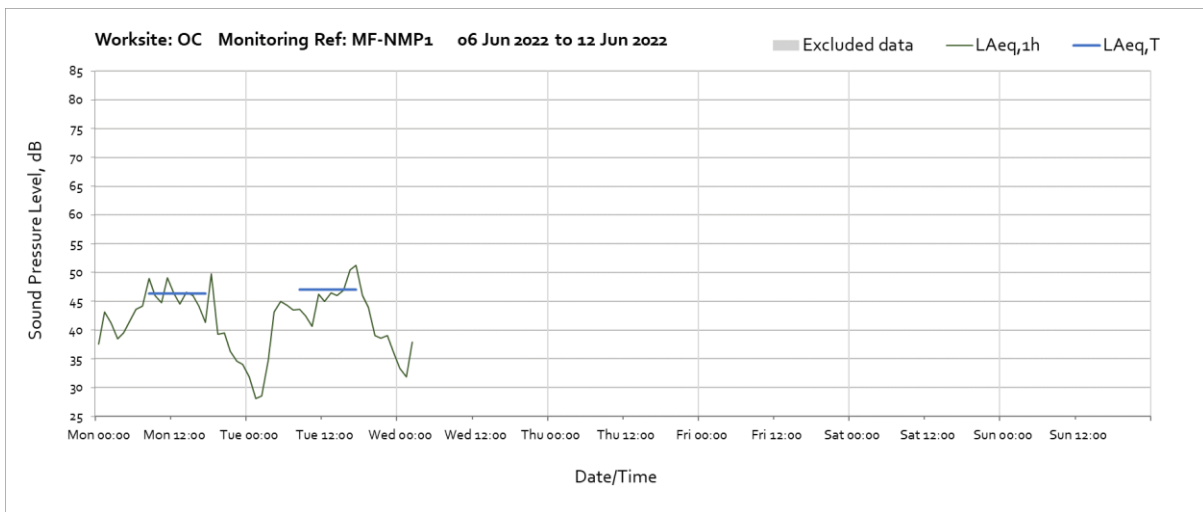
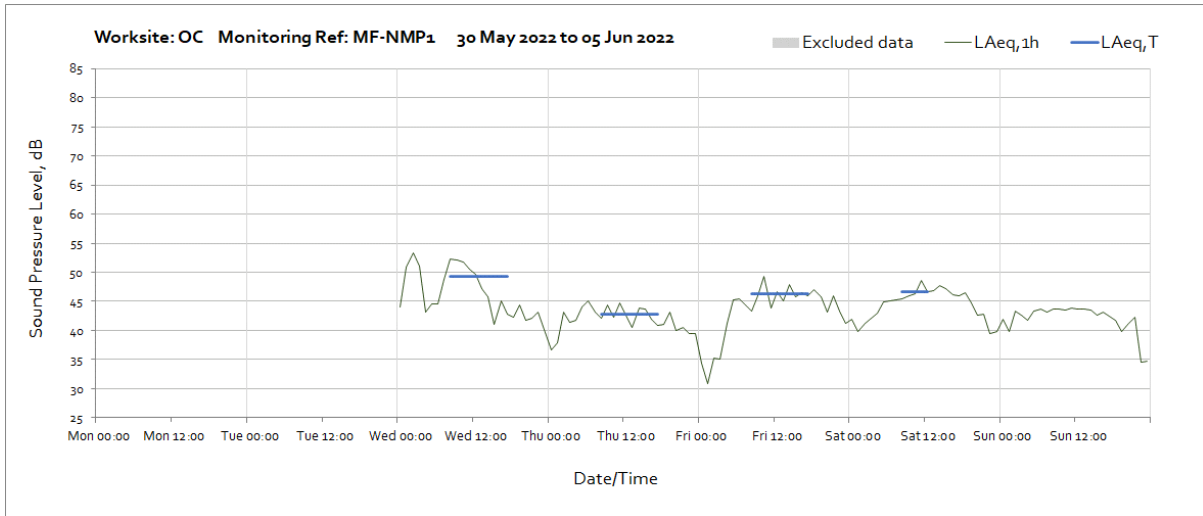
Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.





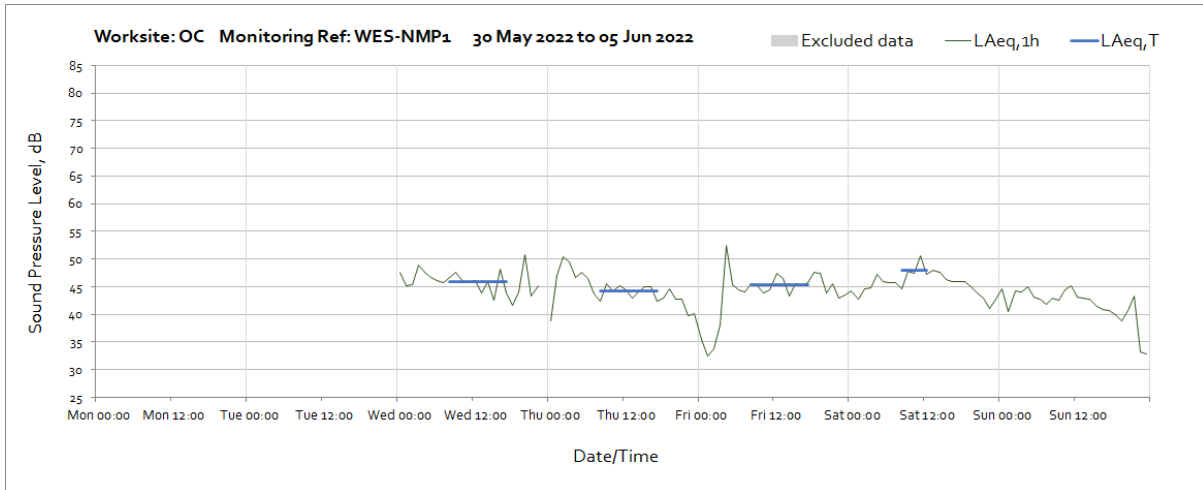
Note: Missing data at 08:00 and at 16:00 on Wednesday 29th June was due to maintenance of the monitoring equipment.

Worksite: OC – Monitoring Ref: MF-NMP1

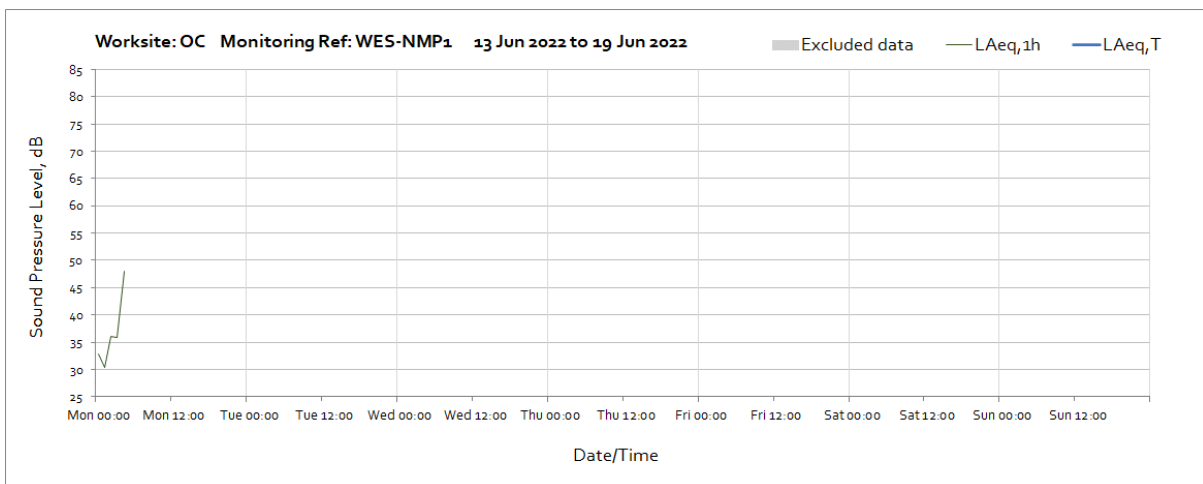
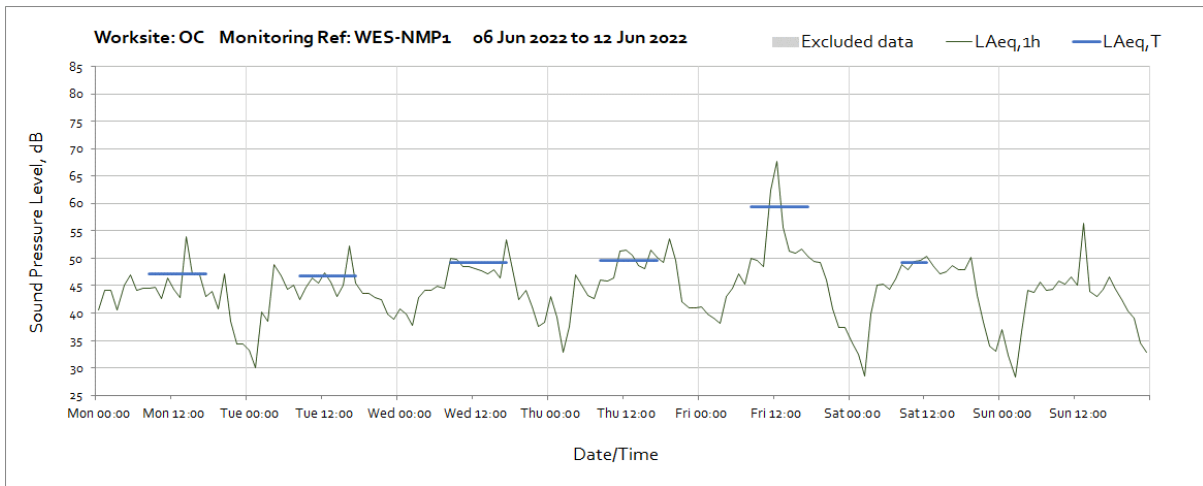


Note: Missing data from 04:00 on Wednesday 8th June were due to microphone failure. The monitor has been temporarily retrieved on Wednesday 22nd June sue to fix the microphone issue.

Worksite: OC – Monitoring Ref: WES-NMP1

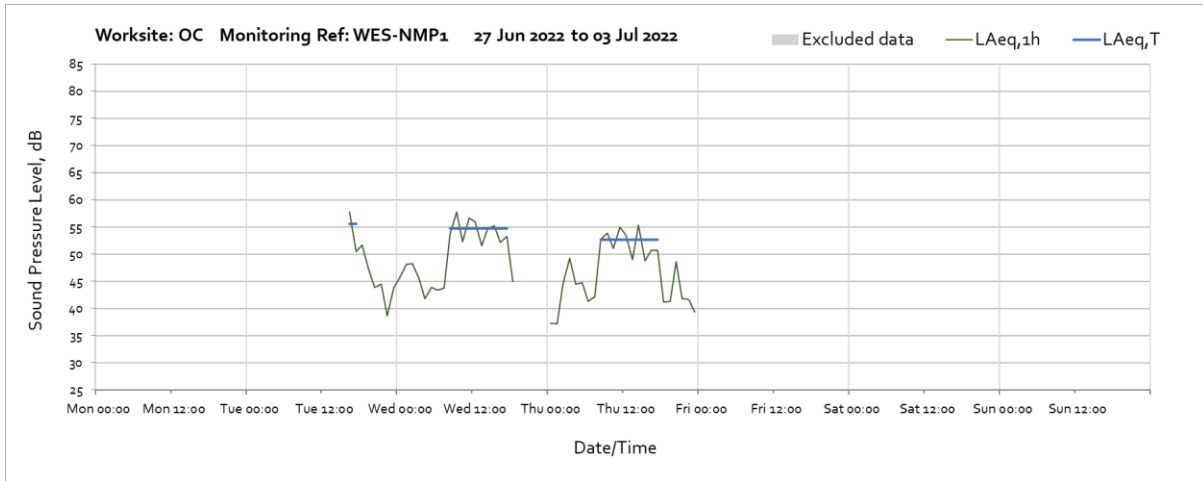


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.



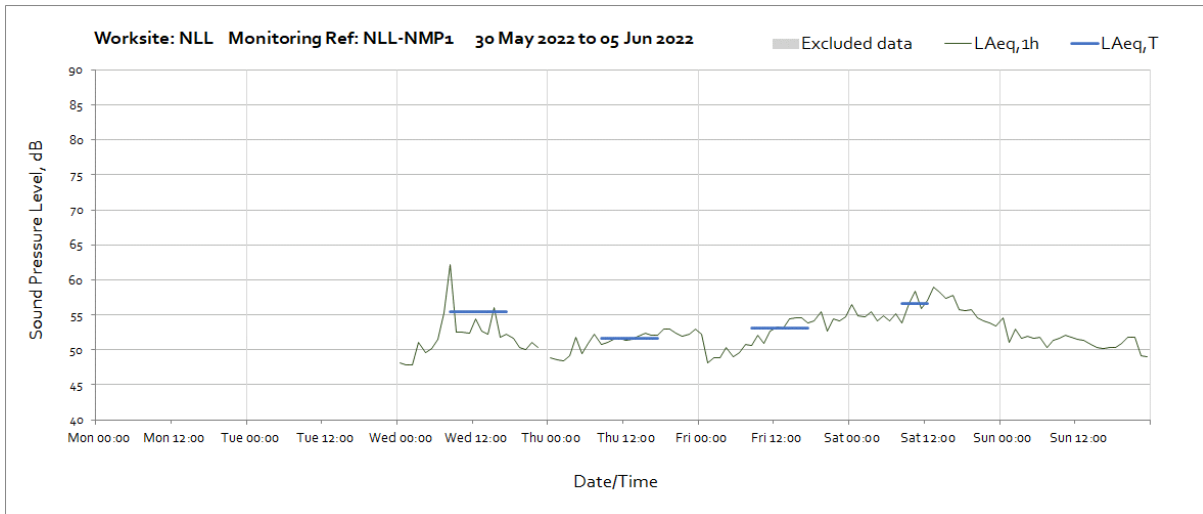
Note: Missing data from 05:00 on Monday 13th June to 16:00 on Tuesday 28th June was due to loss of power at the monitoring station.

OFFICIAL

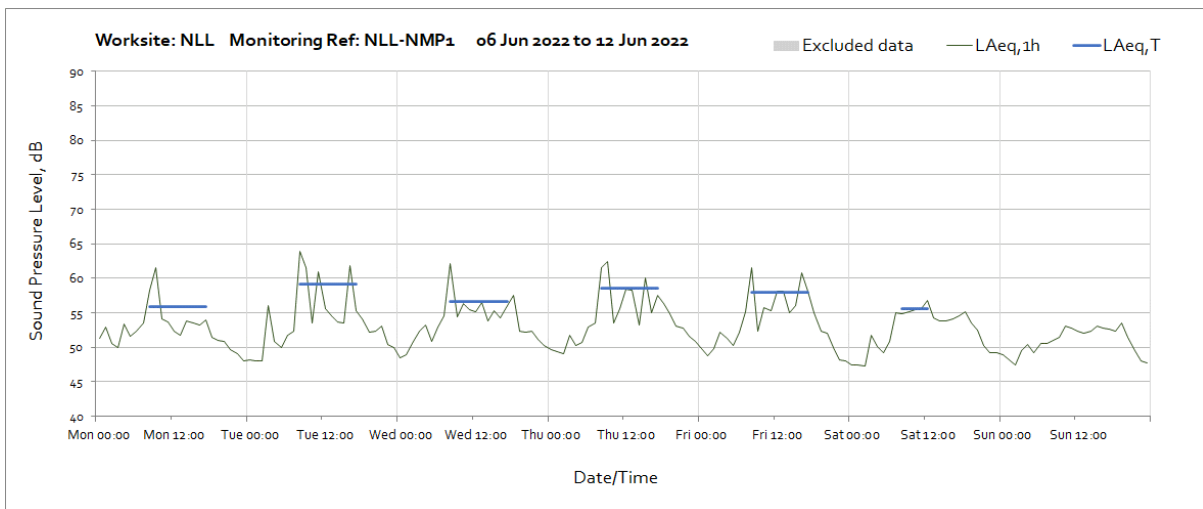


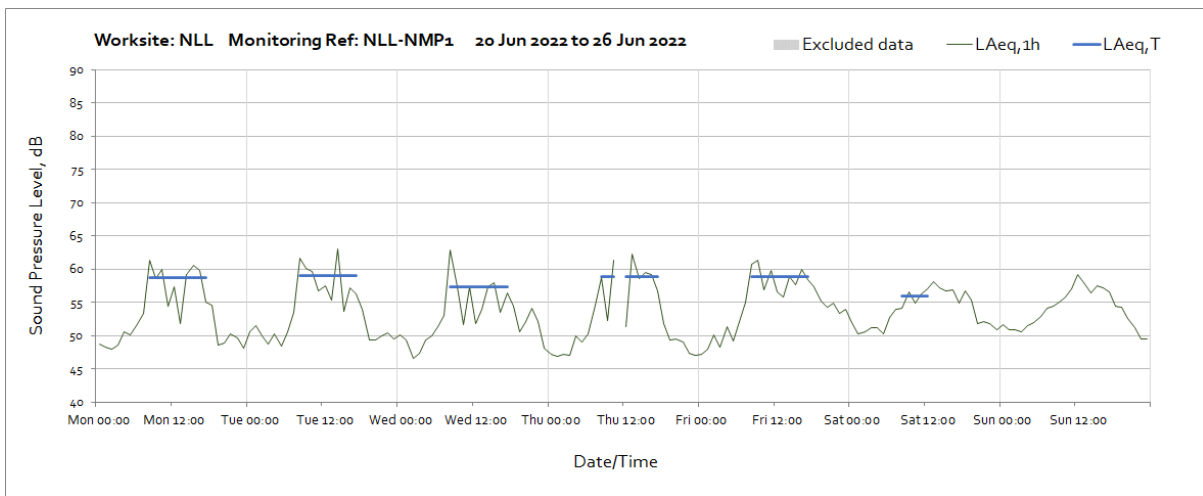
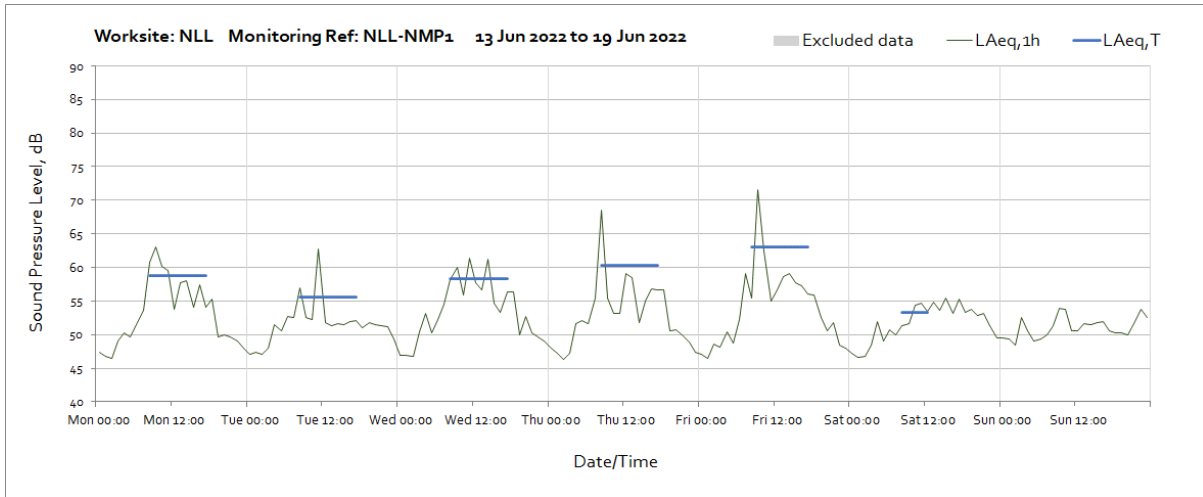
Note: Missing data from 05:00 on Monday 13th June to 16:00 on Tuesday 28th June was due to loss of power at the monitoring station. Missing data from 19:00 to 23:00 on Wednesday 29th June was due to a system fault.

Worksite: NLL - Monitoring Ref: NLL-NMP1

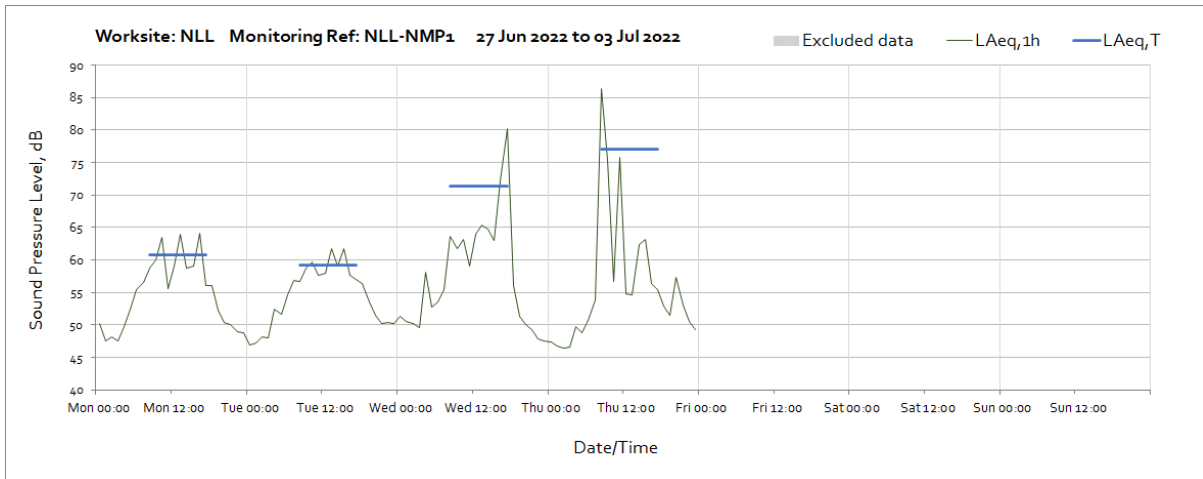


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.

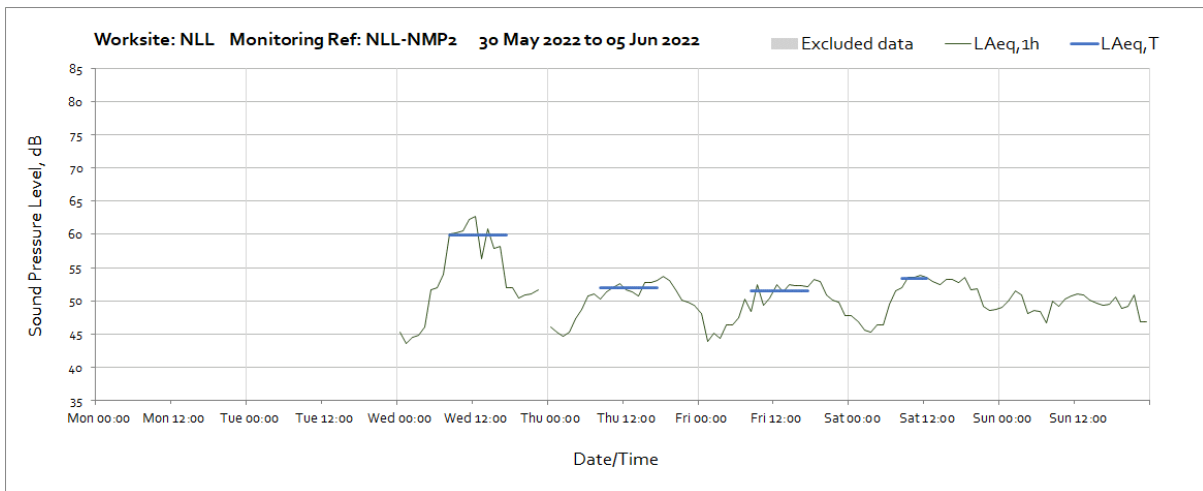




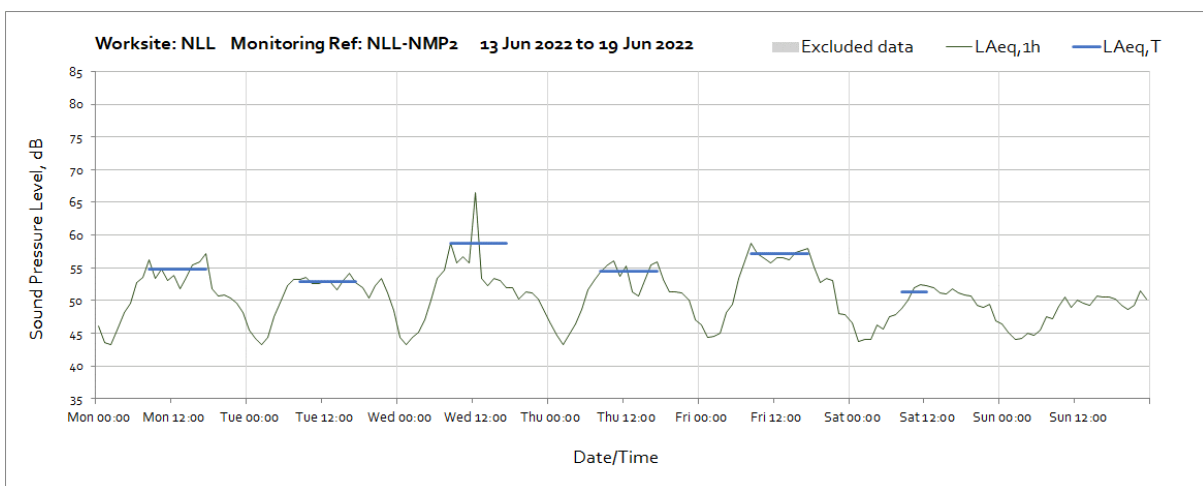
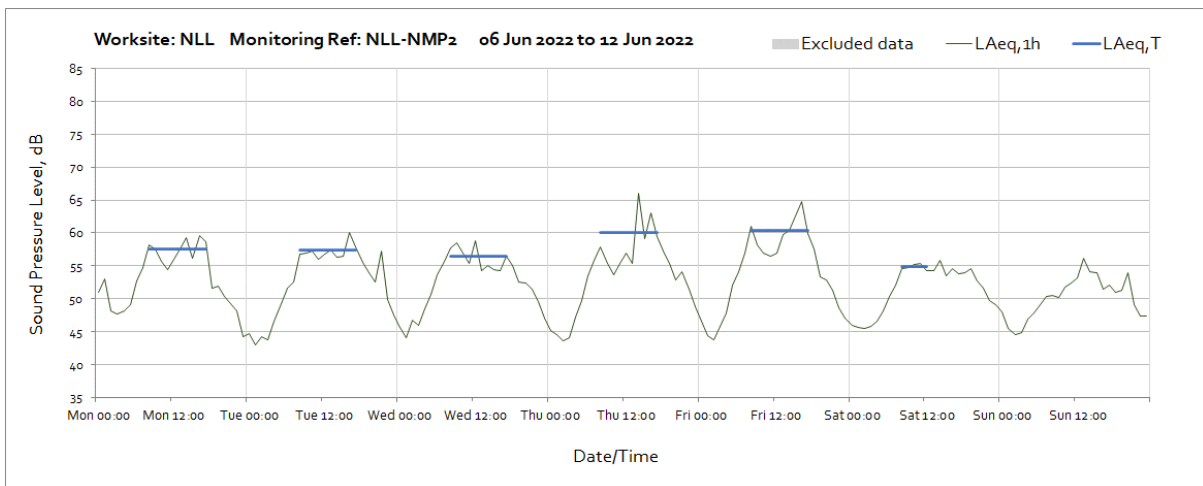
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.

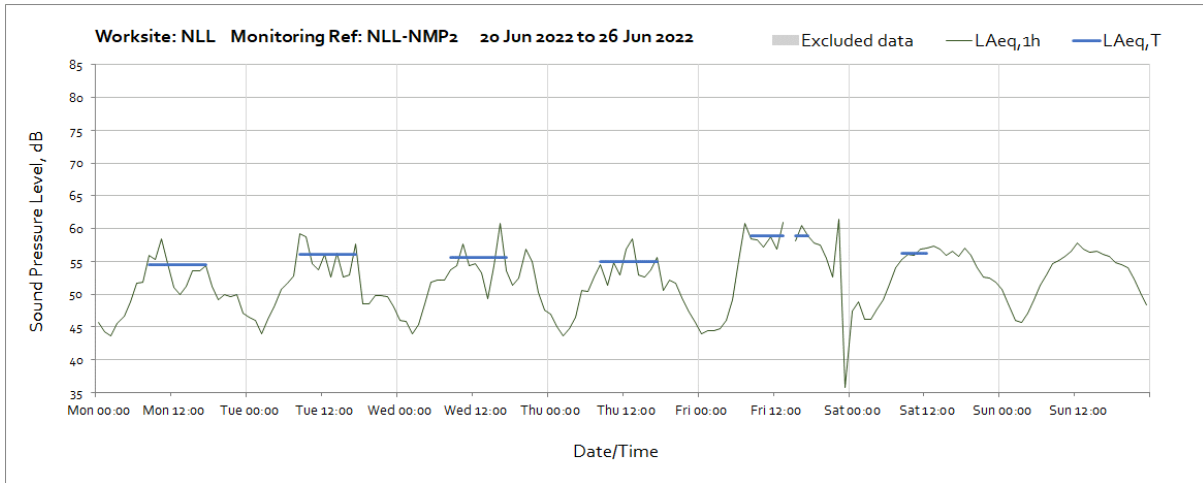


Worksite: NLL – Monitoring Ref: NLL-NMP2

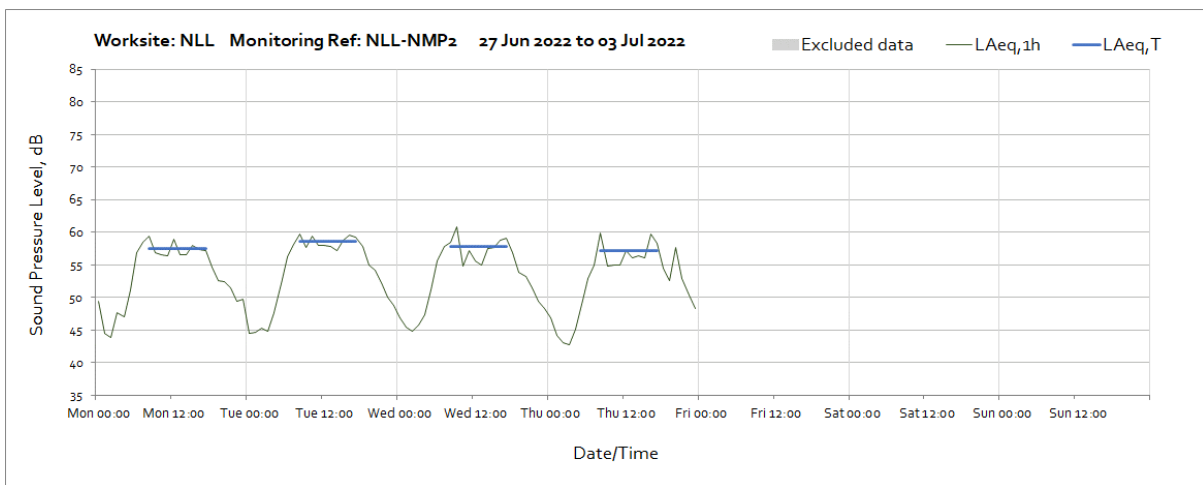


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.

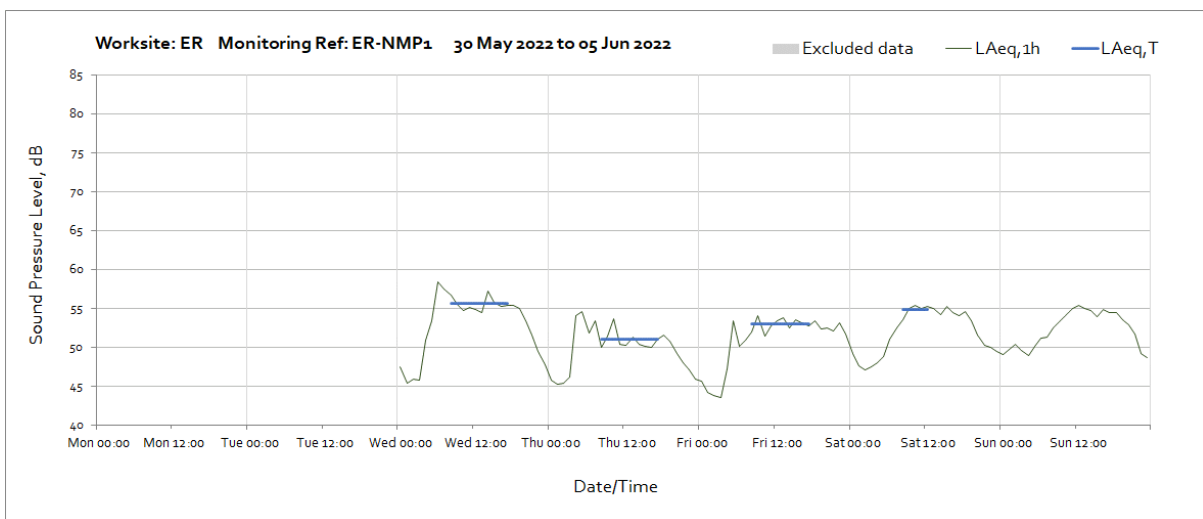


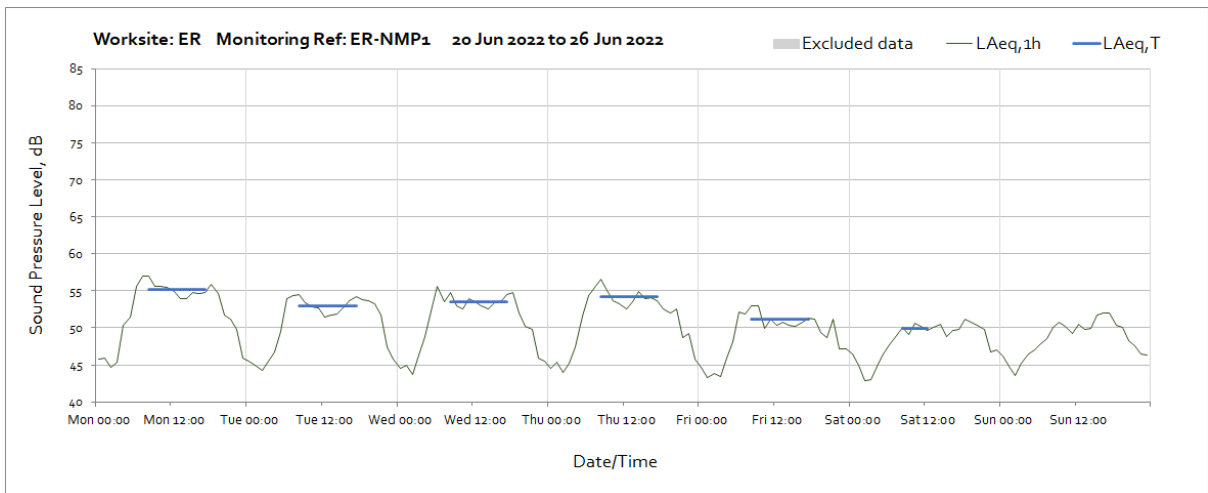
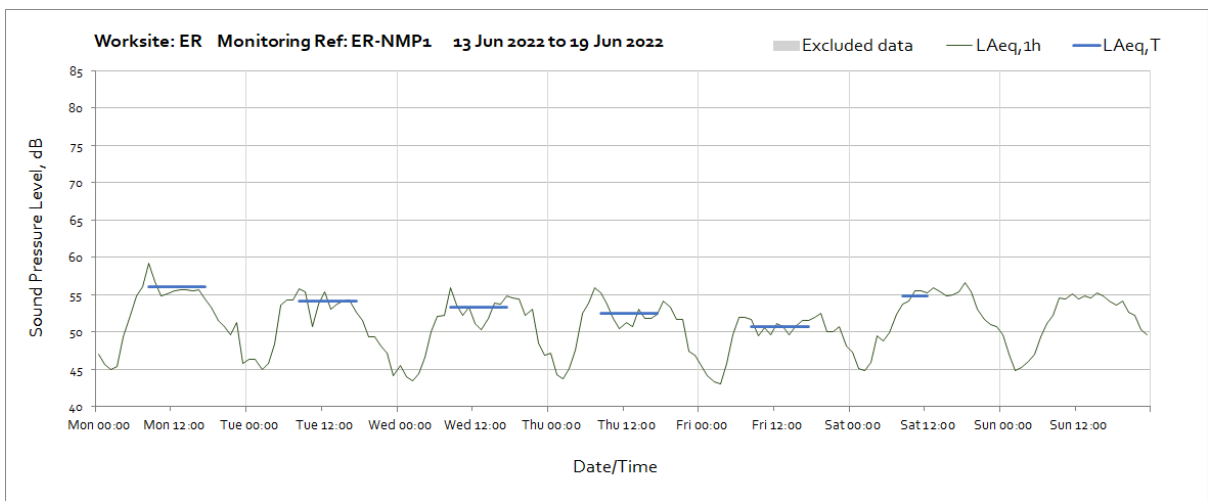
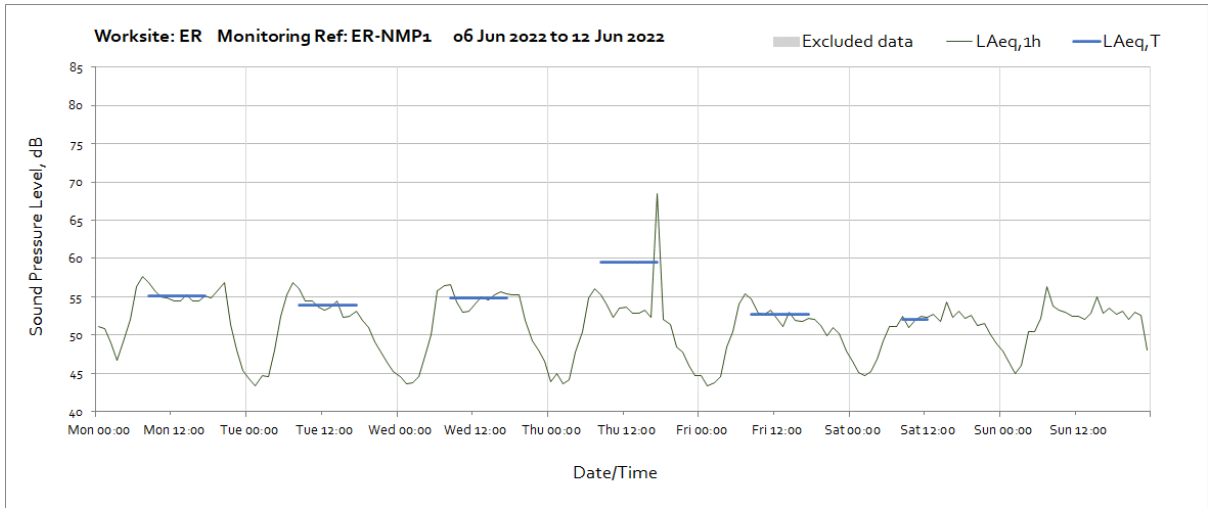


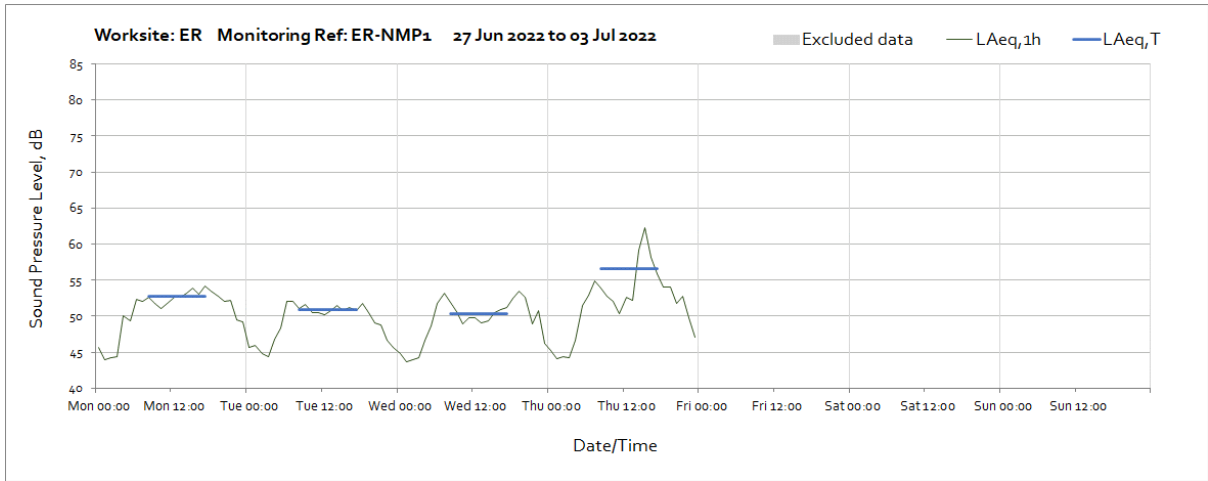
Note: Missing data at 14:00 on Friday 24th June was due to maintenance of the monitoring equipment.



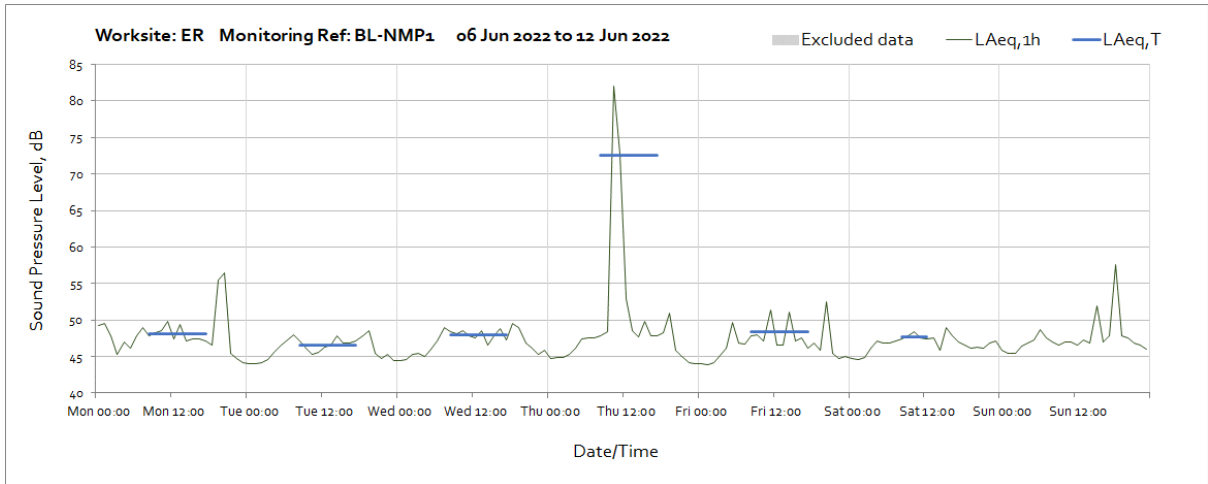
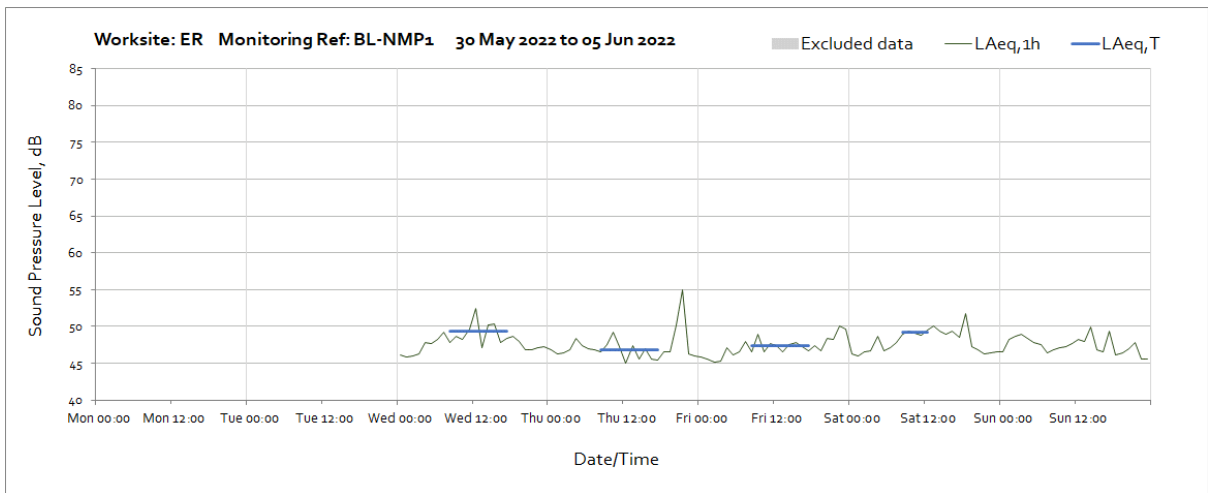
Worksite: ER - Monitoring Ref: ER-NMP1

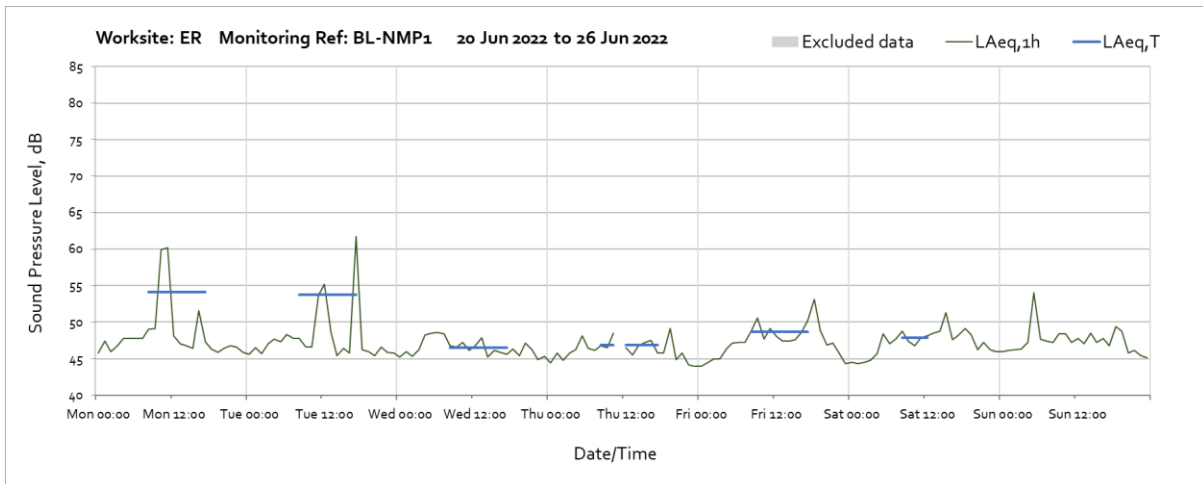
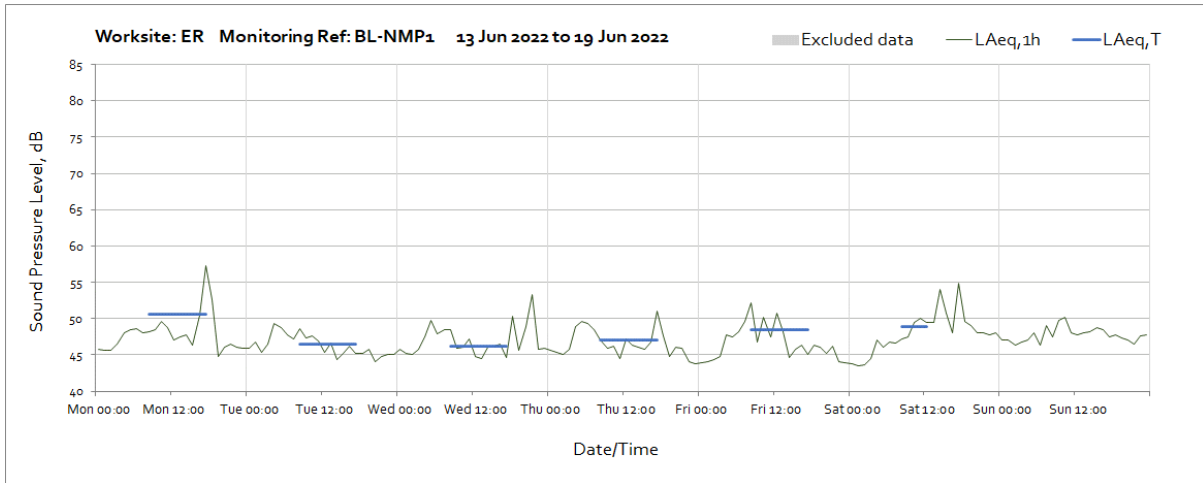




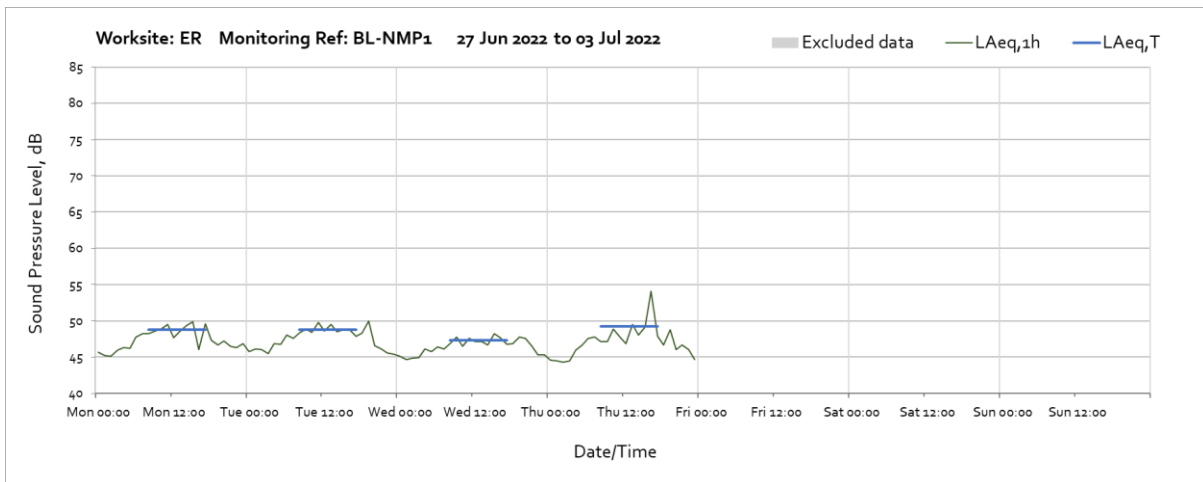


Worksite: ER – Monitoring Ref: BL-NMP1

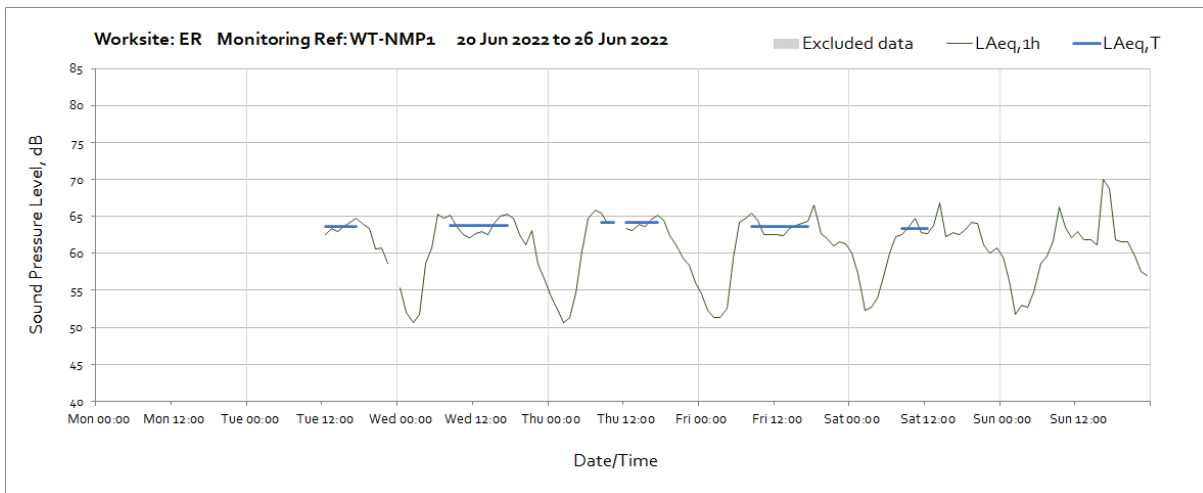




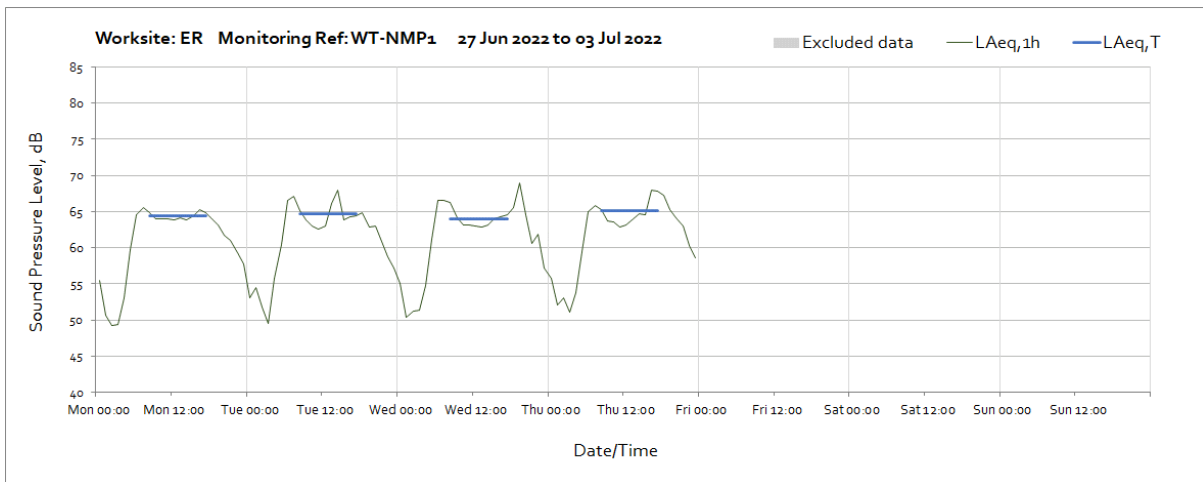
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



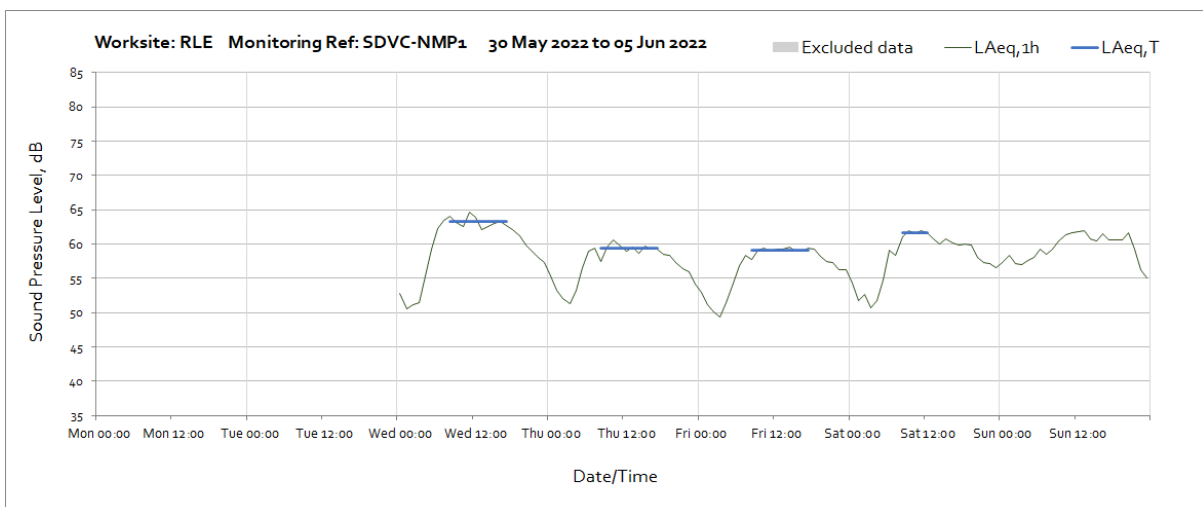
Worksite: ER – Monitoring Ref: WT-NMP1

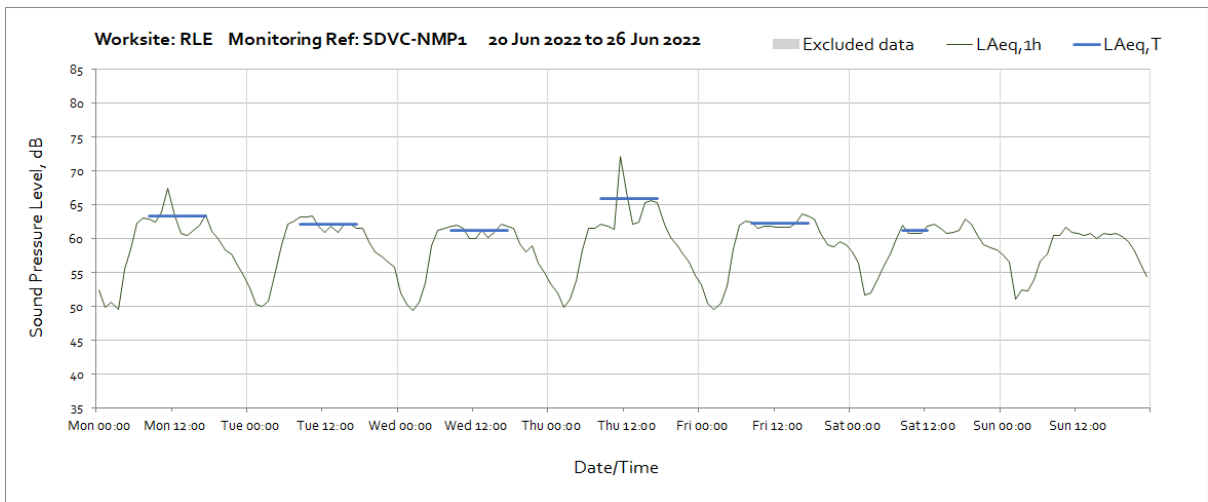
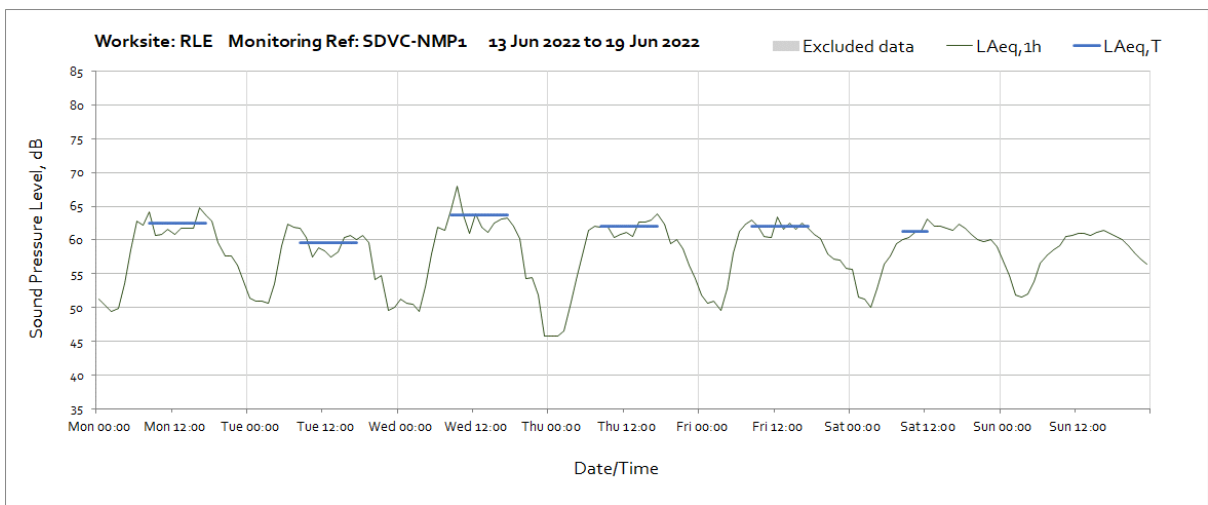
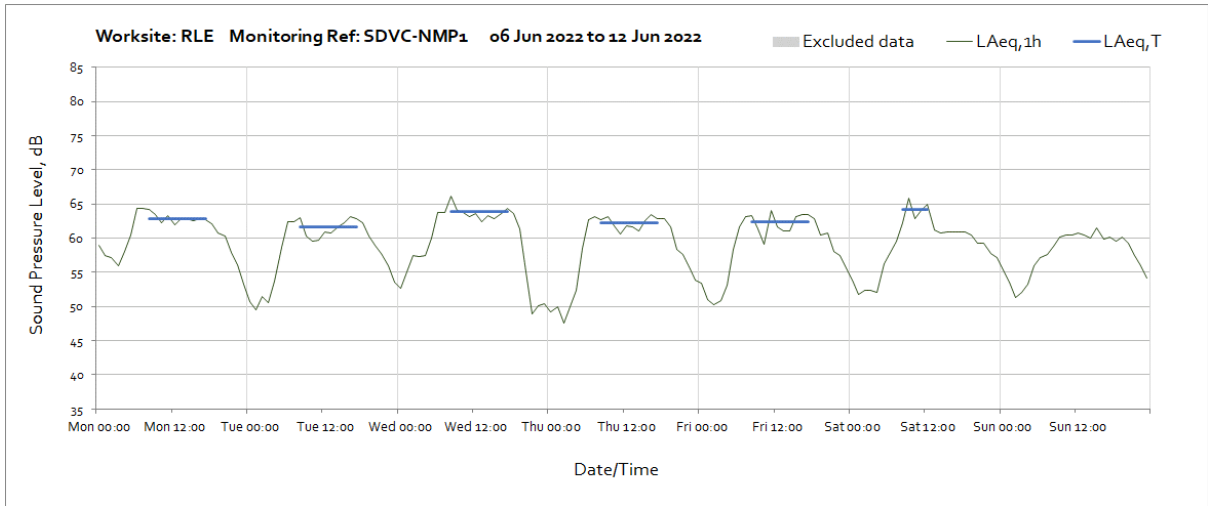


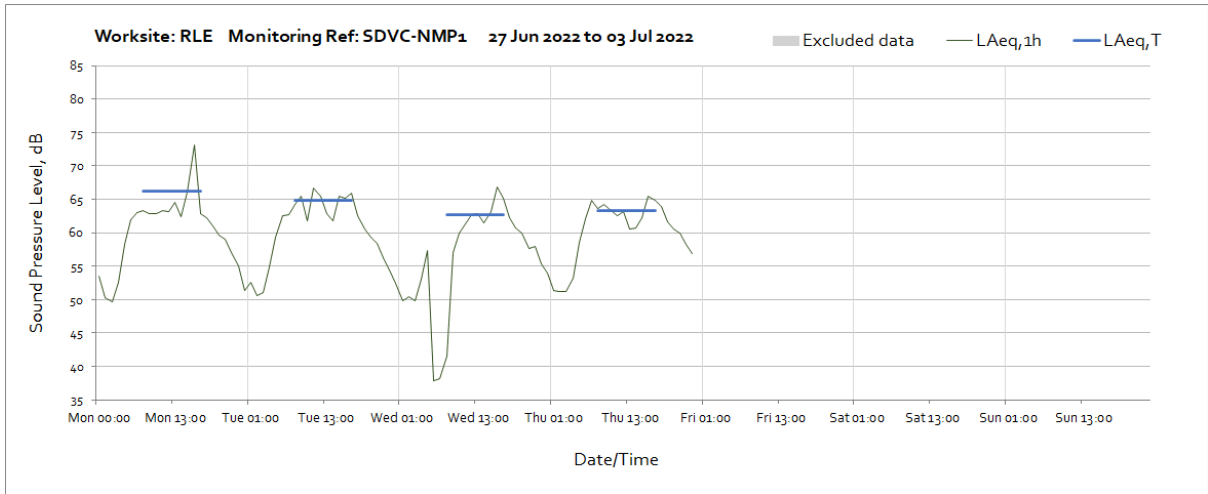
Note: The noise monitor has been installed at 12:00 on Tuesday 21st June. Missing data at 23:00 on the same day was due to a system fault. Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



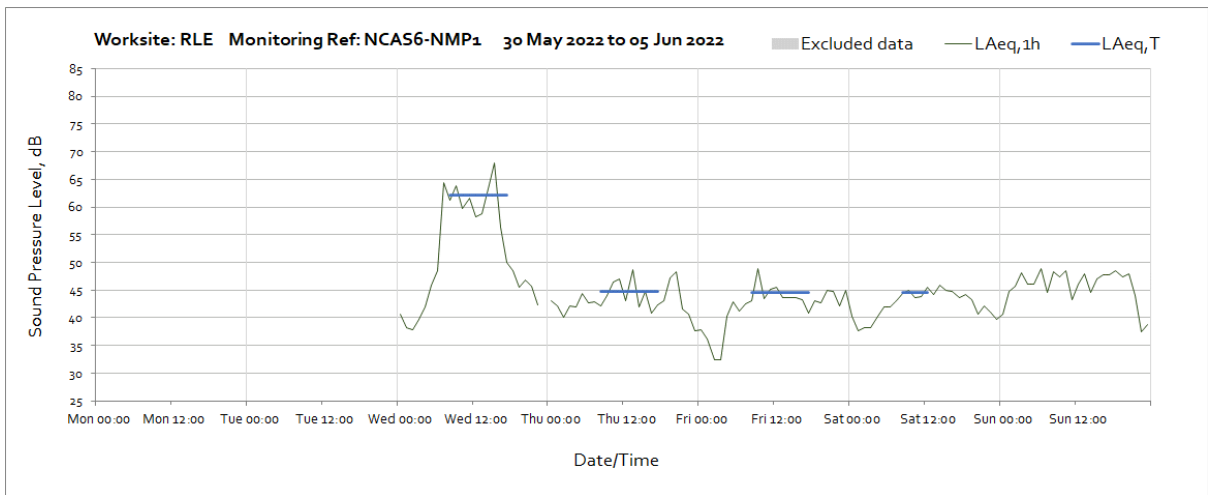
Worksite: RLE – Monitoring Ref: SDVC-NMP1



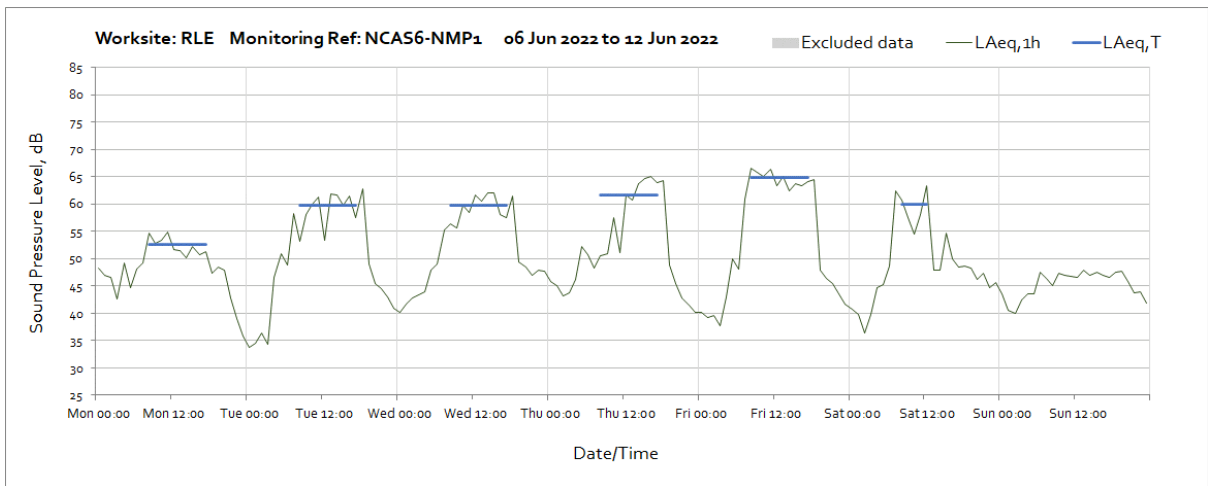


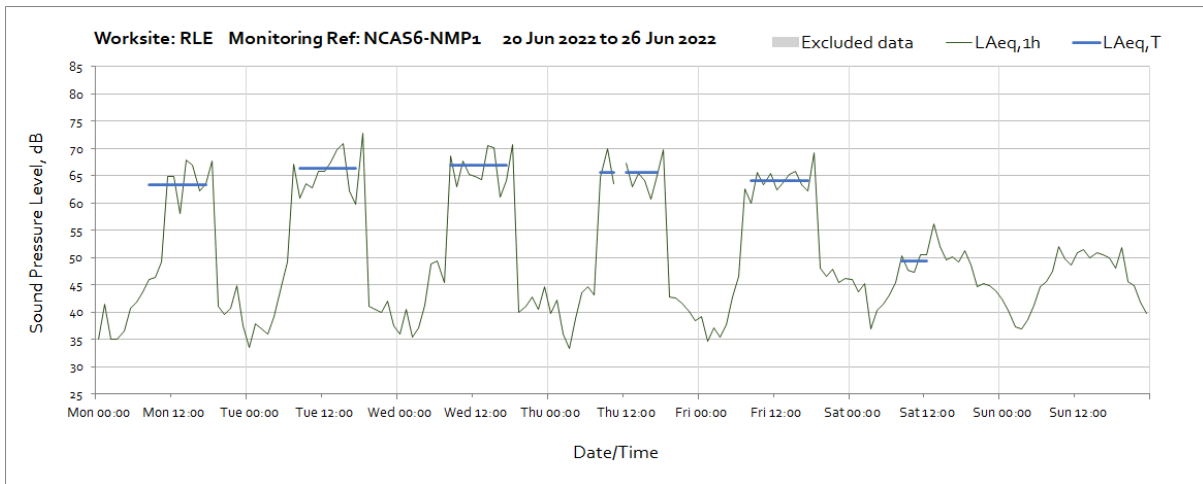
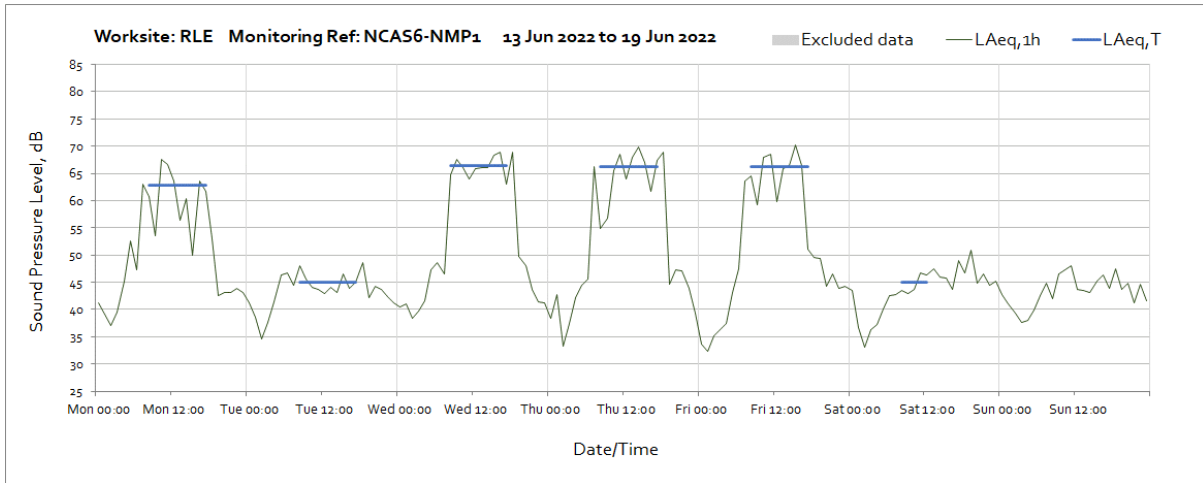


Worksite: RLE - Monitoring Ref: NCAS6-NMP1

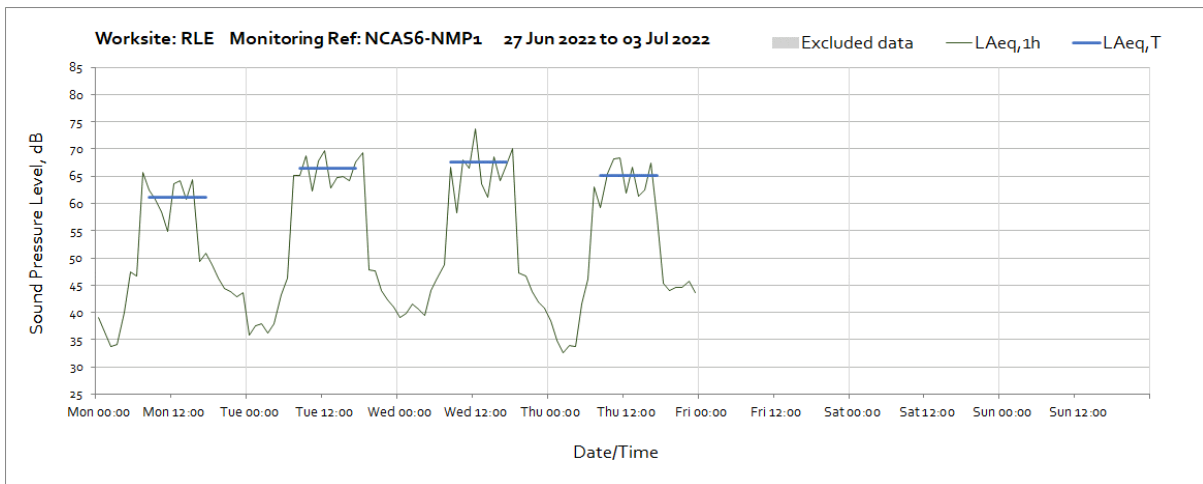


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.

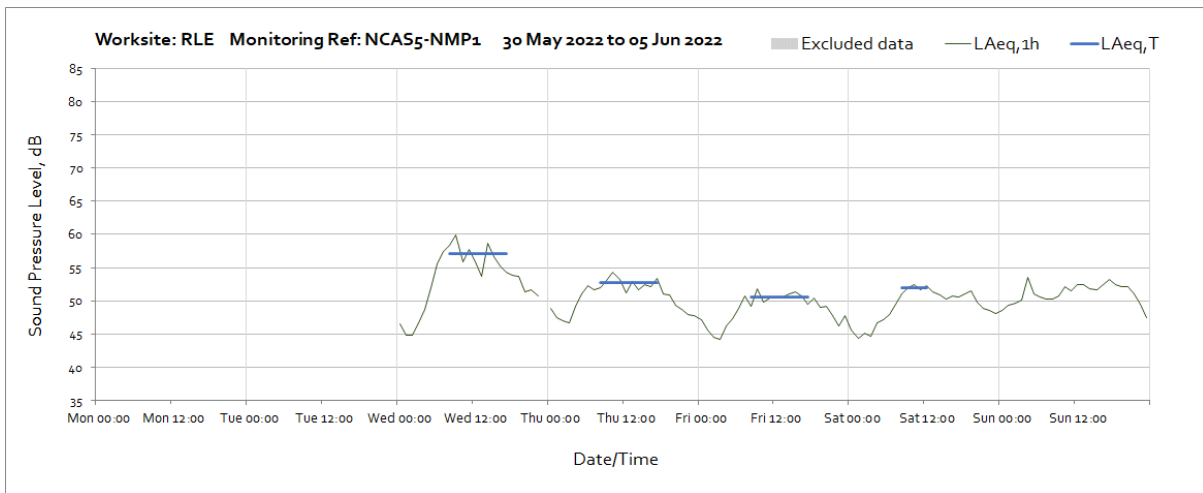




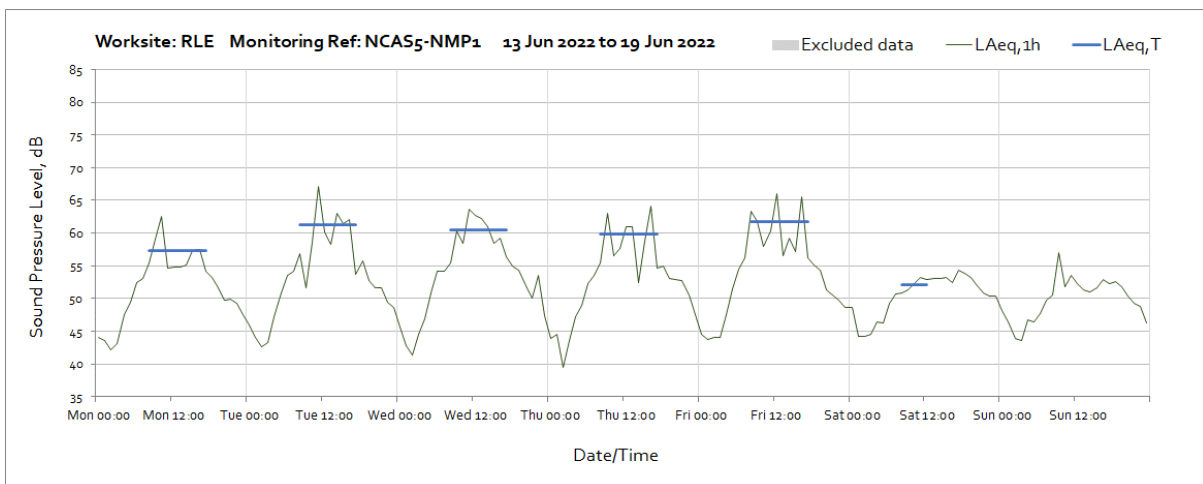
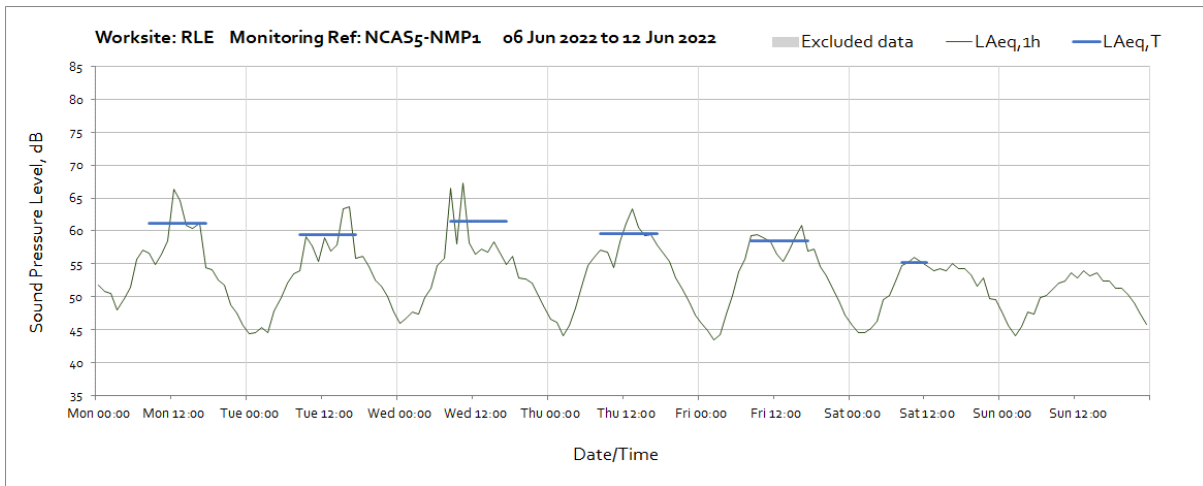
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.

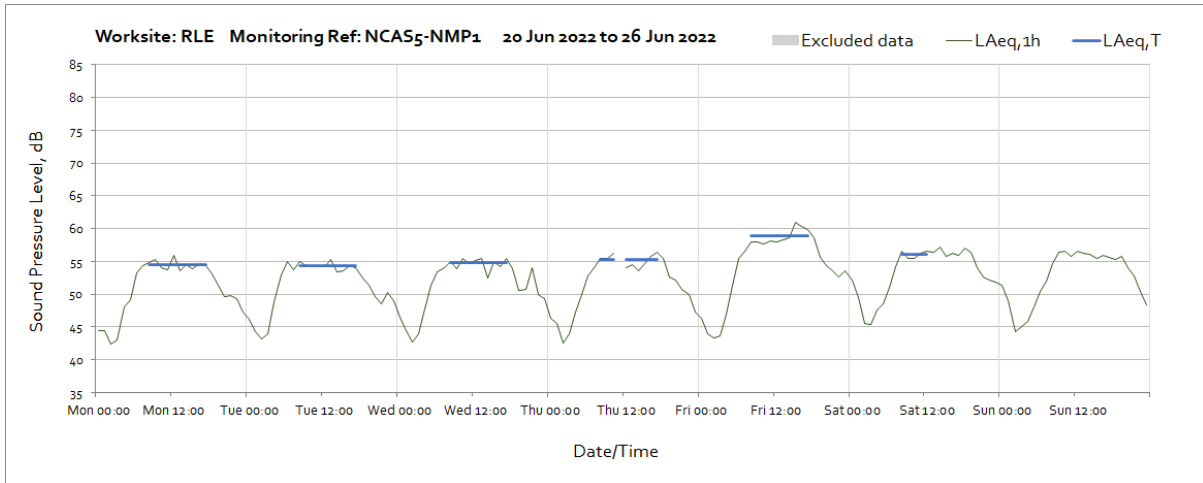


Worksite: RLE – Monitoring Ref: NCAS5-NMP1

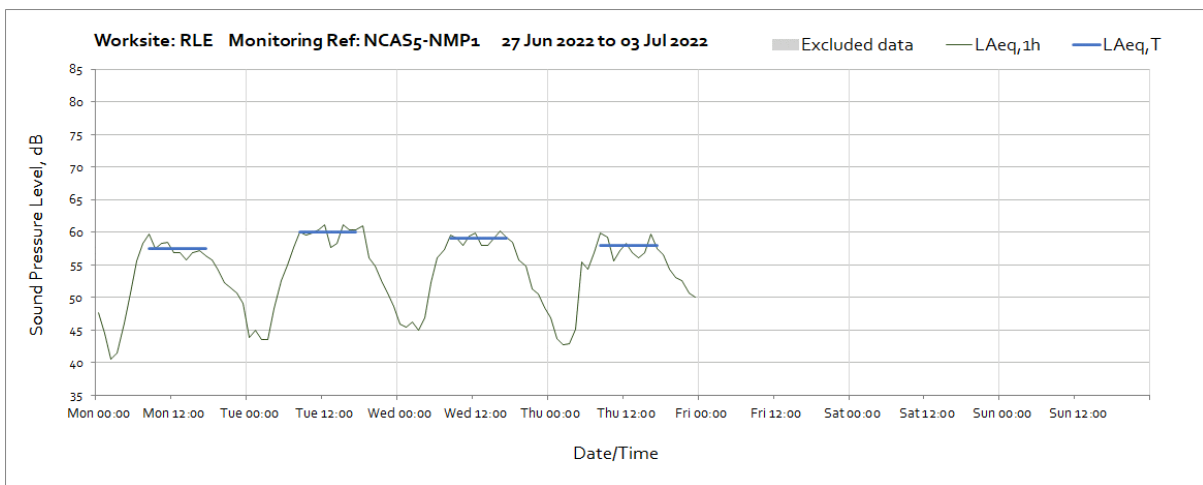


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.

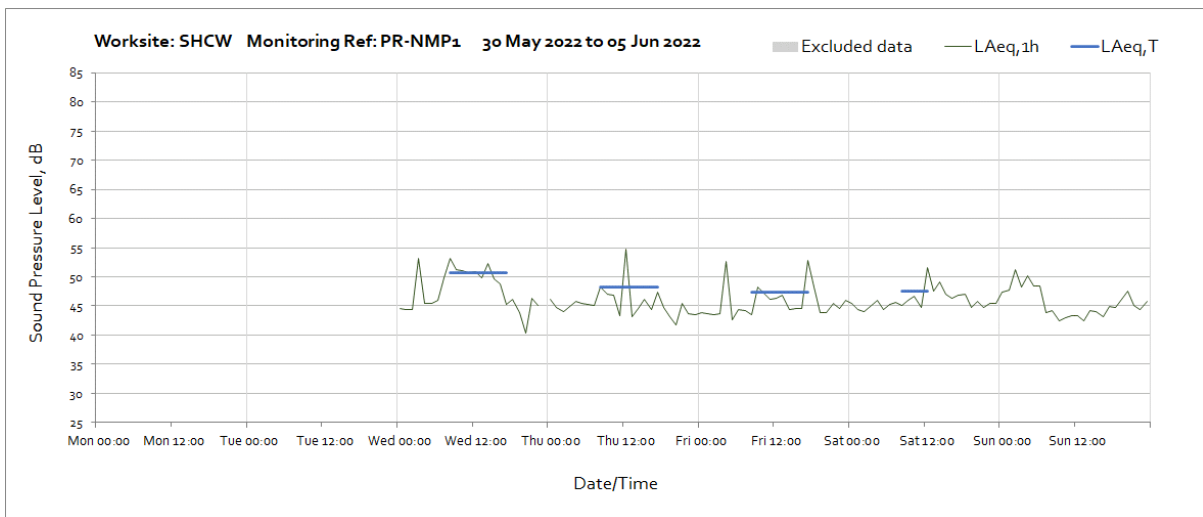




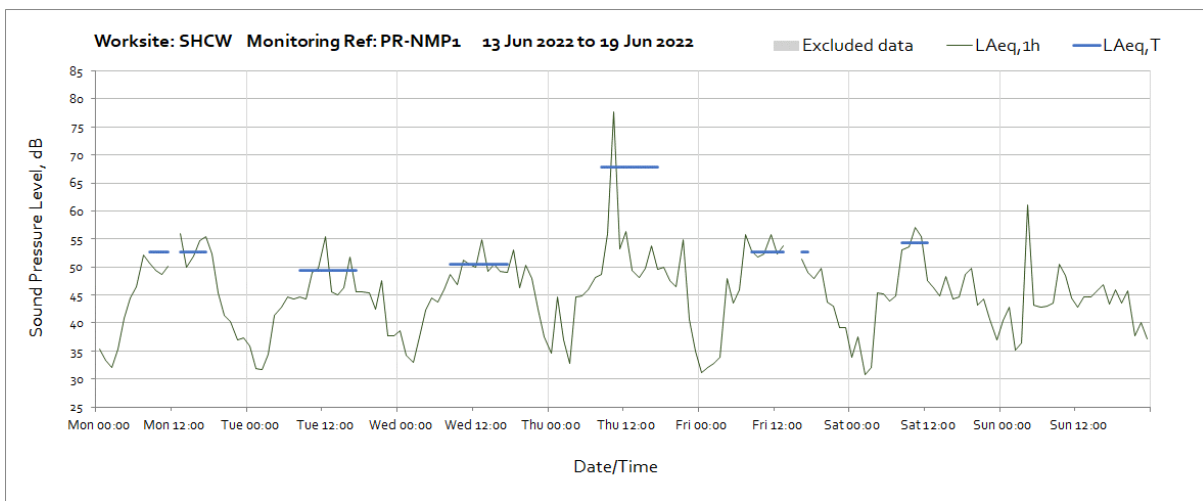
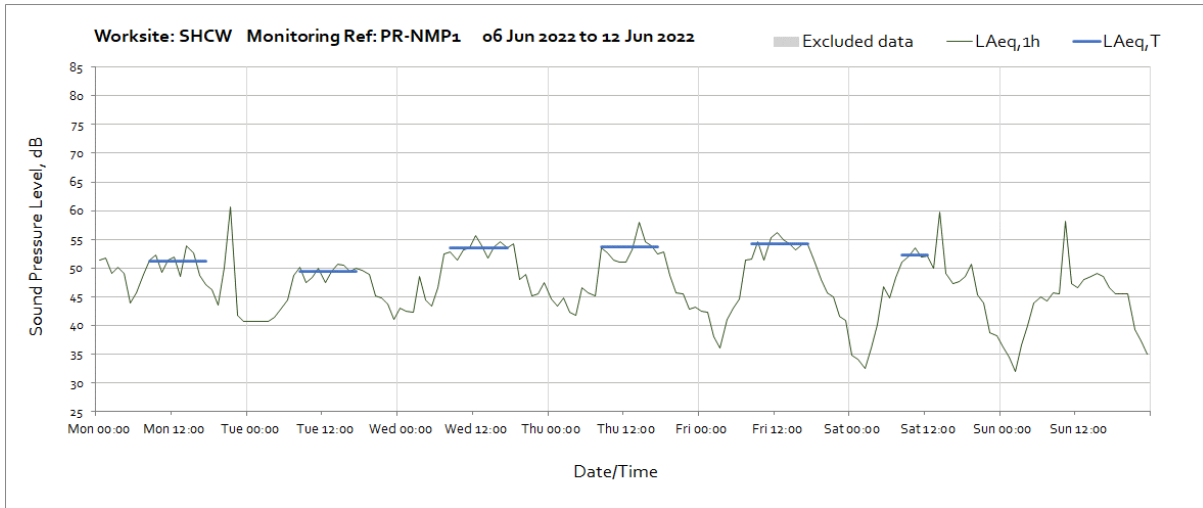
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



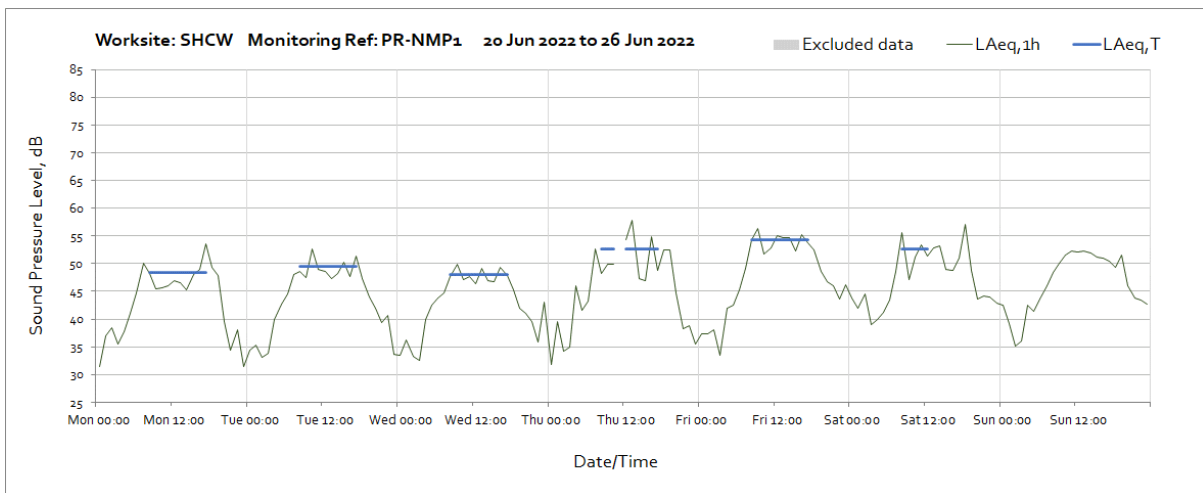
Worksite: SHCW – Monitoring Ref: PR-NMP1



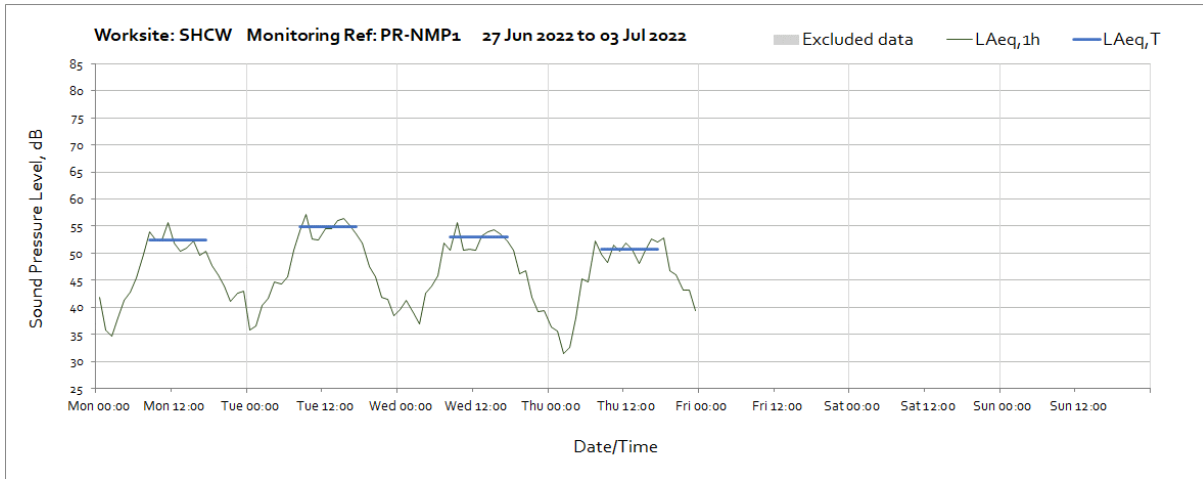
Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.



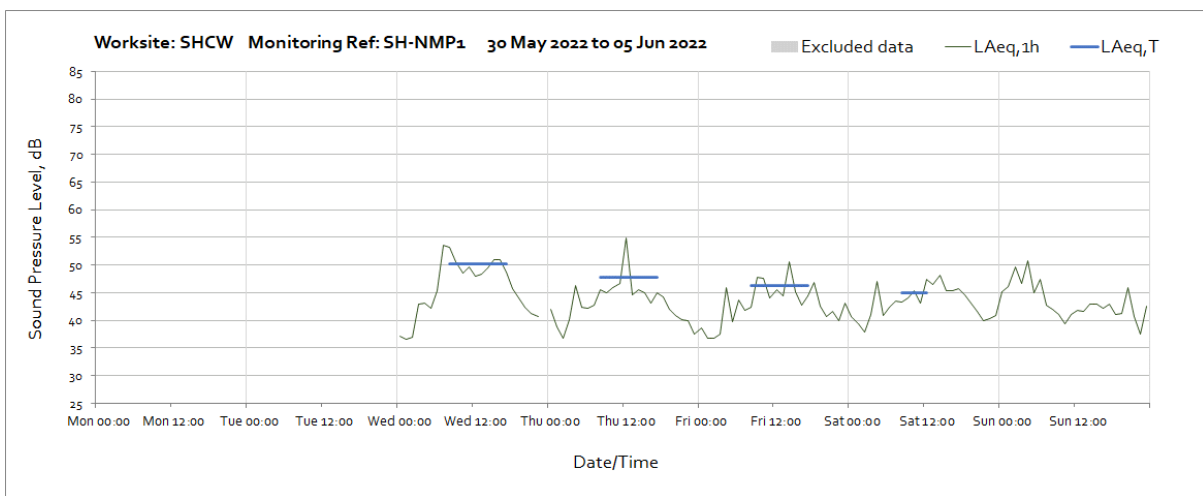
Note: Missing data at 12:00 on Monday 13th June and between 13:00 and 15:00 on Friday 17th June was due to maintenance of the monitoring equipment.



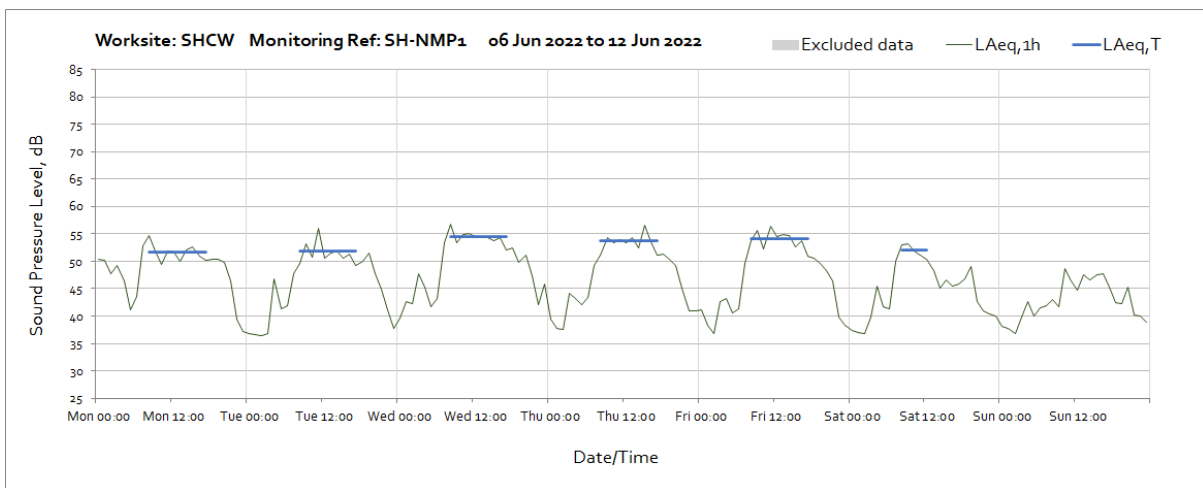
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.

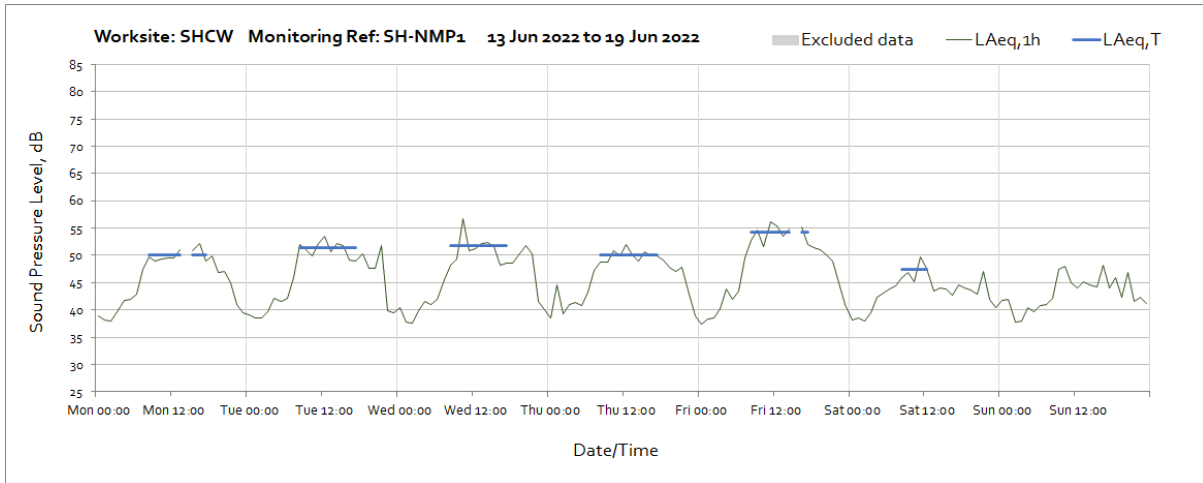


Worksite: SHCW – Monitoring Ref: SH-NMP1

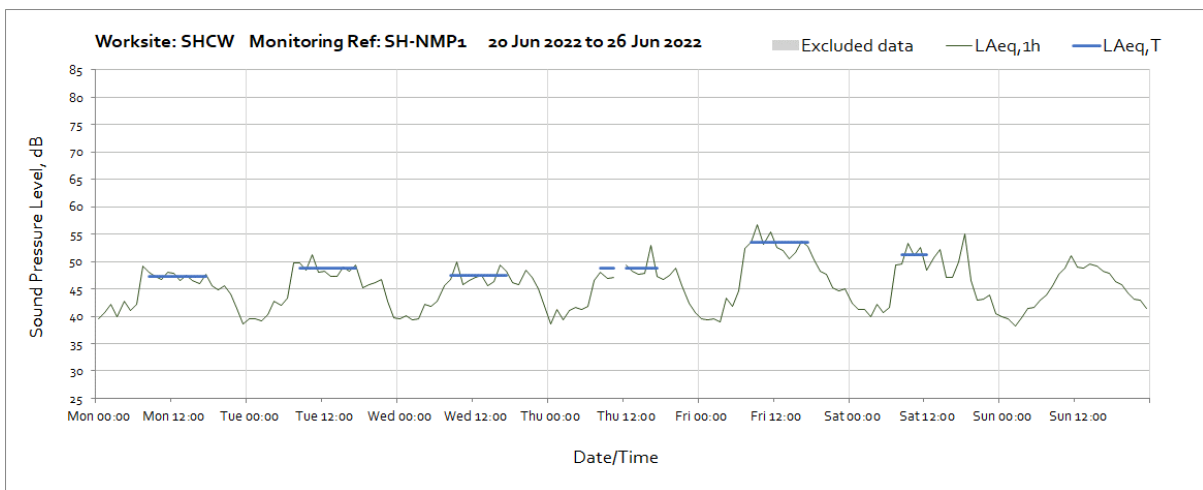


Note: Missing data at 23:00 on Wednesday 1st June was due to a system fault.

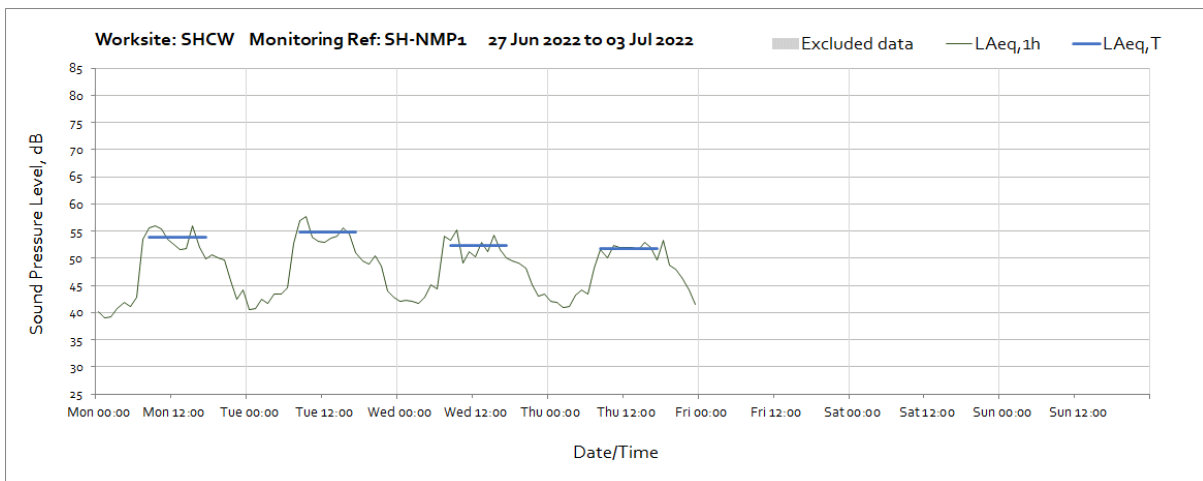




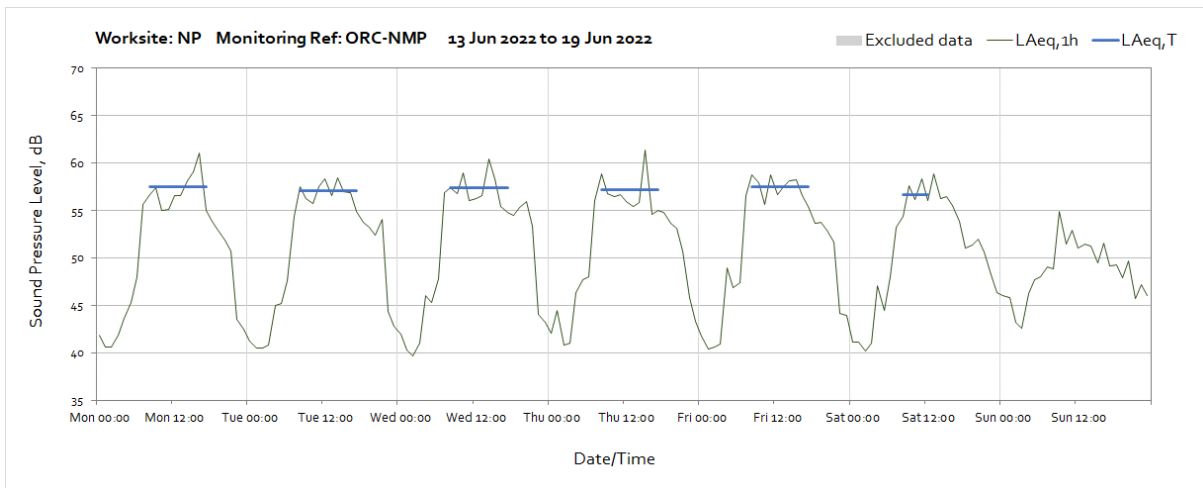
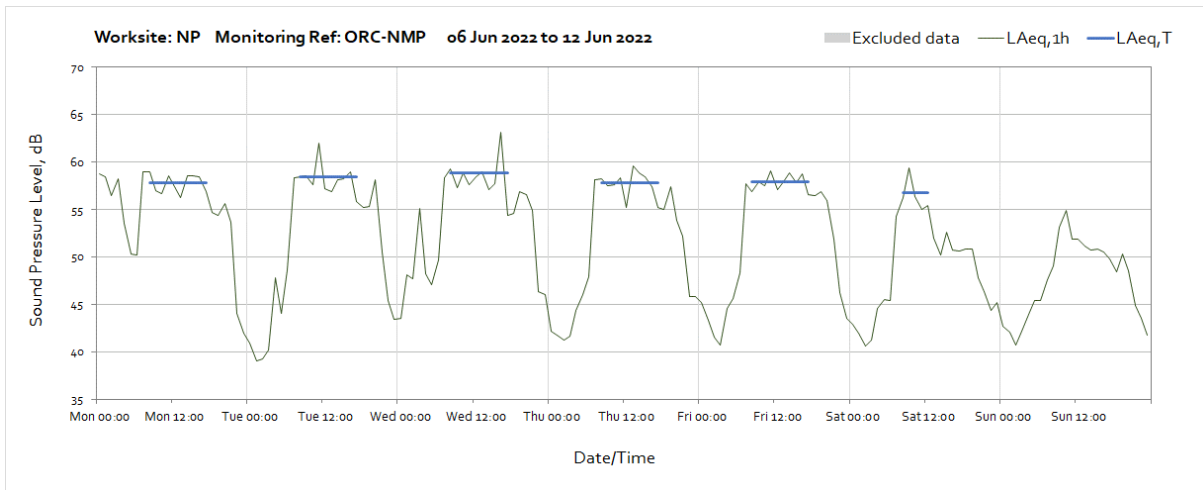
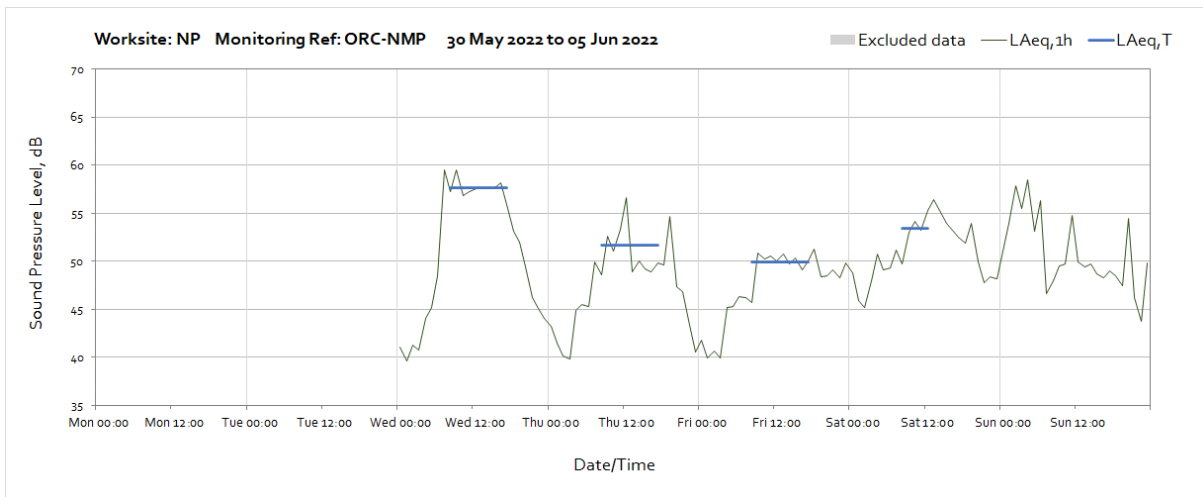
Note: Missing data at 12:00 on Monday 13th June and between 15:00 and 17:00 on Friday 17th June was due to maintenance of the monitoring equipment.



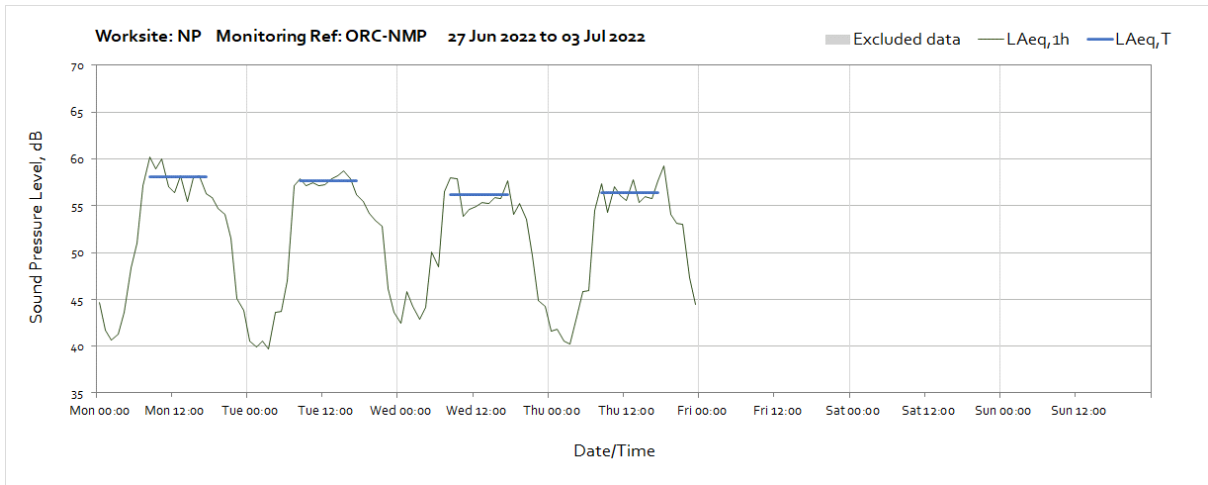
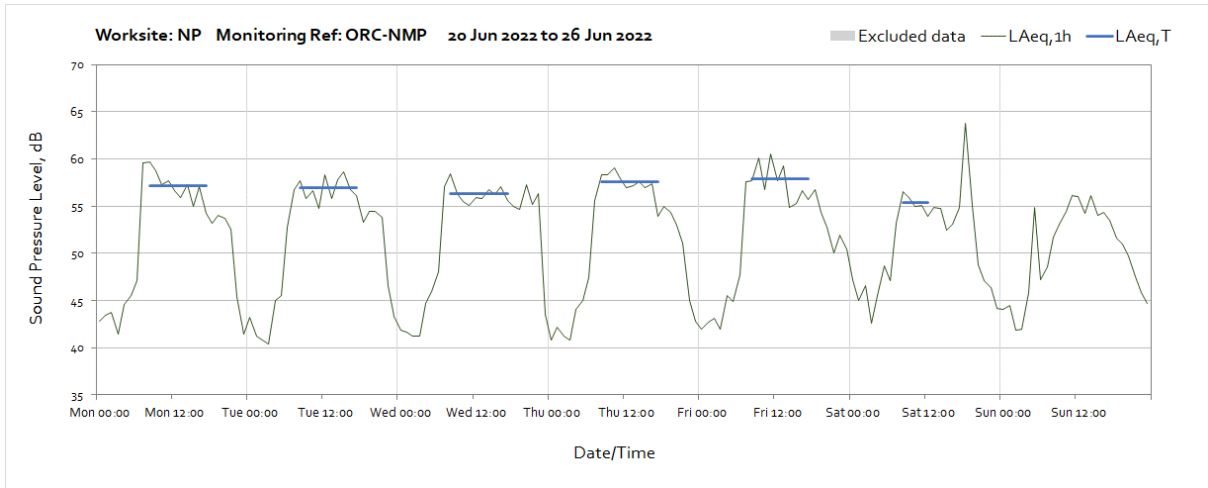
Note: Missing data at 11:00 on Thursday 23rd June was due to maintenance of the monitoring equipment.



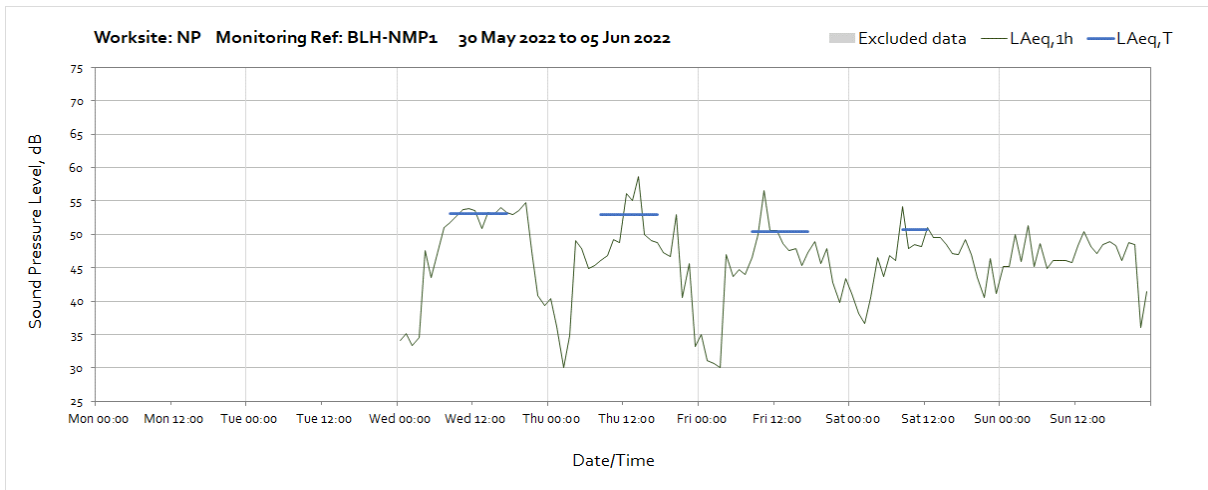
Worksite: NP – Monitoring Ref: ORC-NMP1

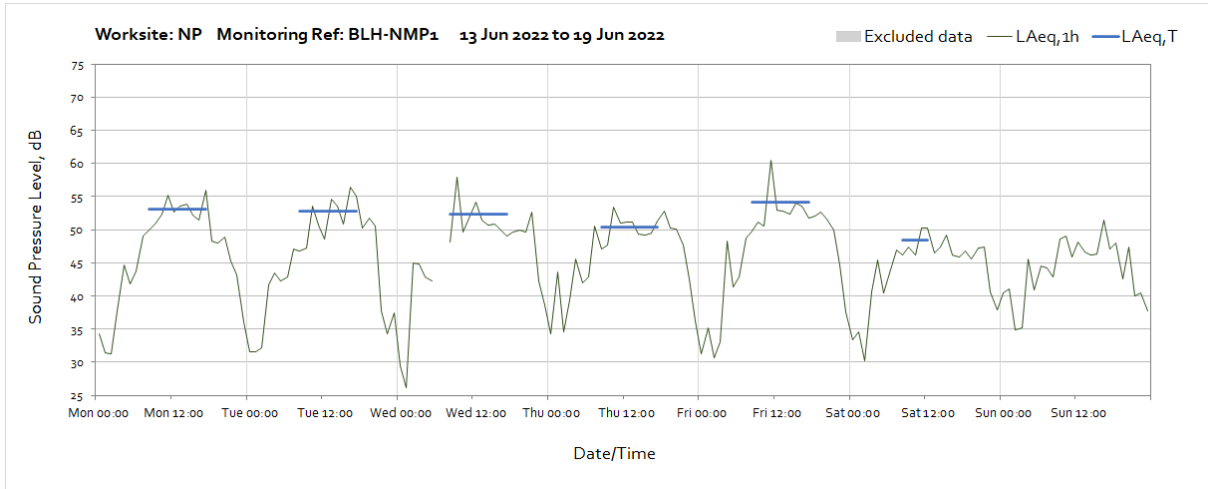
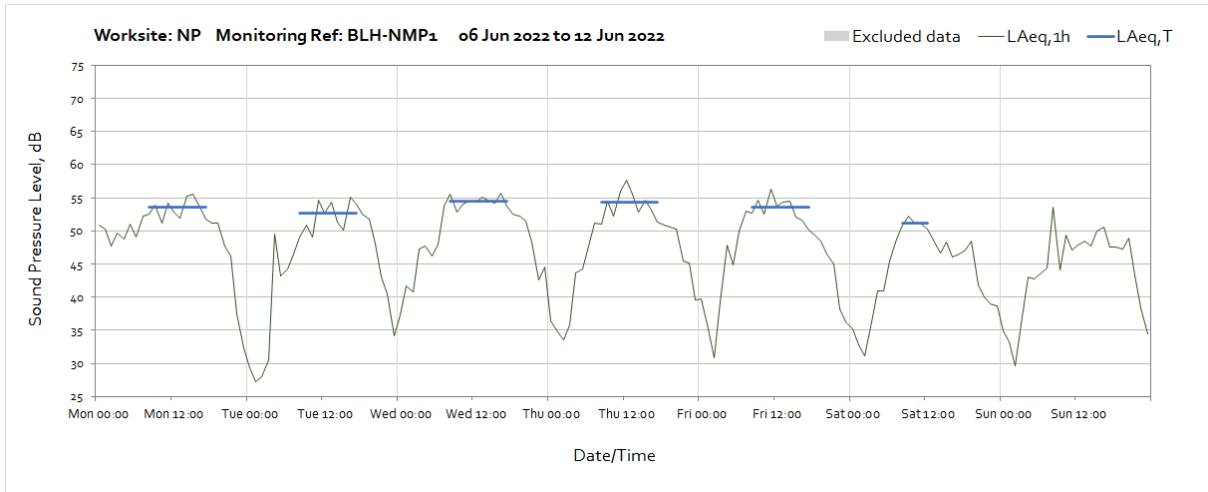


OFFICIAL

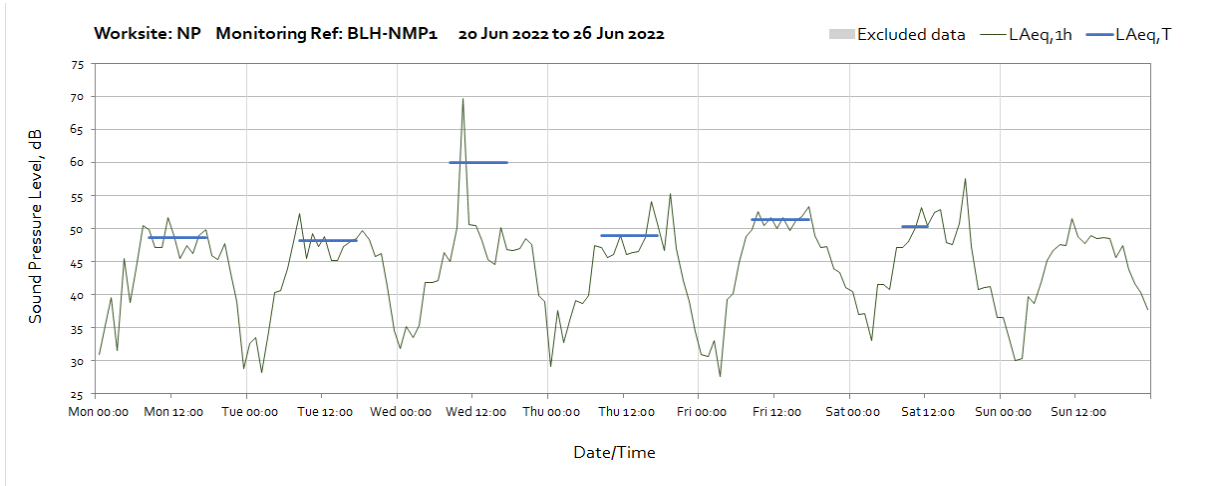


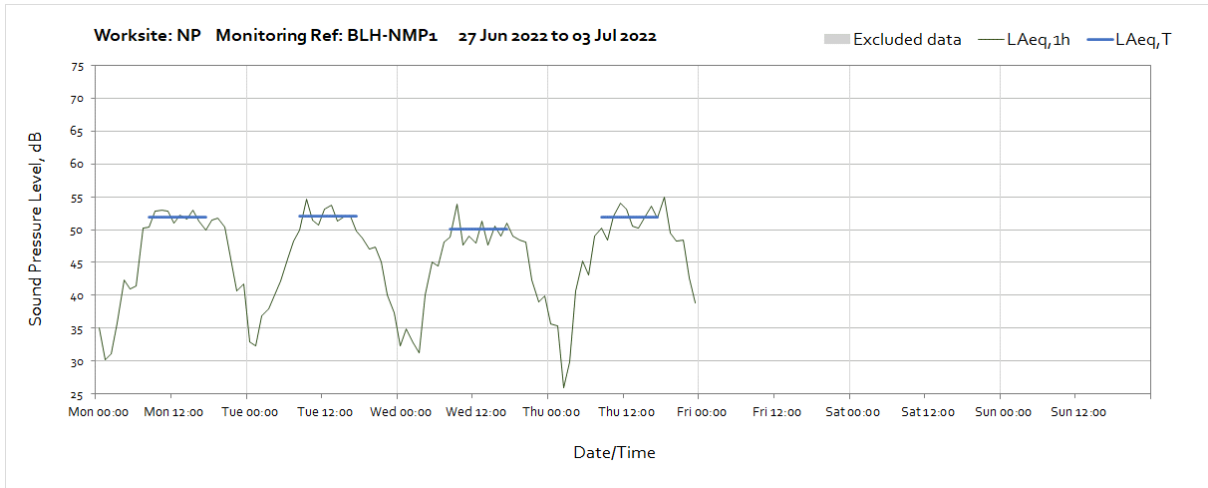
Worksite: NP – Monitoring Ref: BLH-NMP1



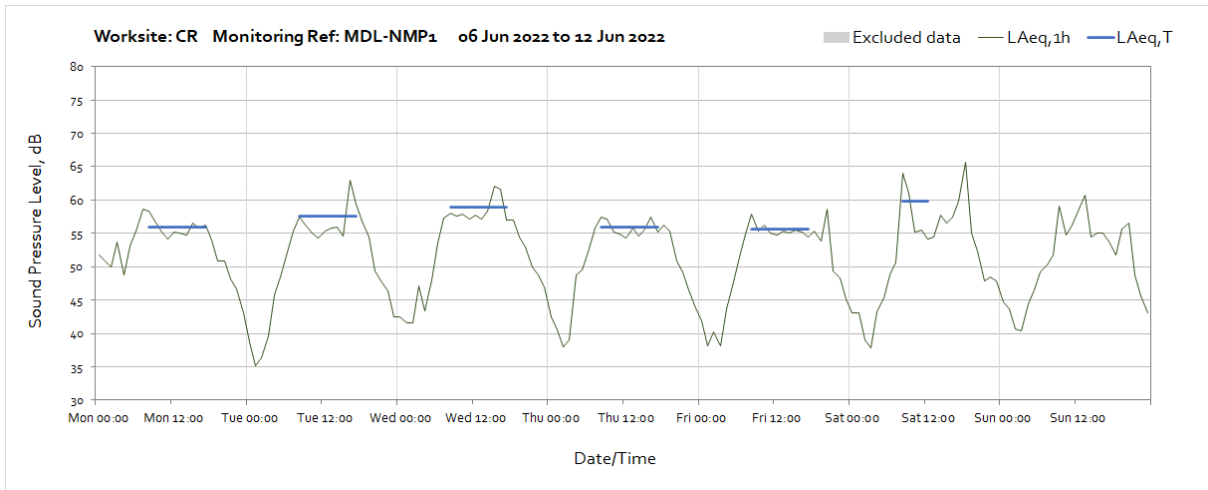
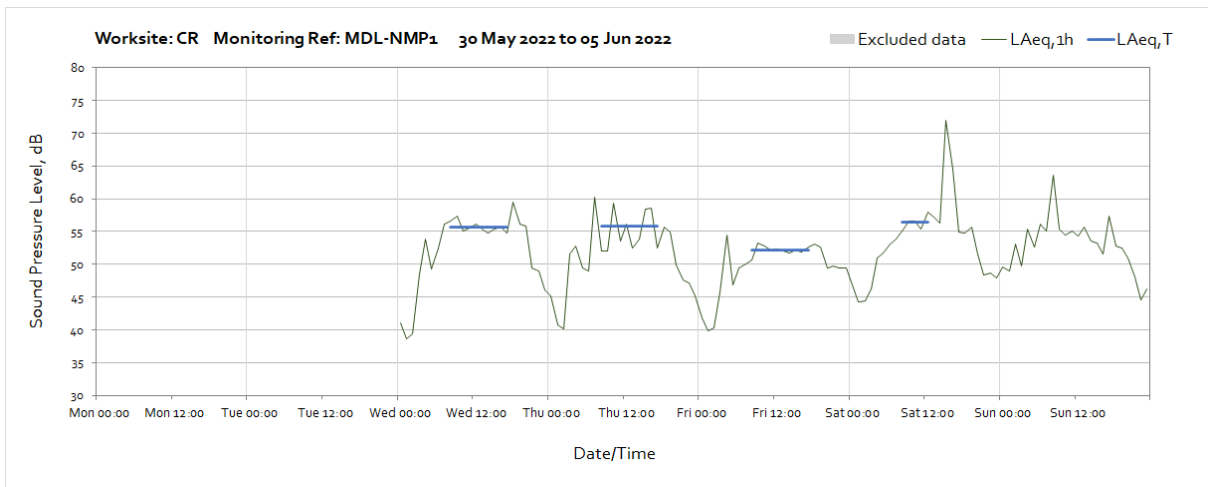


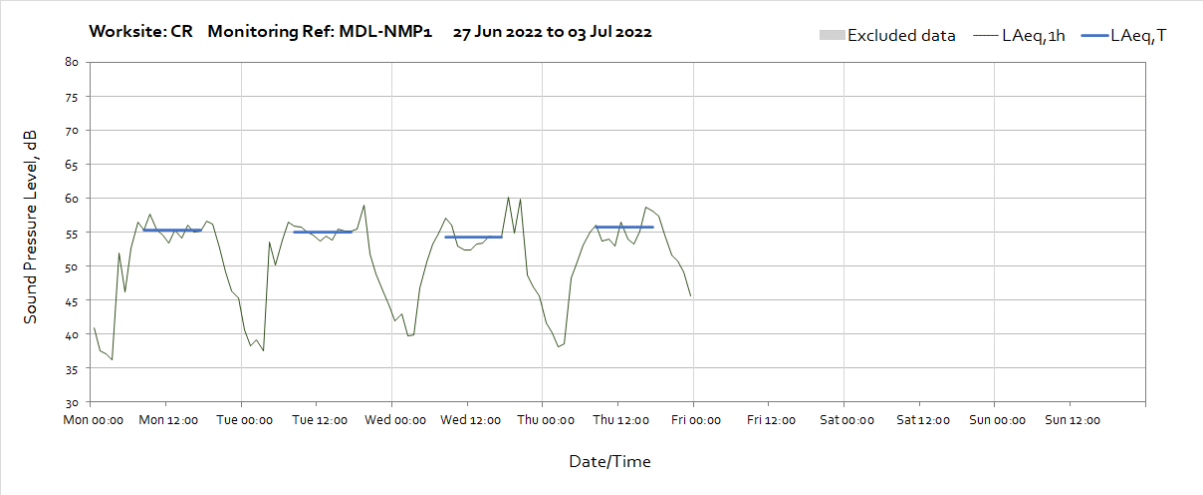
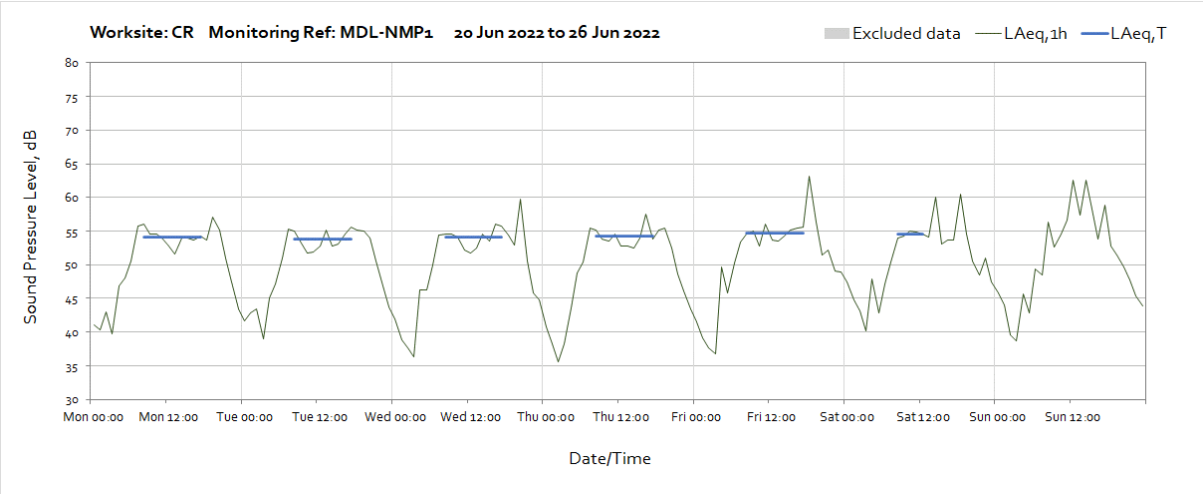
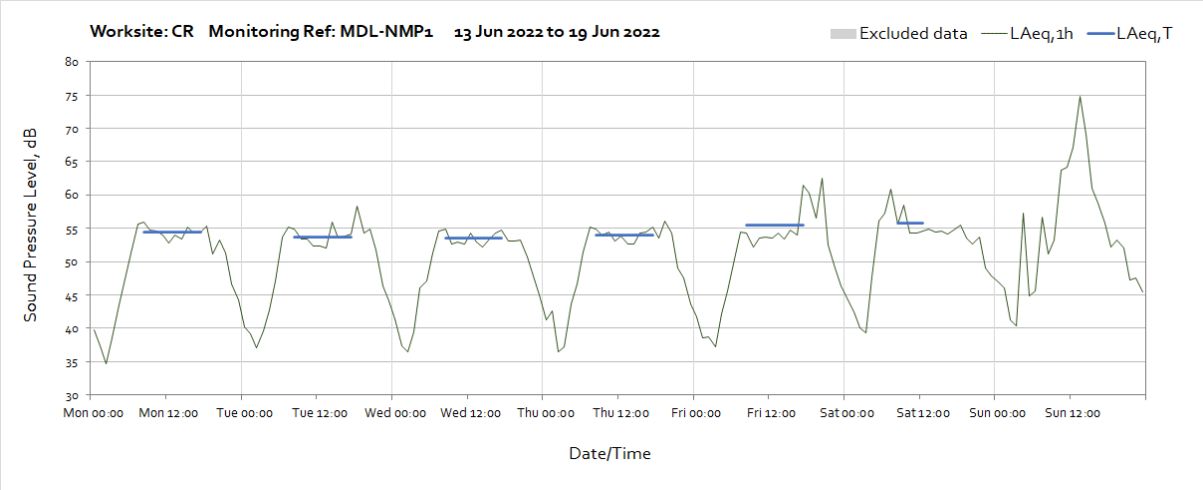
Note: Missing data between 06:00 and 08:00 on Wednesday 15th June was due to monitor settings update.



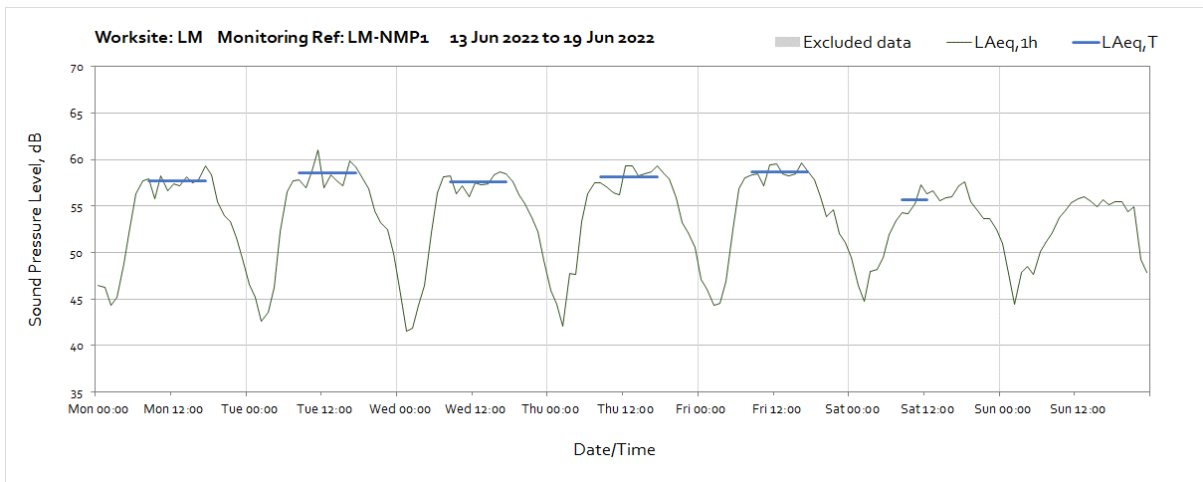
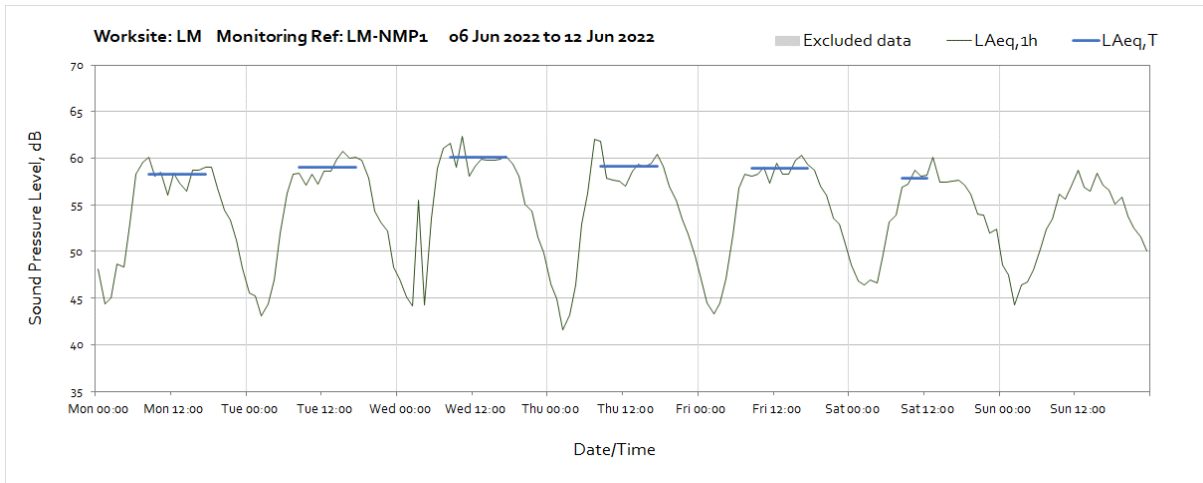
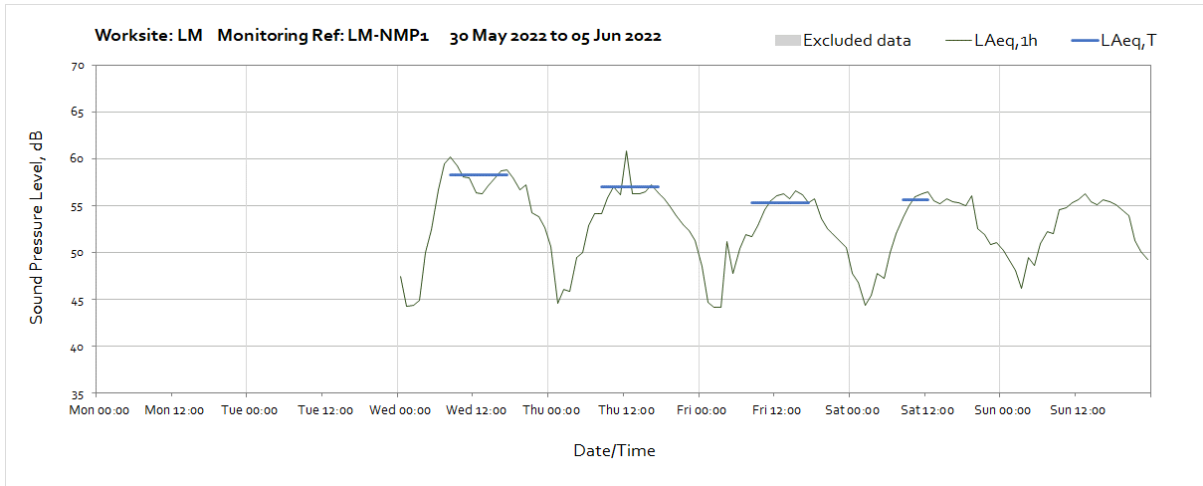


Worksite: CR – Monitoring Ref: MDL-NMP1

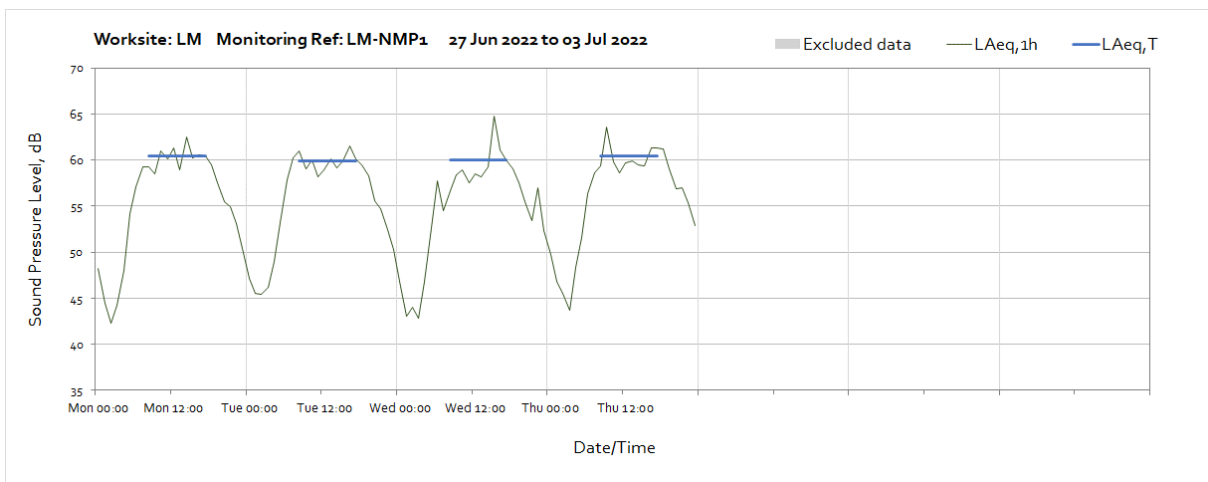
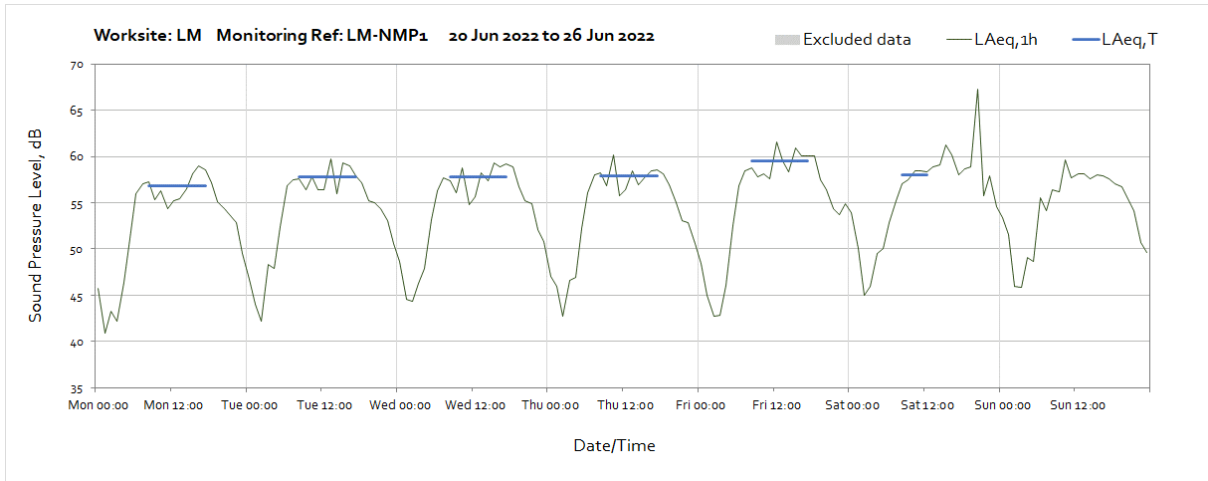




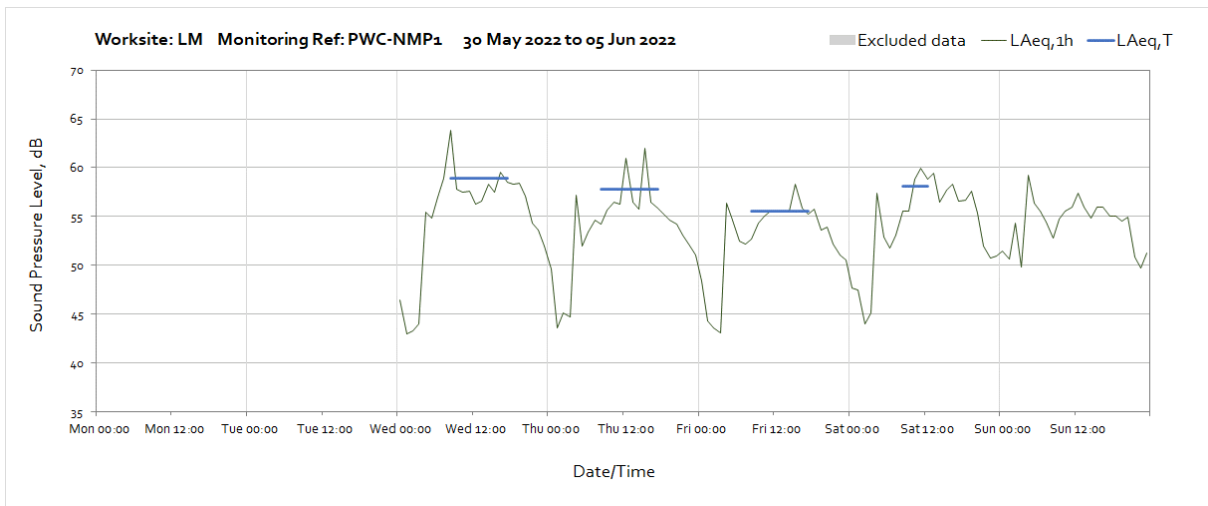
Worksite: LM – Monitoring Ref: LM-NMP1

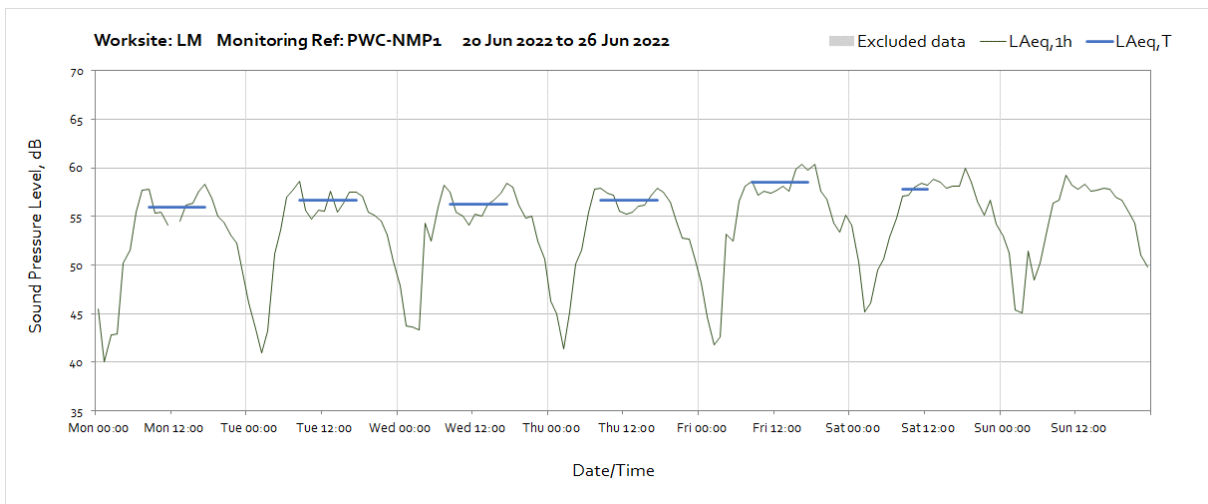
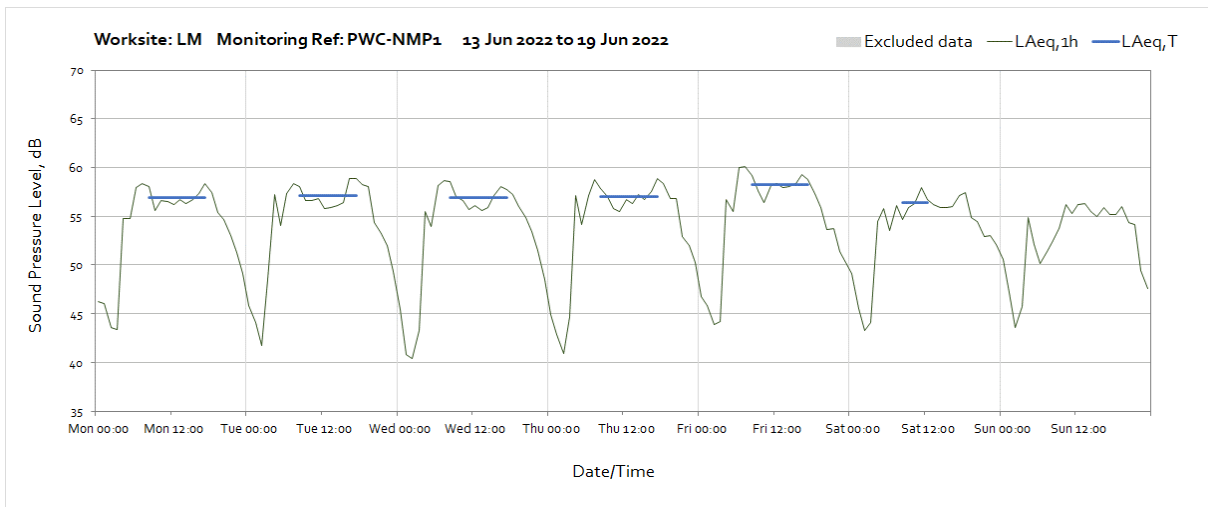
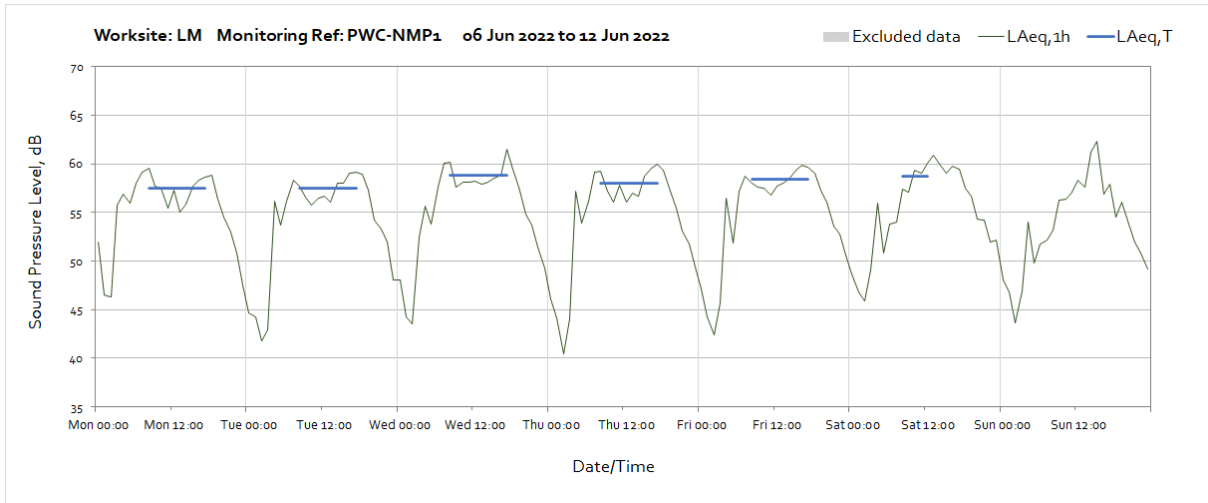


OFFICIAL

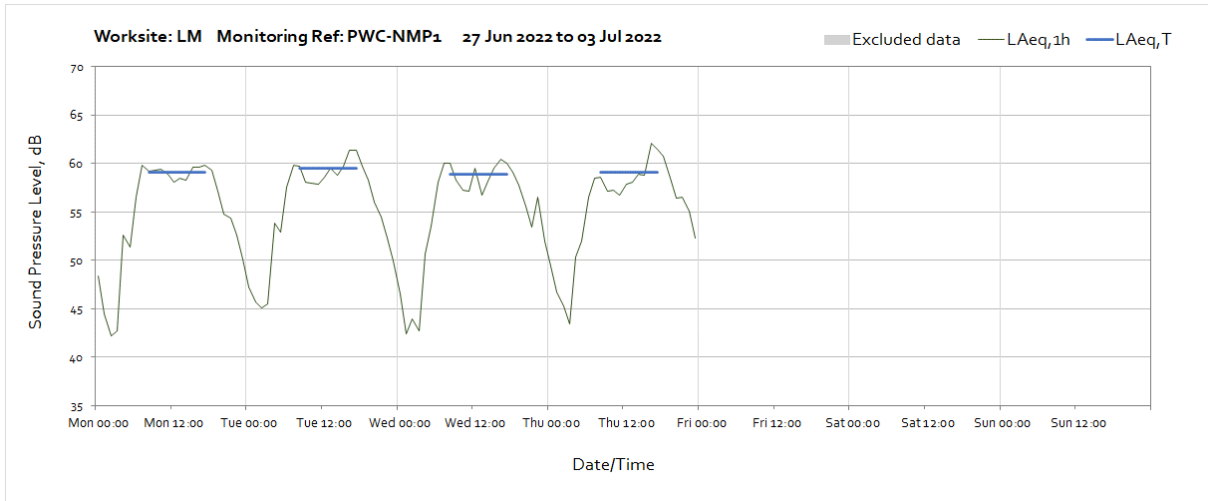


Worksite: LM – Monitoring Ref: PWC-NMP1

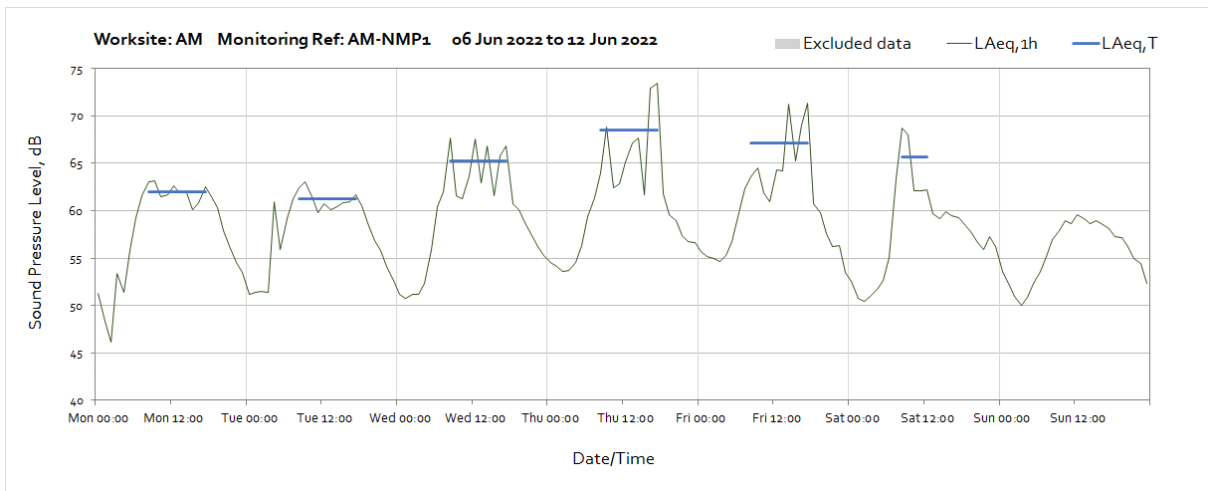
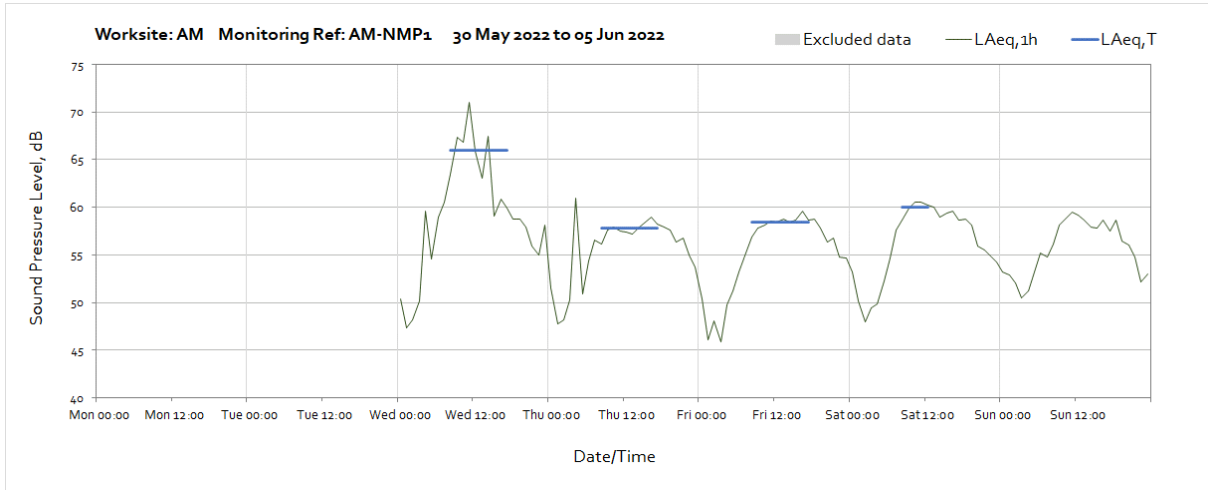


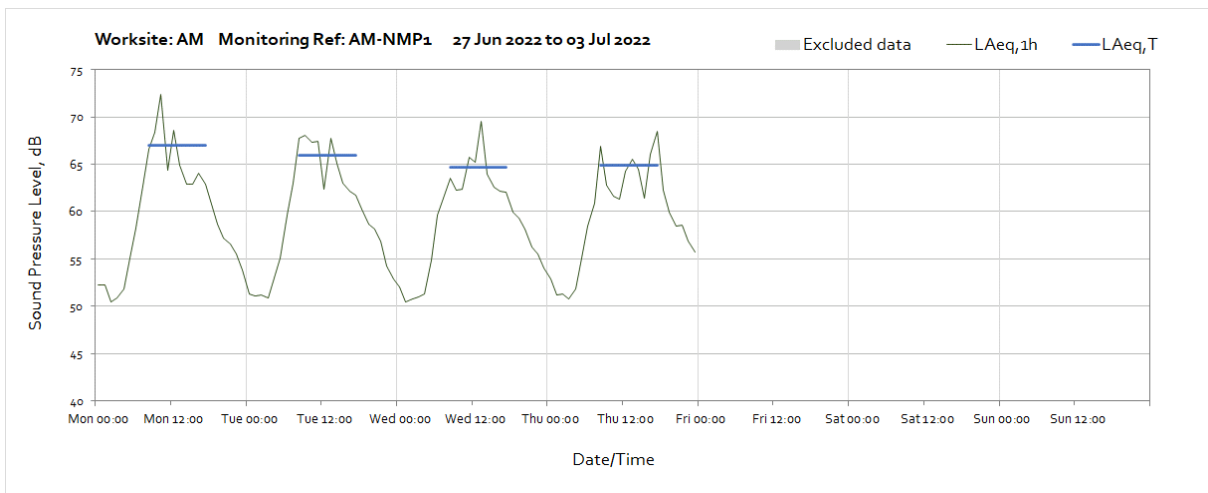
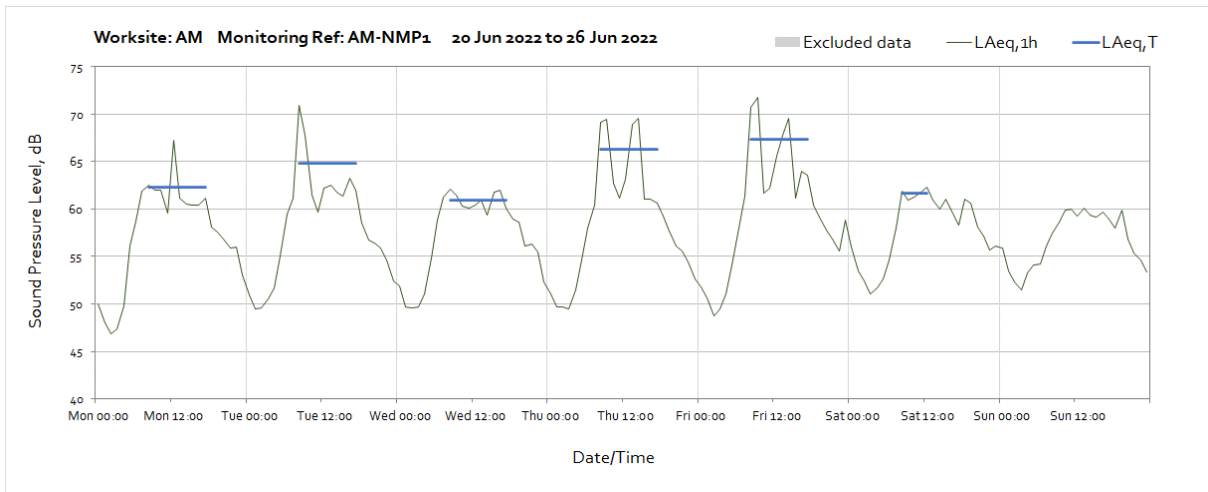
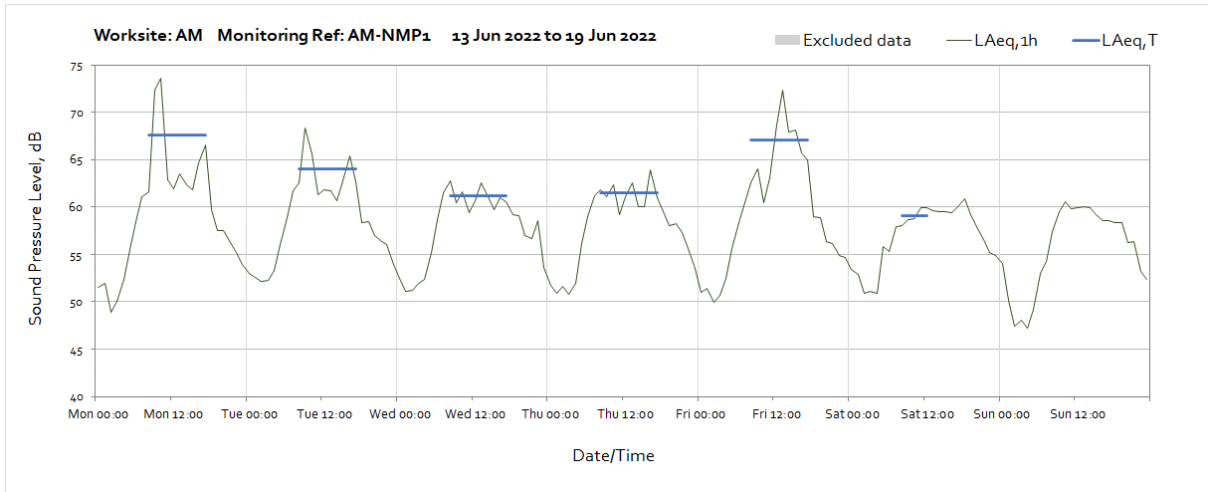


Note: Missing data between 12:00 and 13:00 on Monday 20th June was due to monitor maintenance.

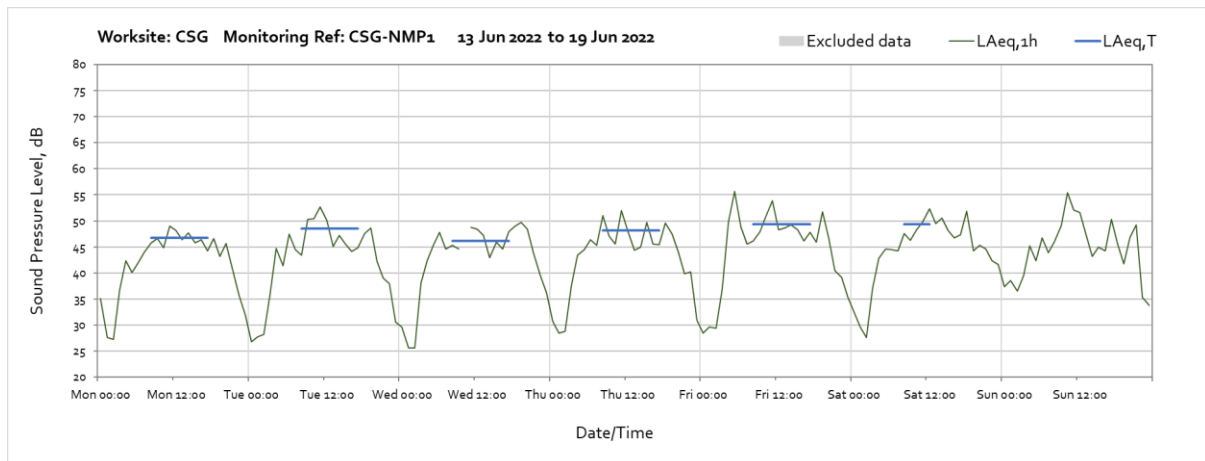
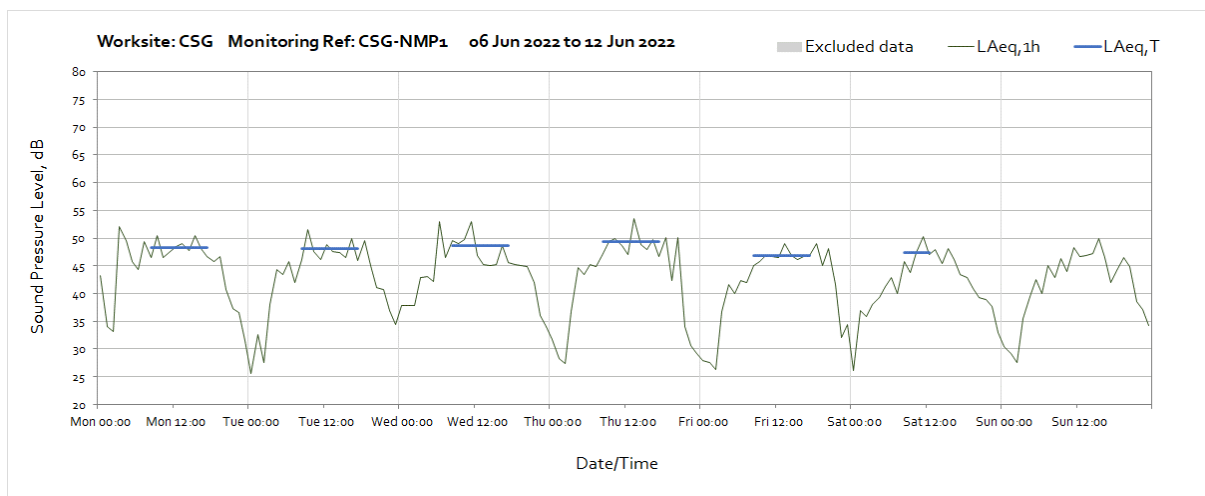
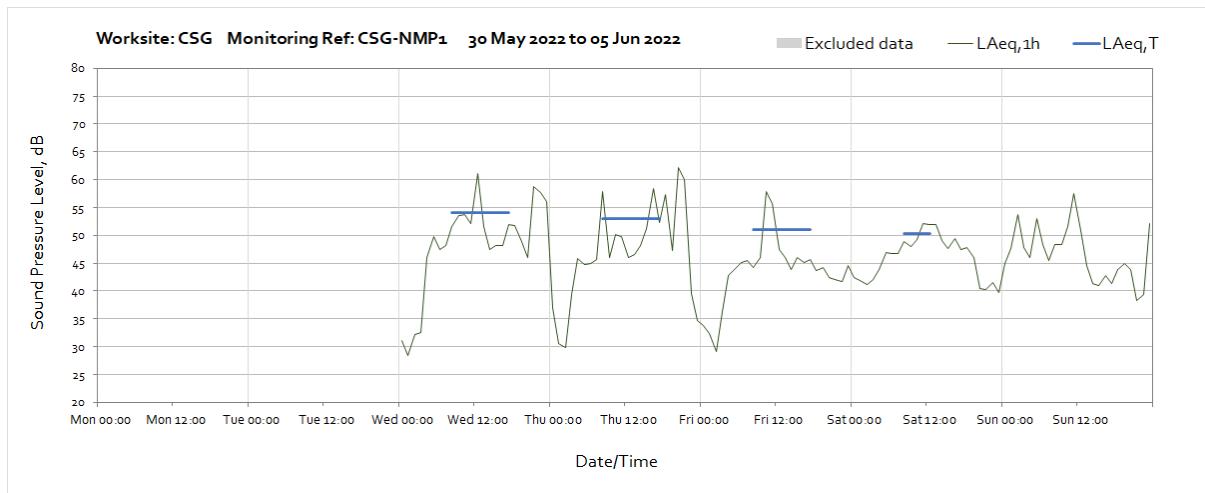


Worksite: AM - Monitoring Ref: AM-NMP1



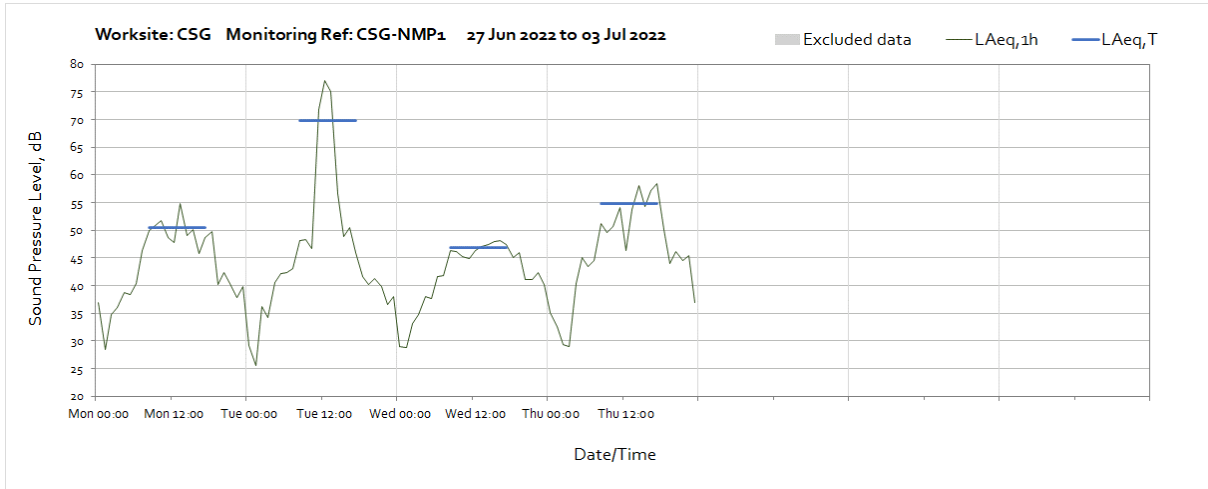
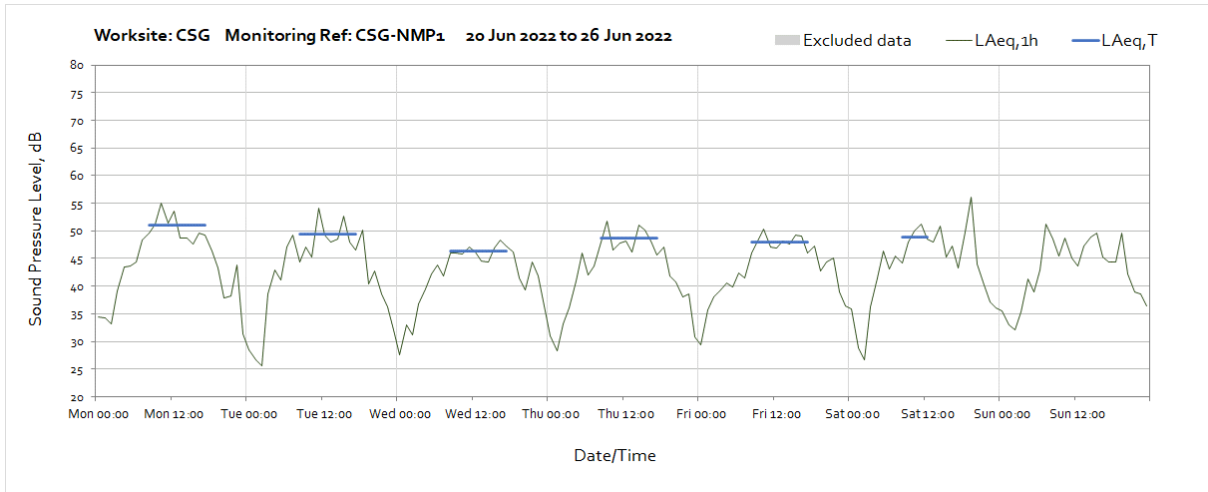


Worksite: CSG – Monitoring Ref: CSG-NMP1

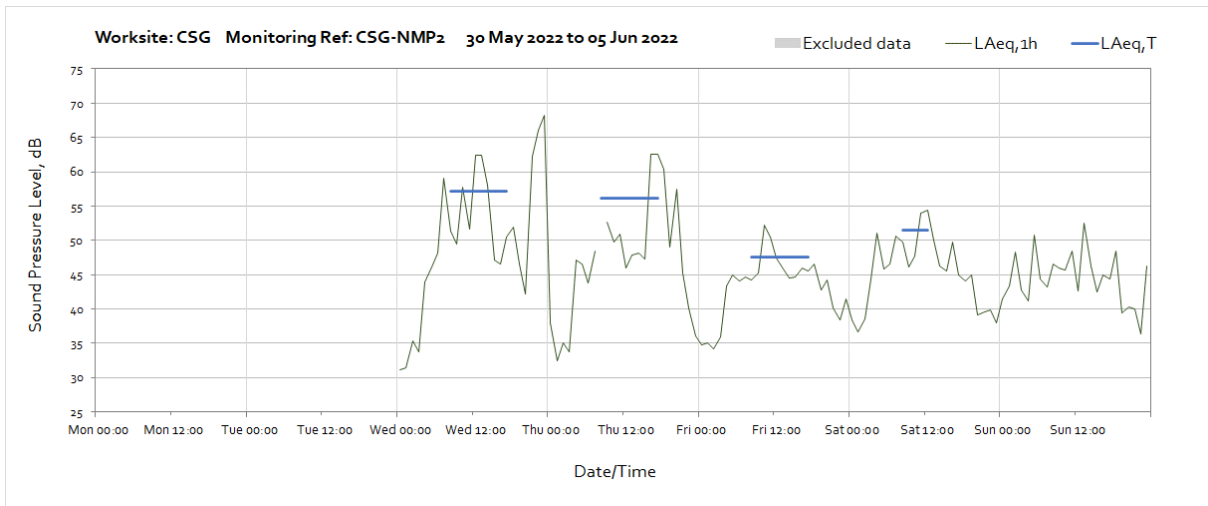


Note: Missing data between 10:00 and 11:00 on Wednesday 15th June was due to monitor maintenance.

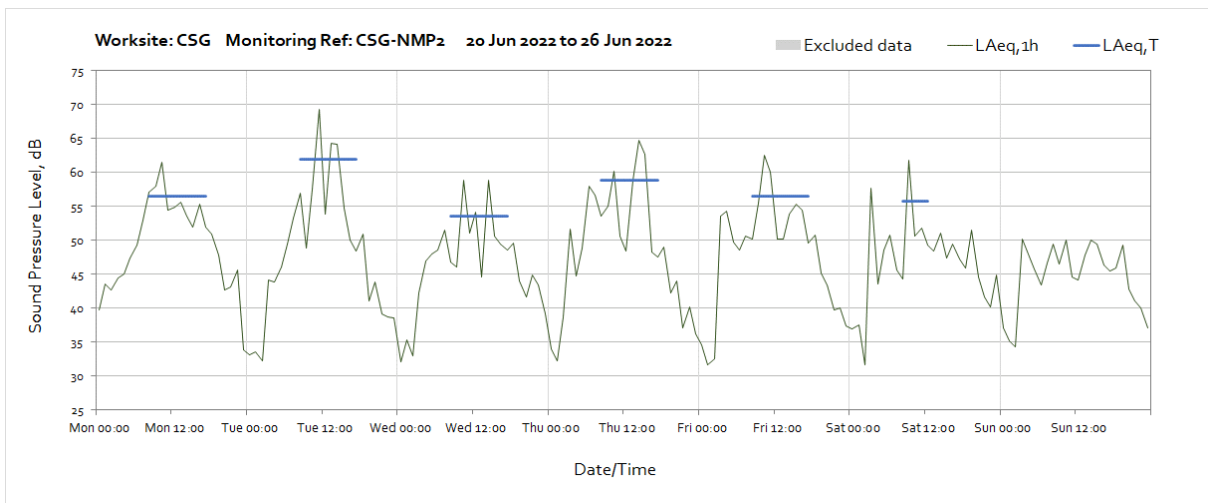
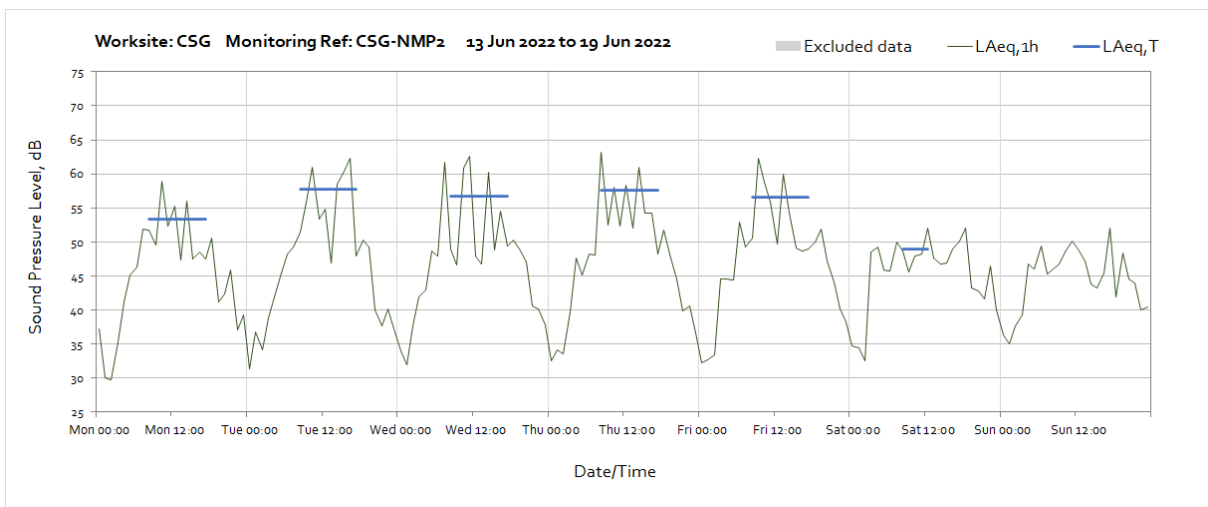
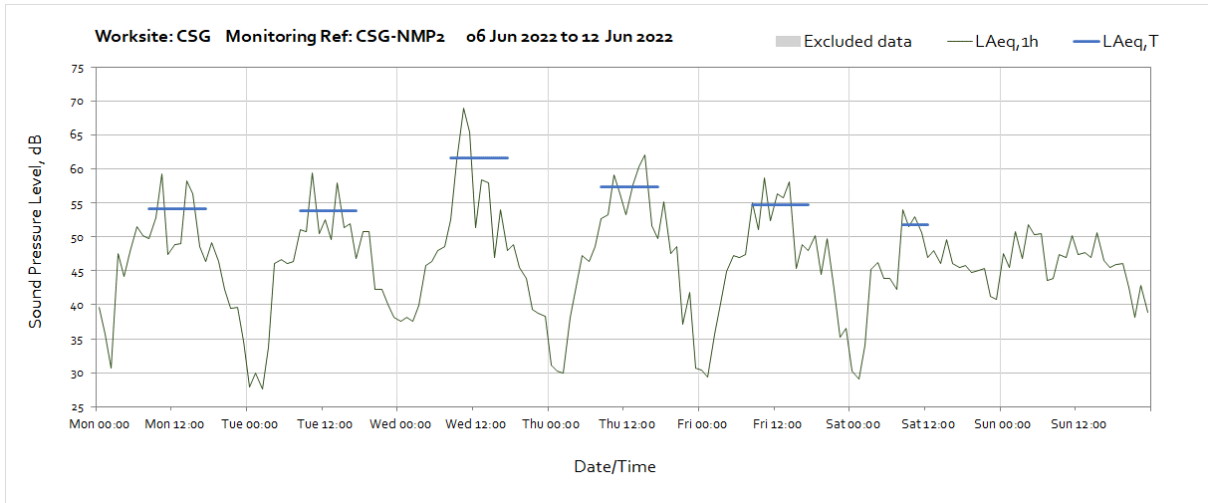
OFFICIAL

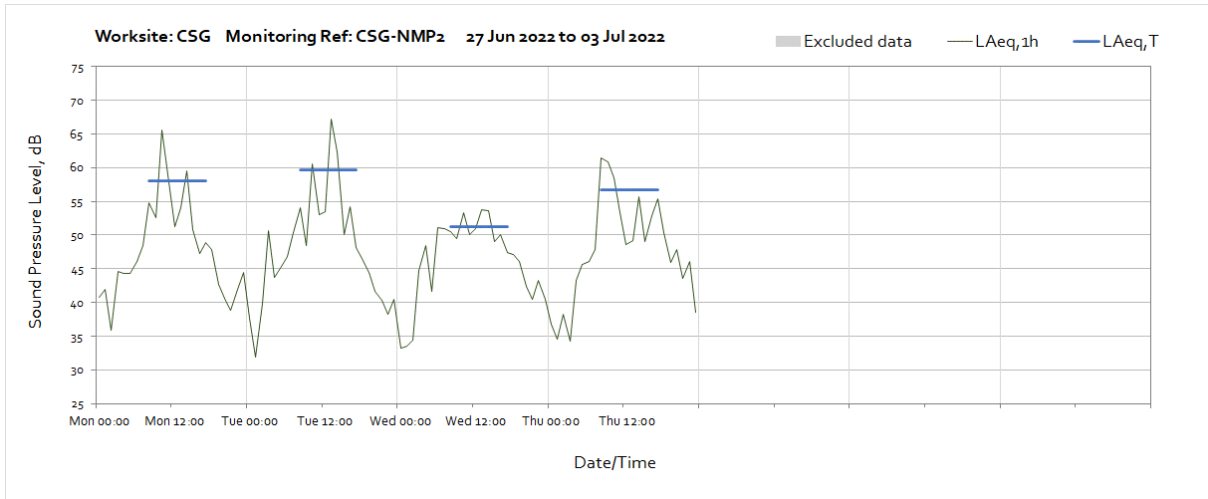


Worksite: CSG – Monitoring Ref: CSG-NMP2

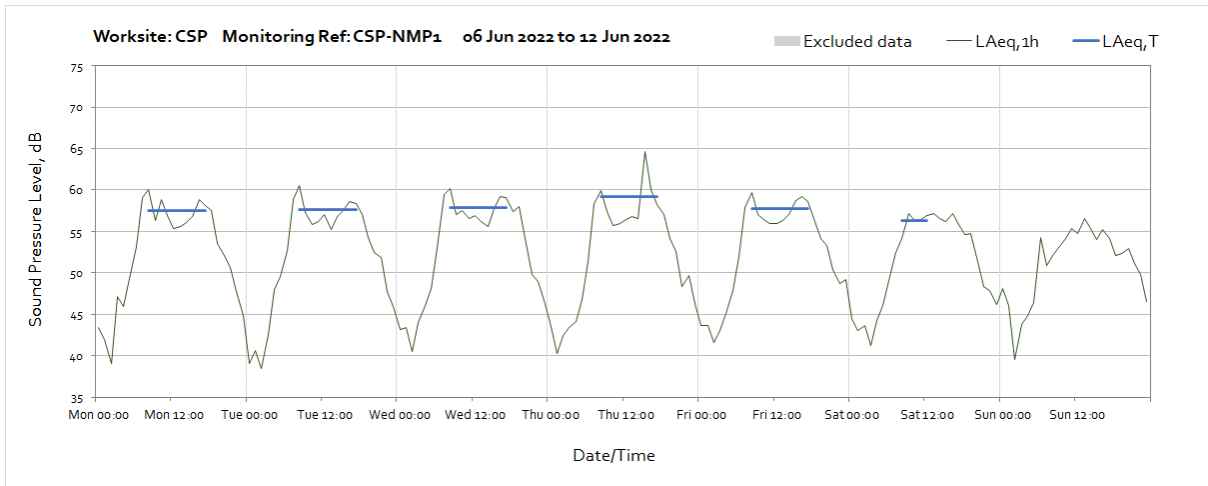
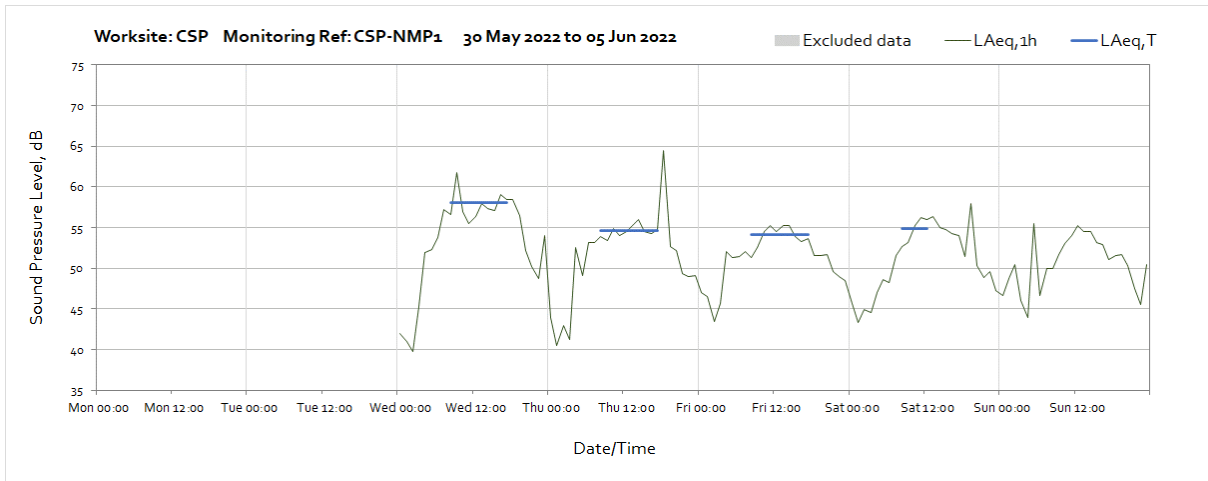


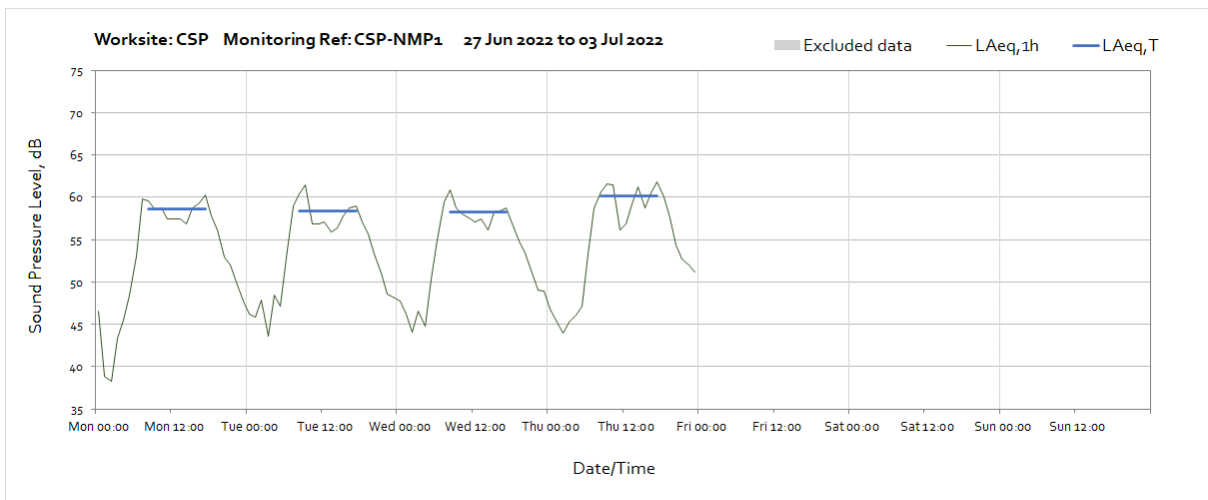
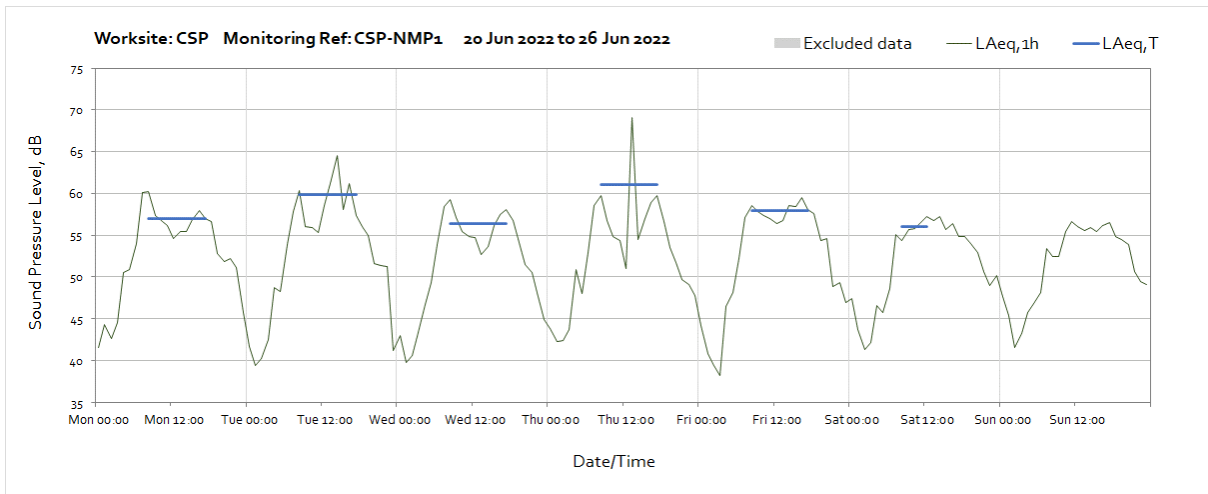
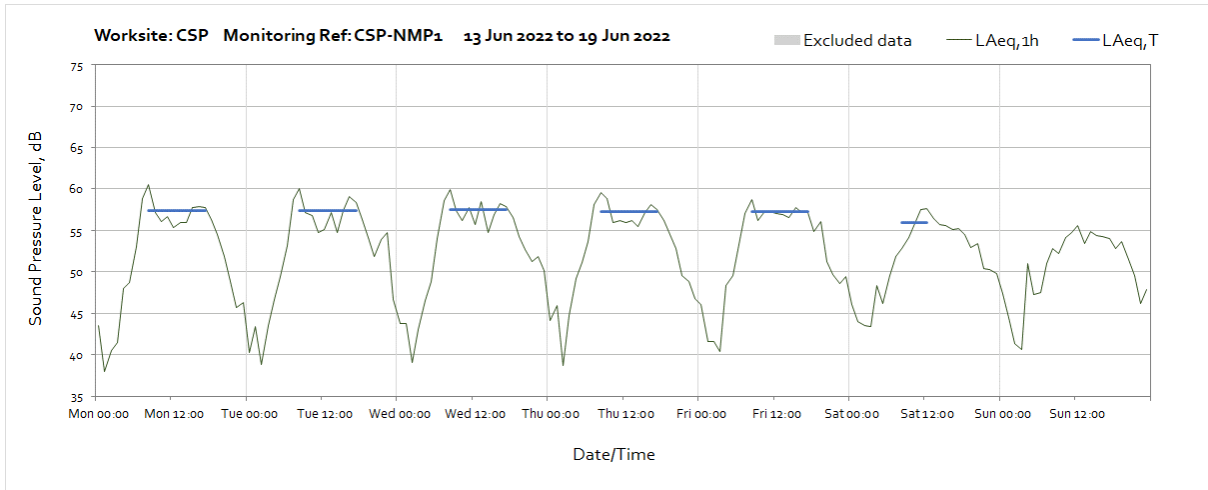
Note: Missing data between 08:00 and 09:00 on Thursday 2nd June was due to remote connection issues.



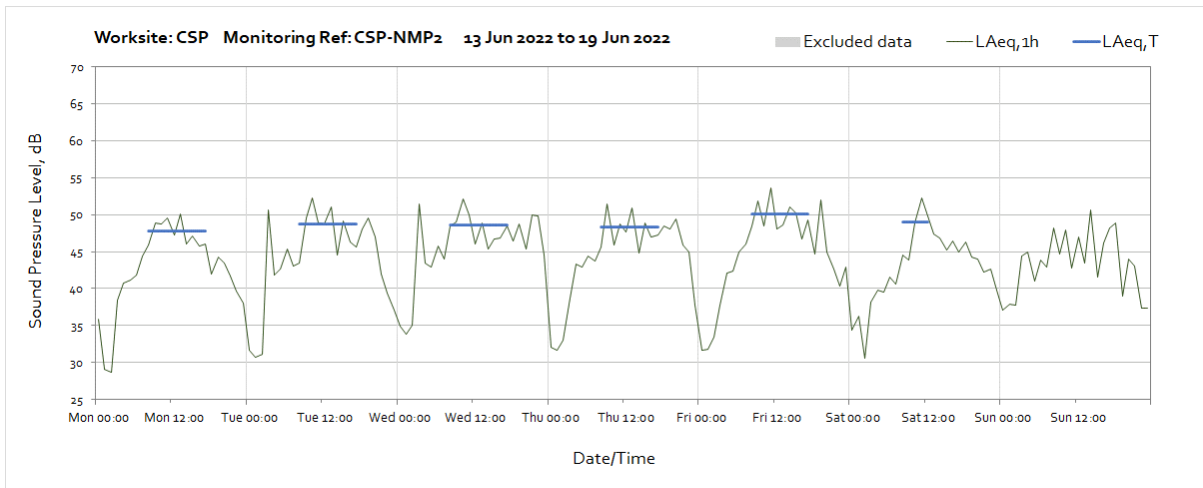
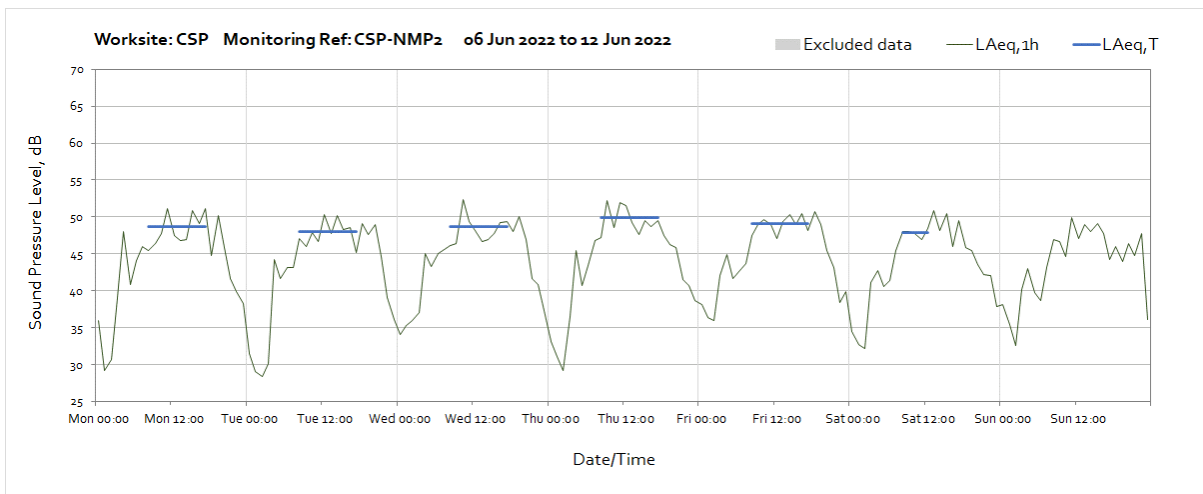
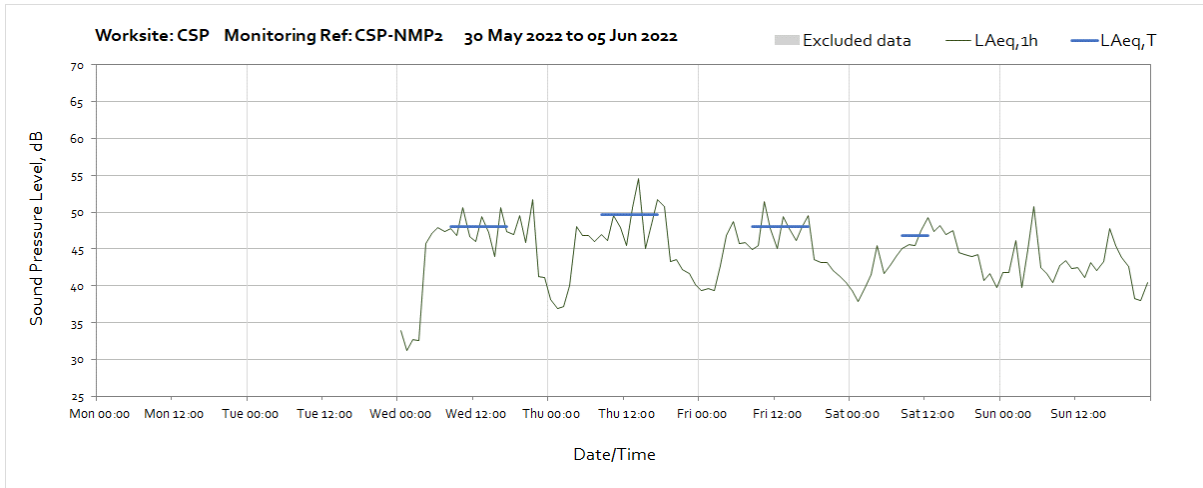


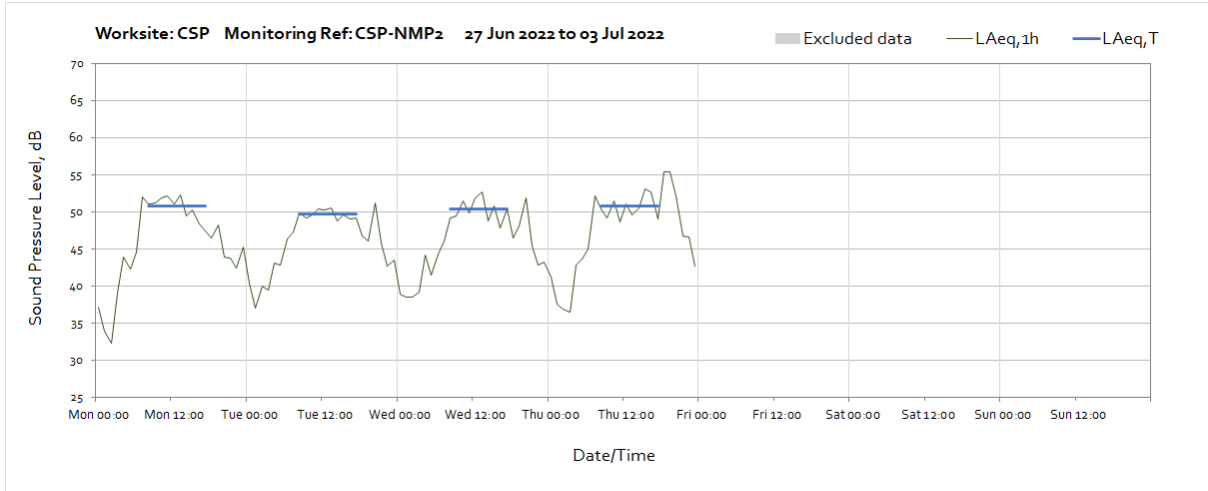
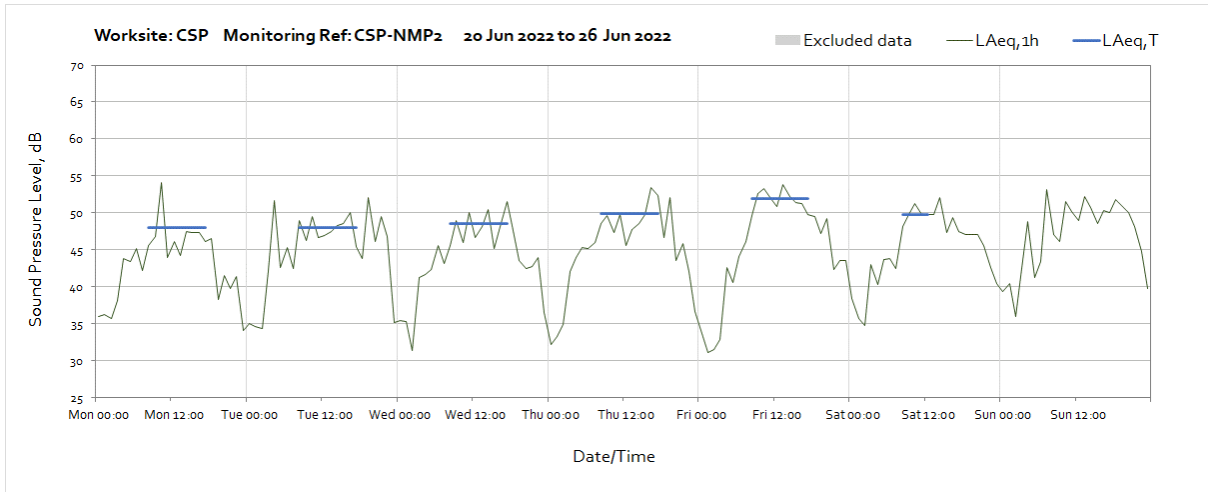
Worksite: CSP – Monitoring Ref: CSP-NMP1



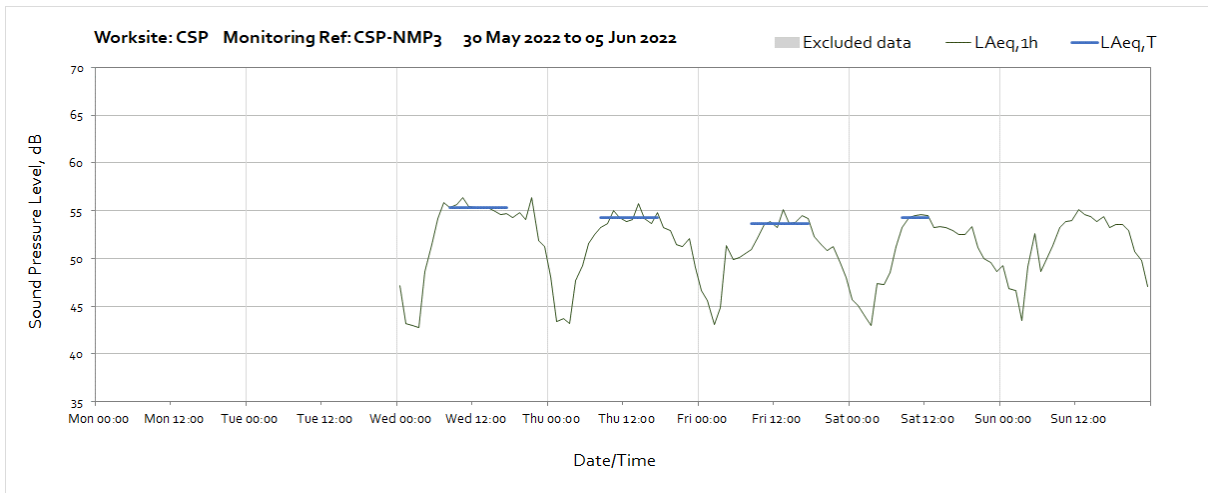


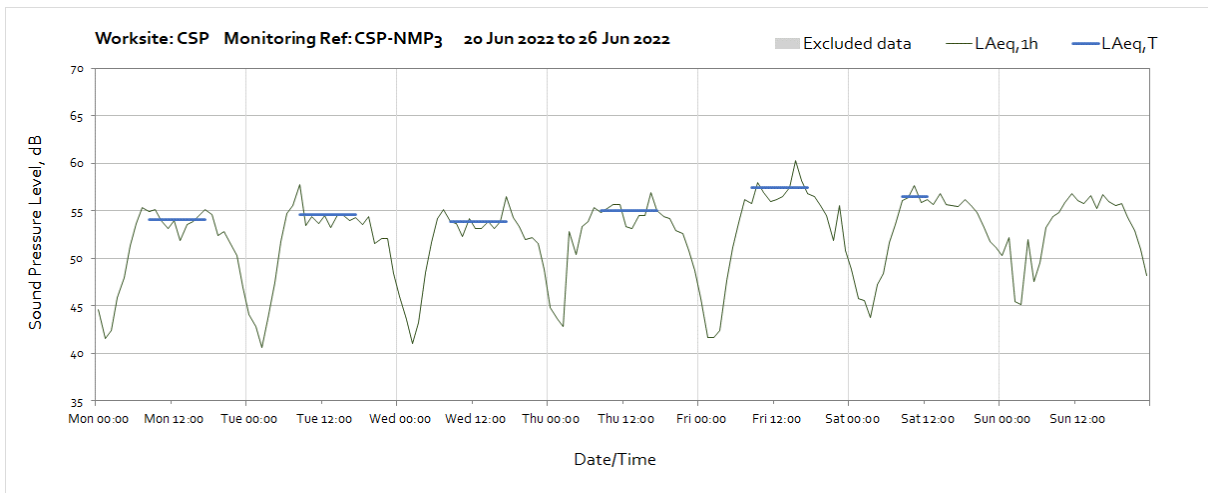
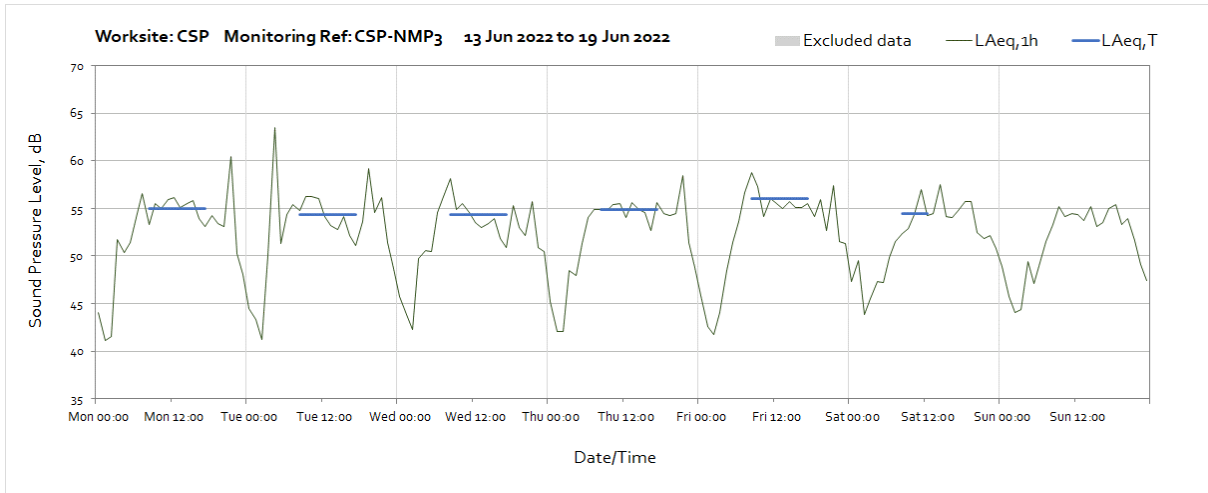
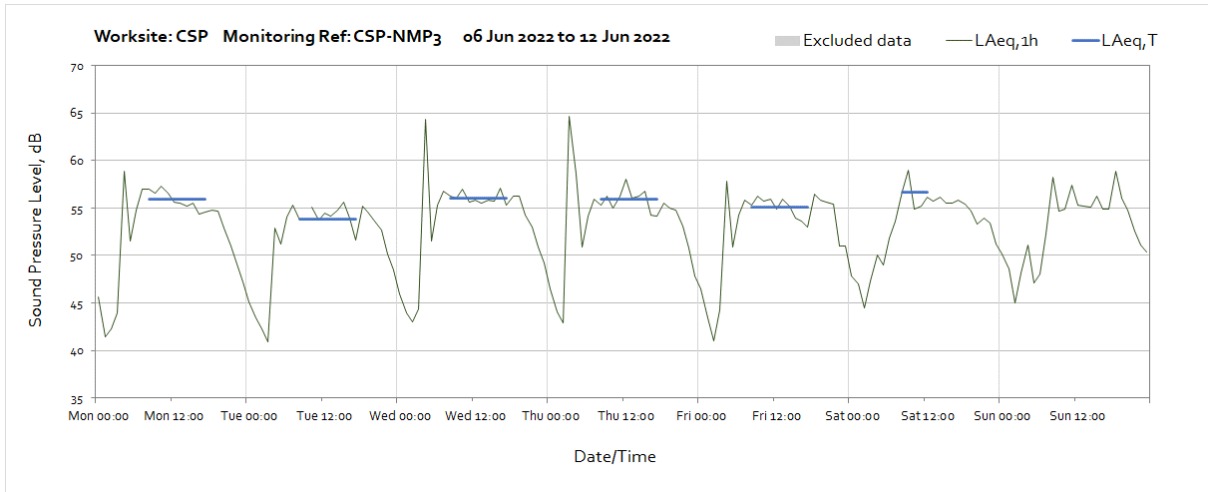
Worksite: CSP – Monitoring Ref: CSP-NMP2

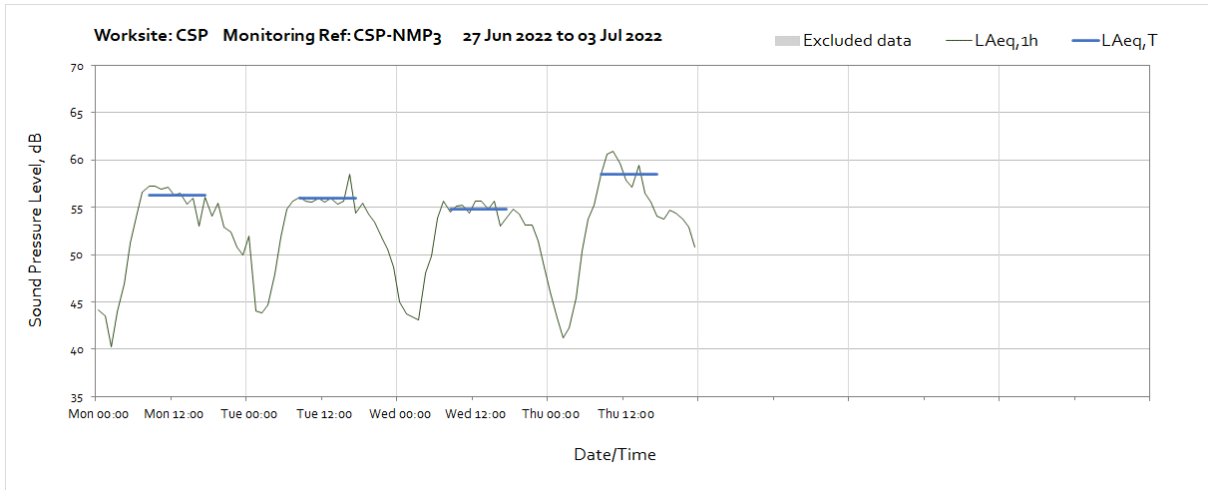




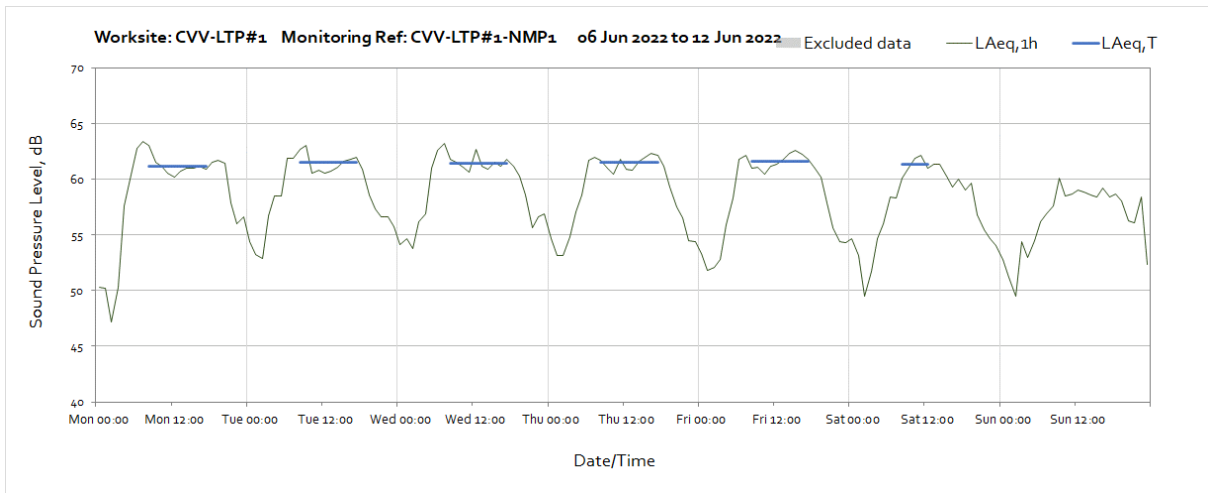
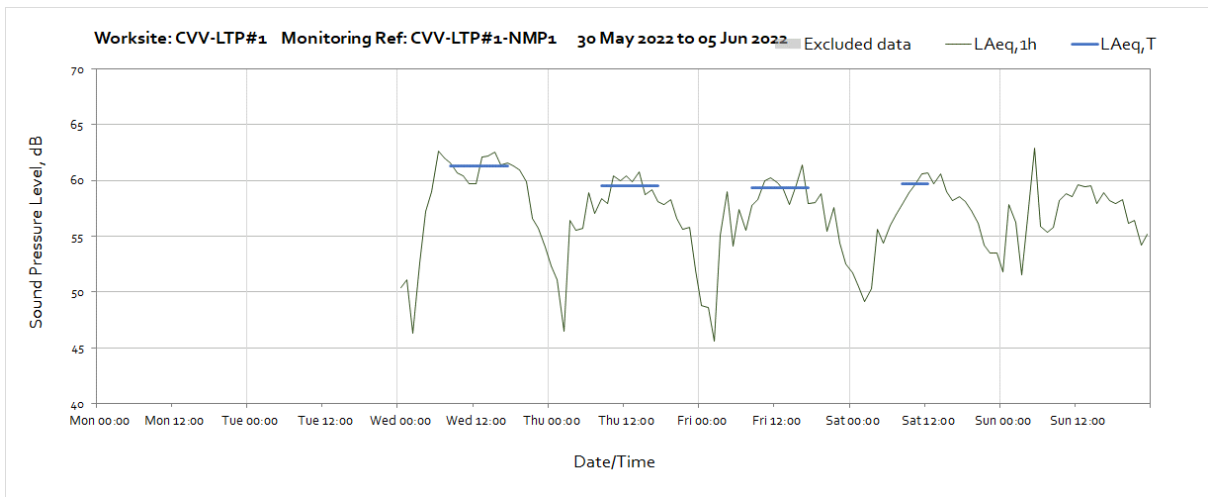
Worksite: CSP - Monitoring Ref: CSP-NMP3

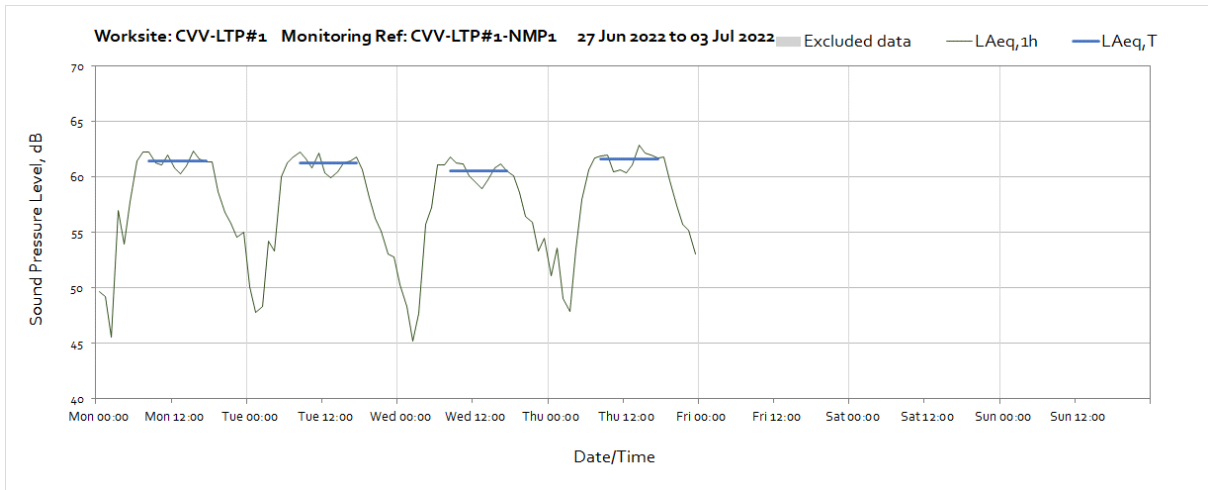
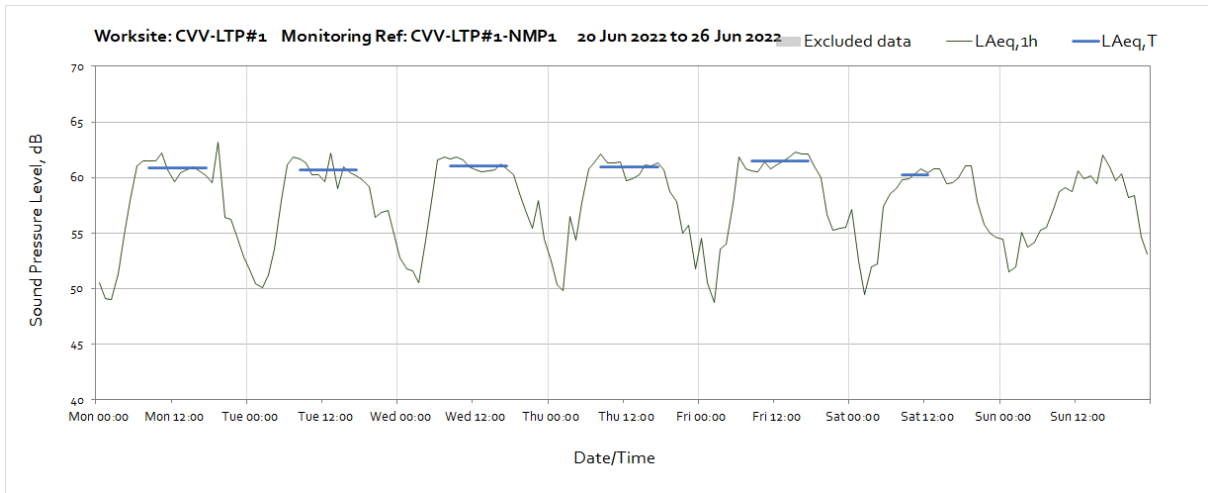
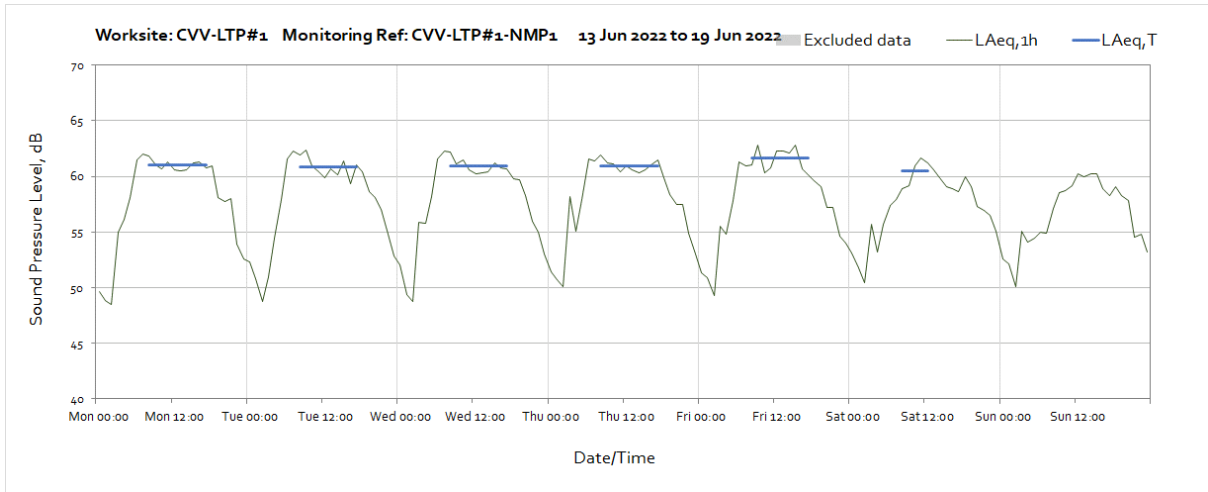




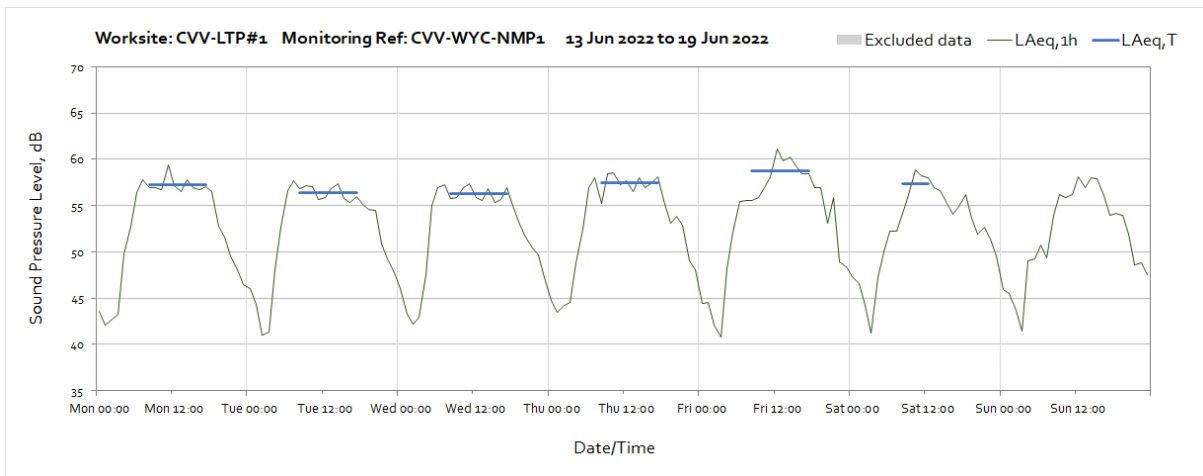
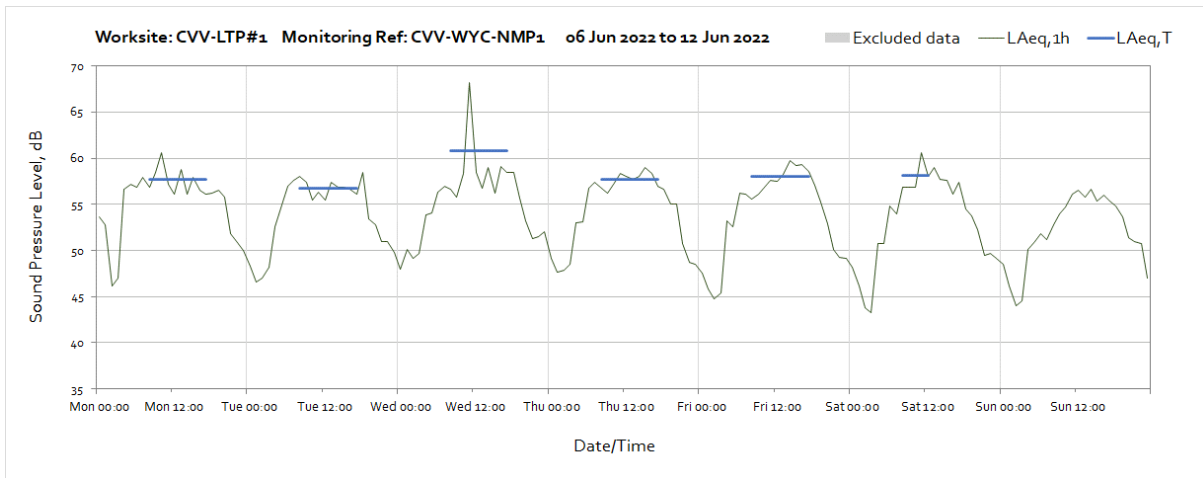
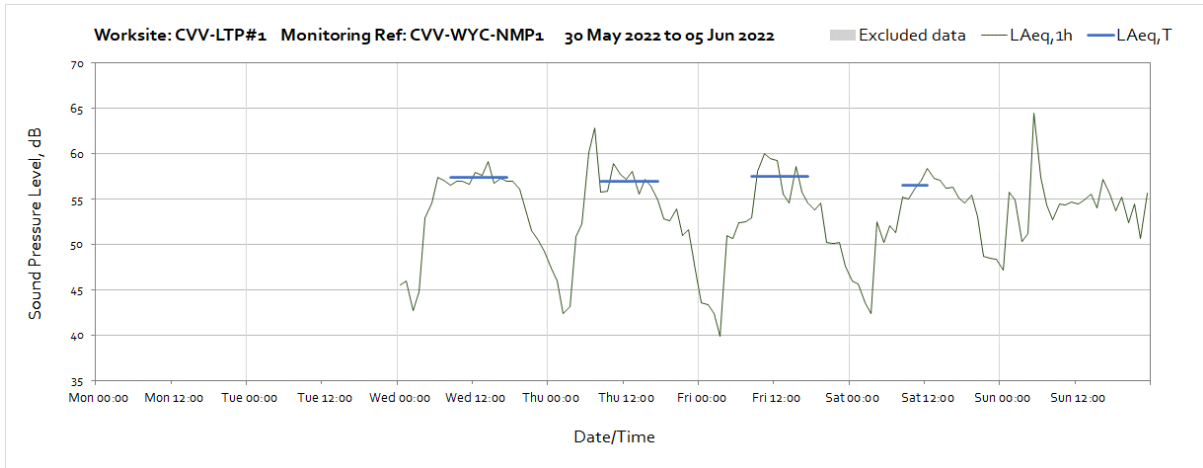


Worksite: CVV-LPT#1 – Monitoring Ref: CVV-LPT#1-NMP1

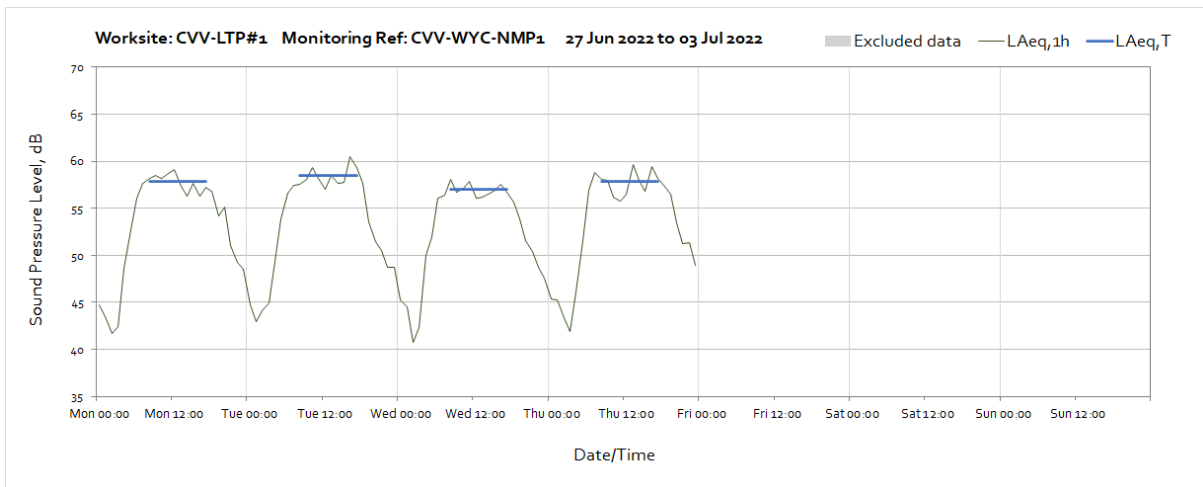
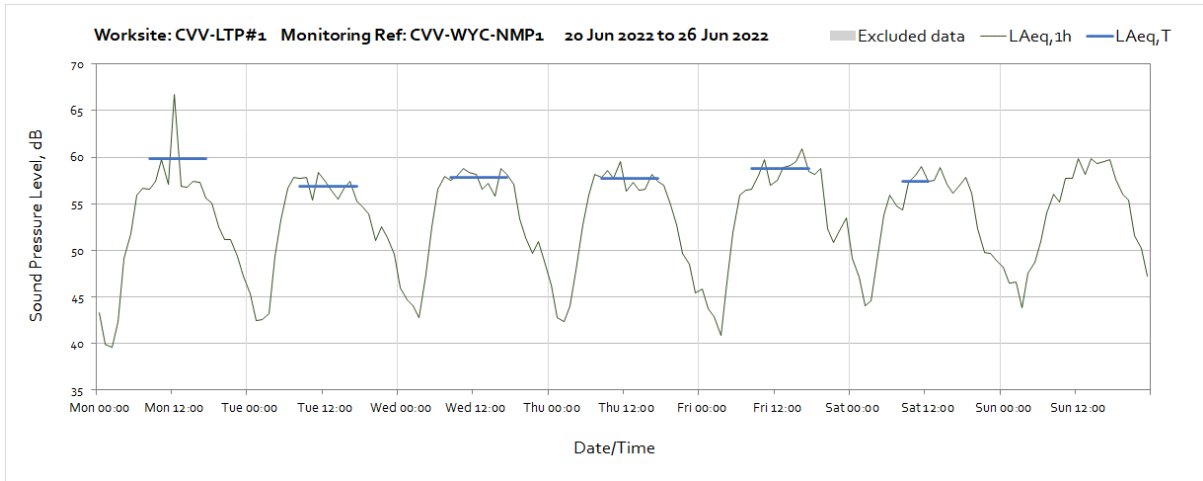




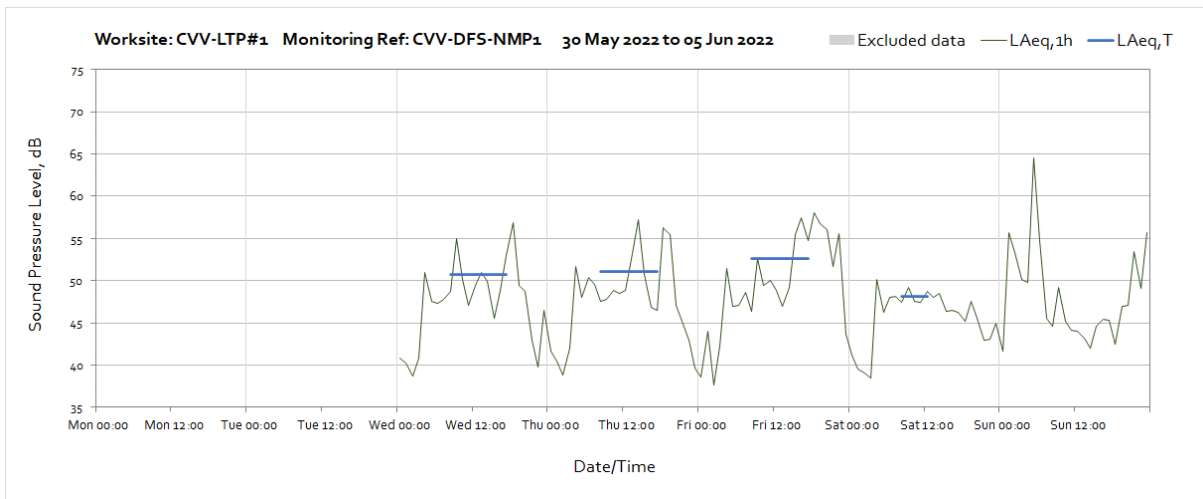
Worksite: CVV-LPT#1 – Monitoring Ref: CVV-WYC-NMP1

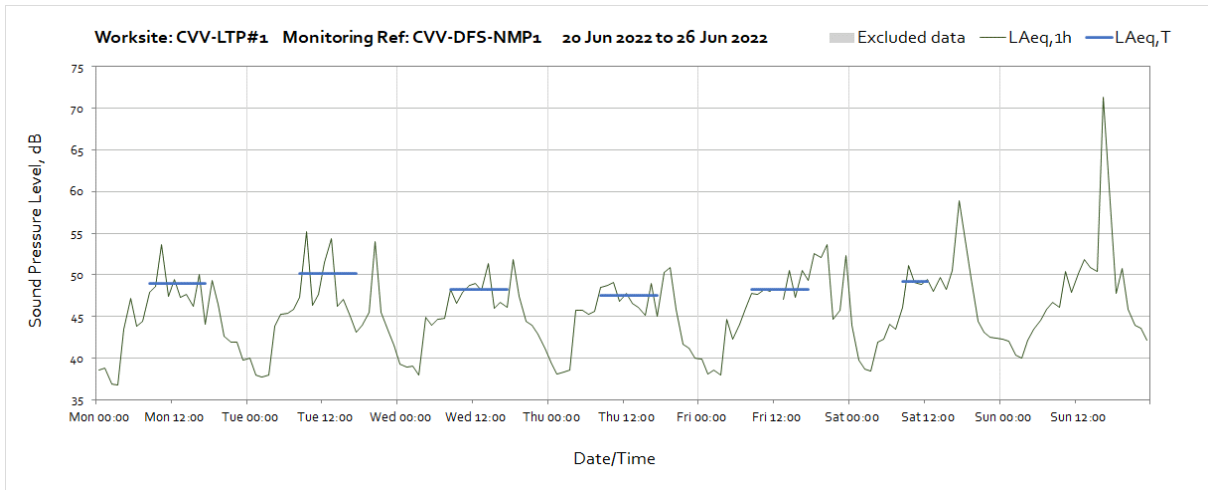
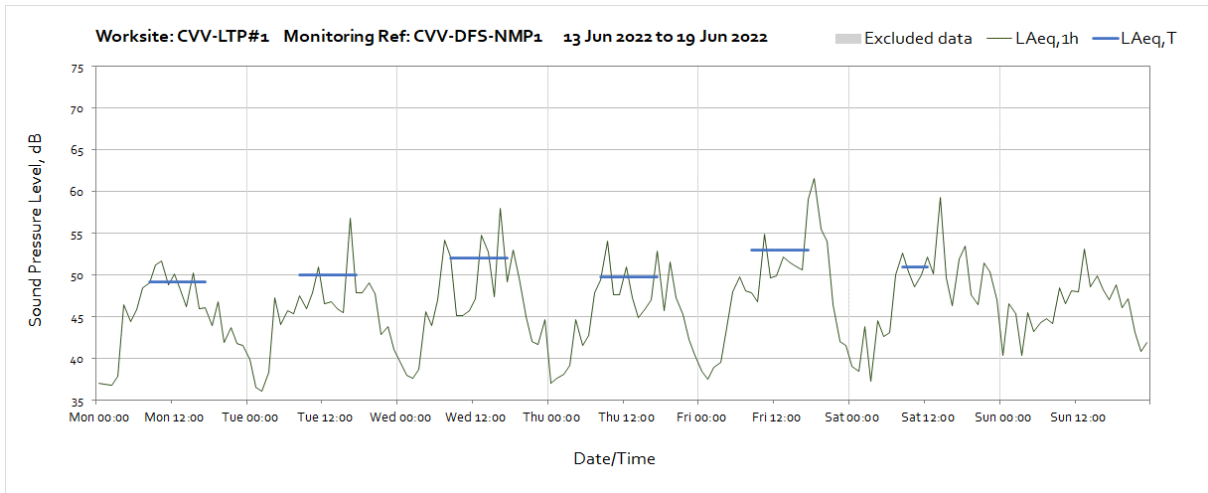
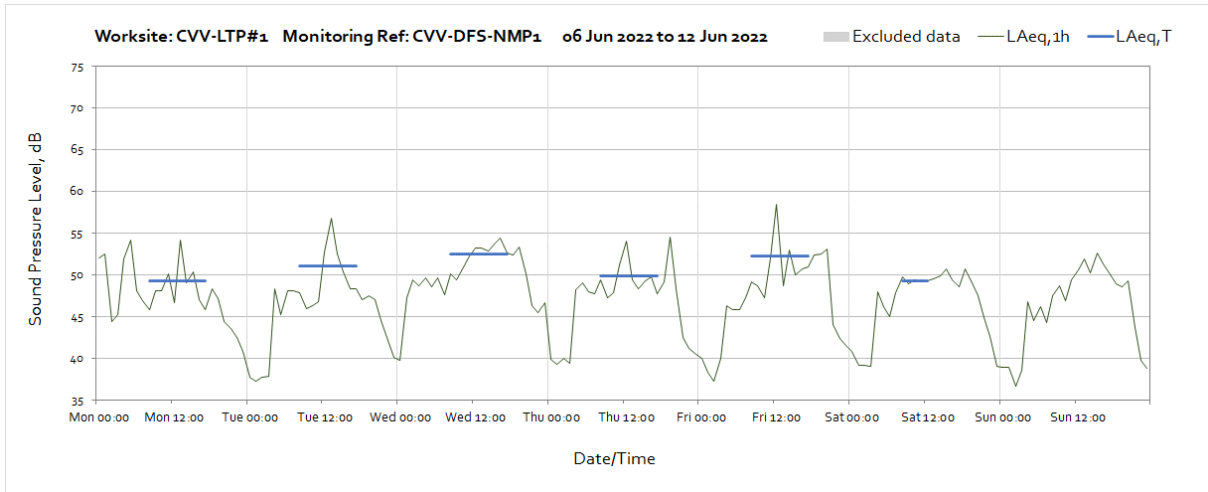


OFFICIAL

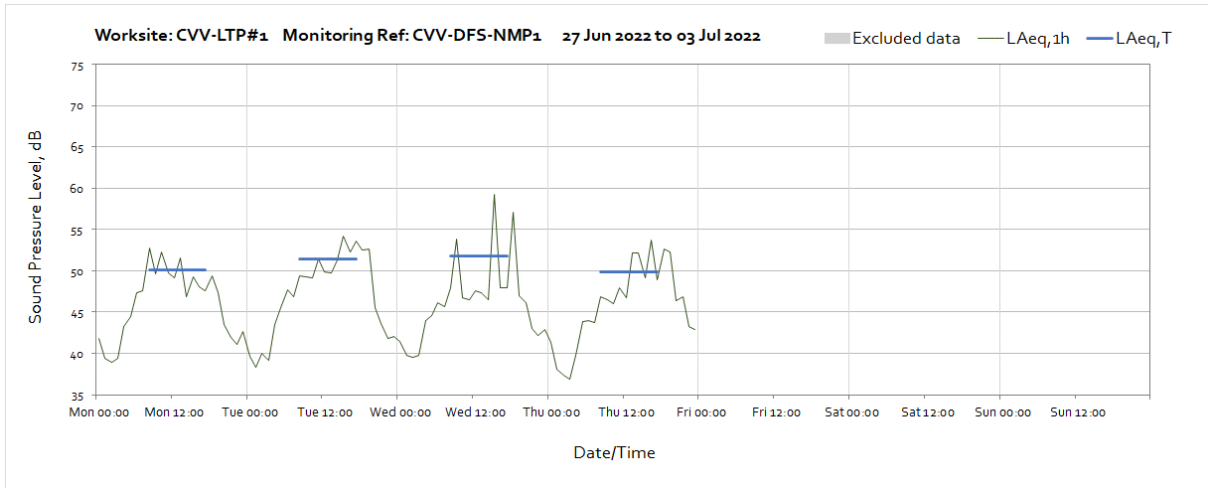


Worksite: CVV-LTP#1 – Monitoring Ref: CVV-DFS-NMP1

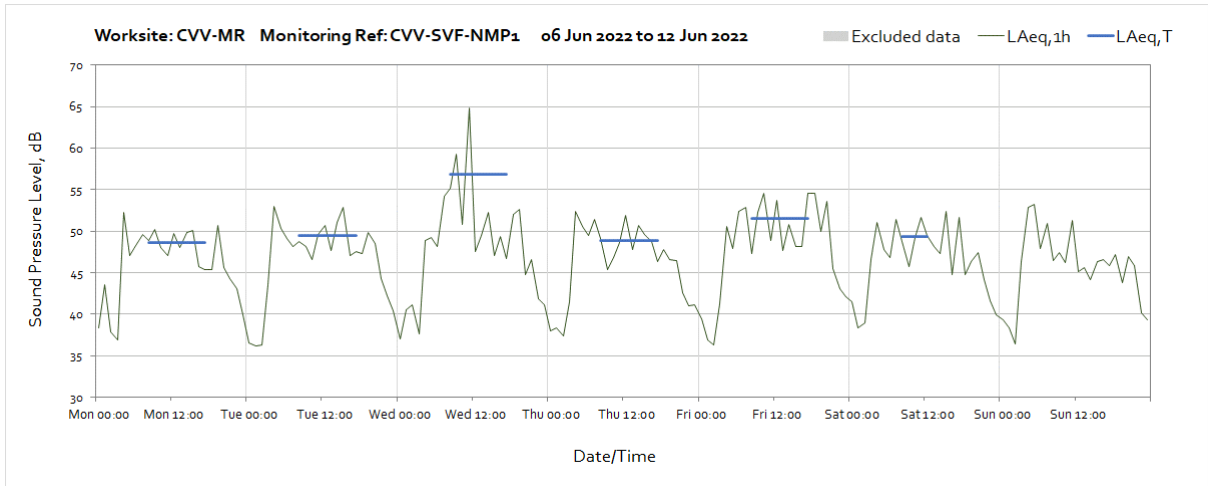
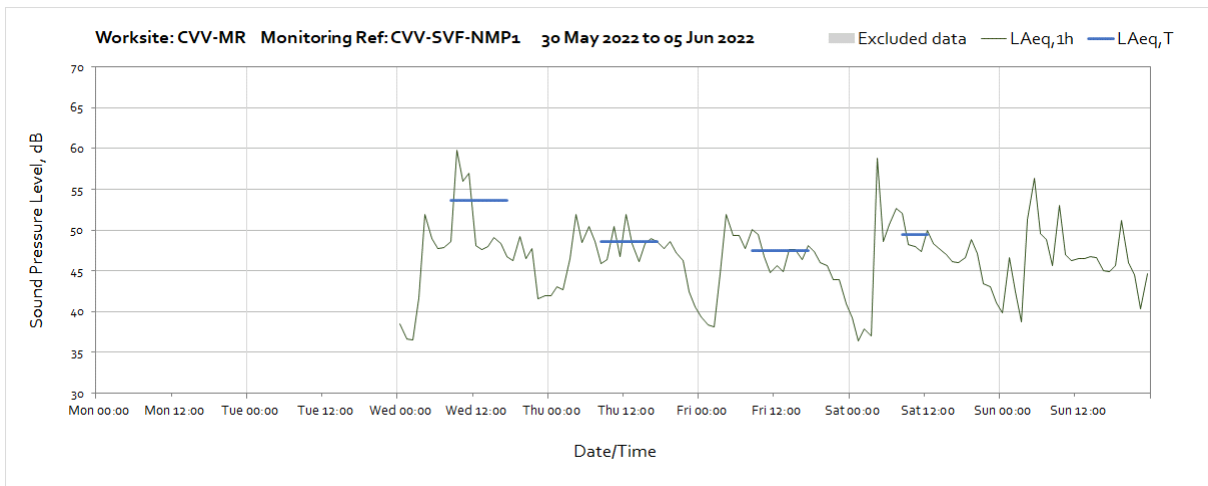


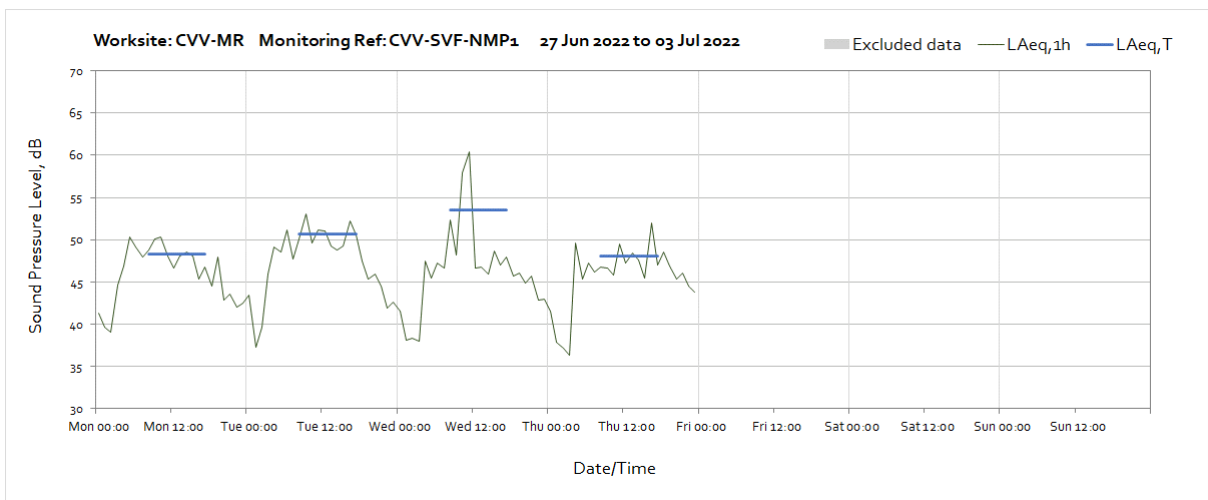
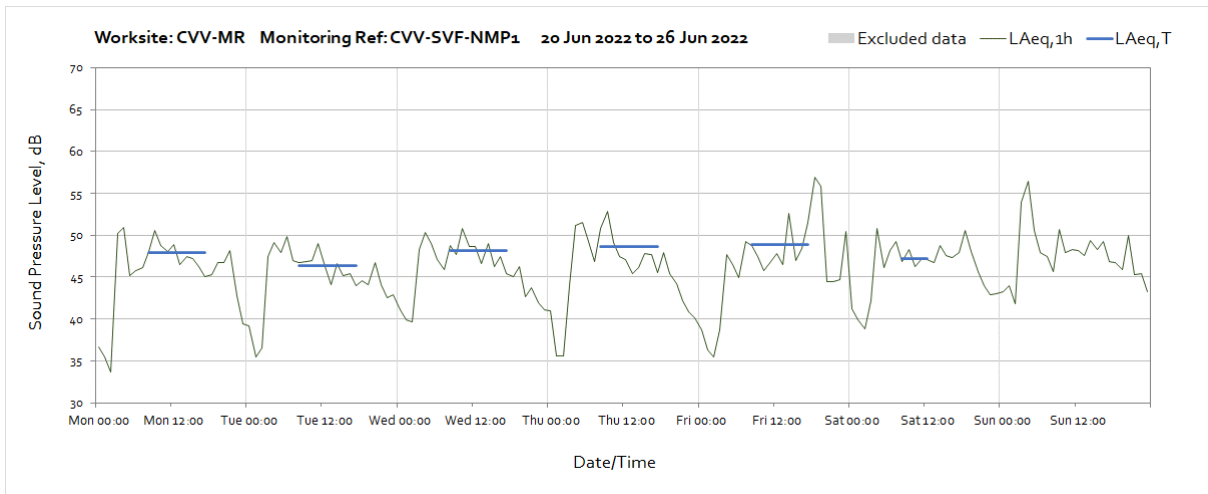
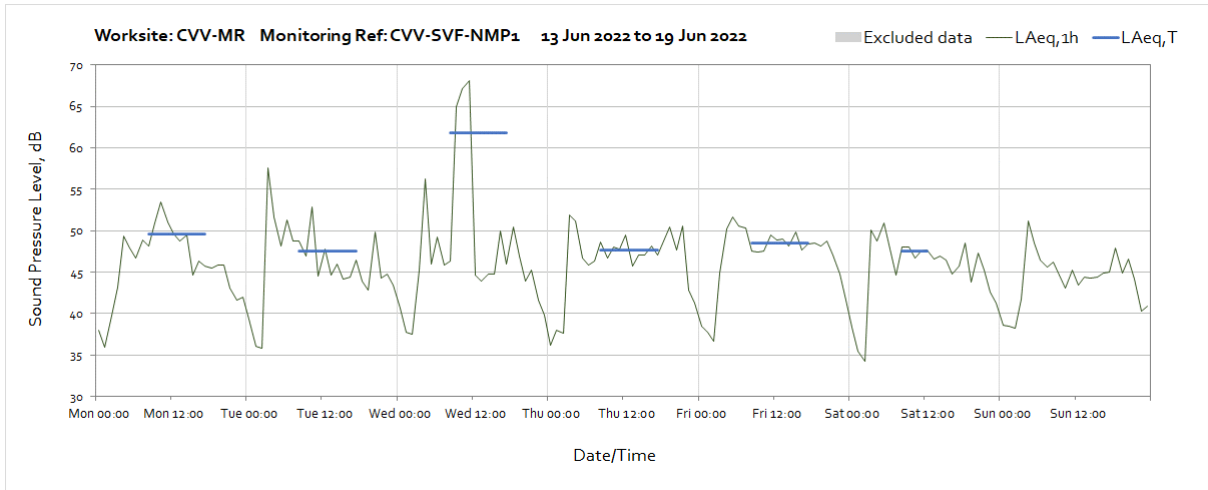


Note: Missing data between 12:00 and 13:00 on Friday 24th June as due to monitor field calibration.



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

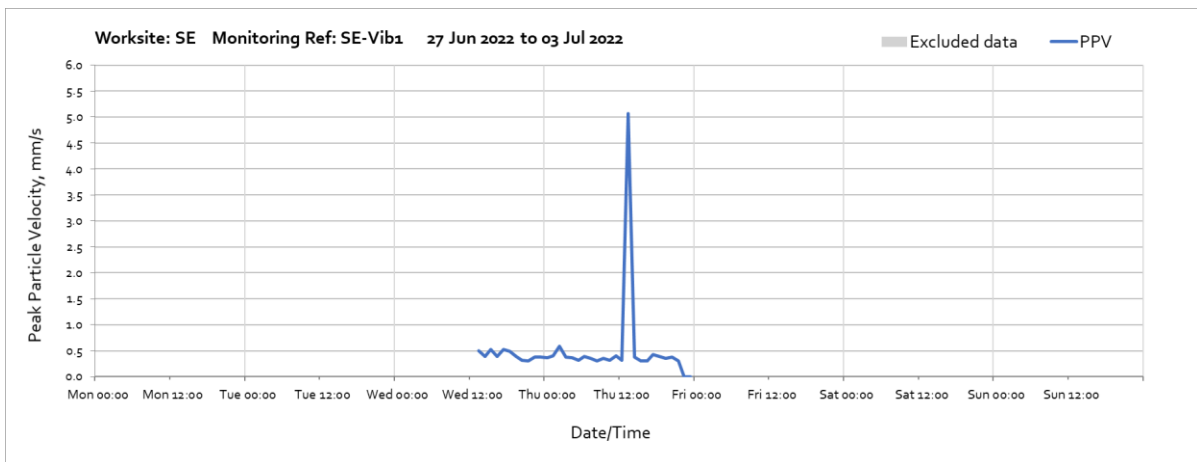




Vibration

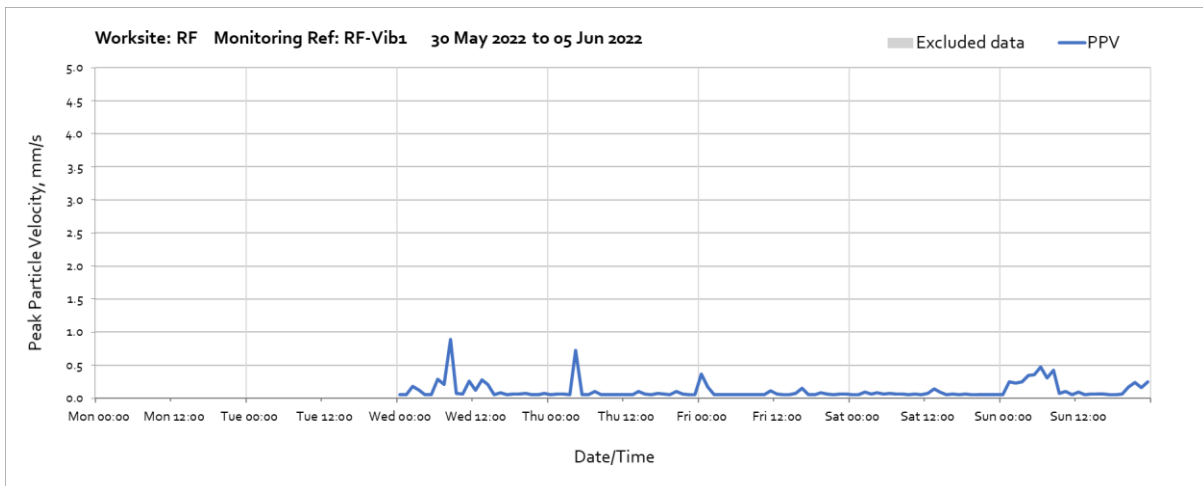
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axes x, y and z. Where high values of PPV were caused by local interference with the vibration monitor, which are not representative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

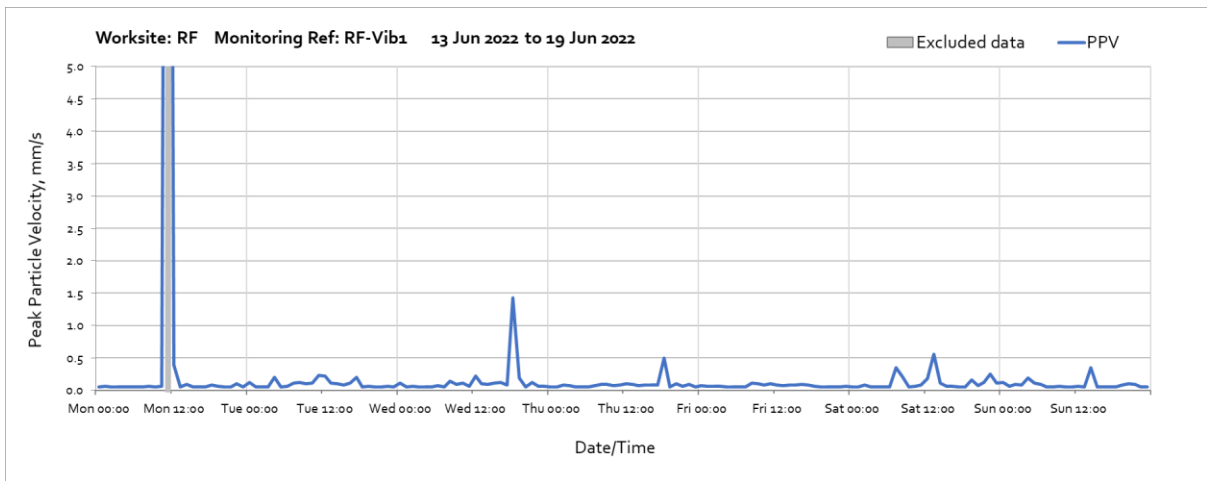
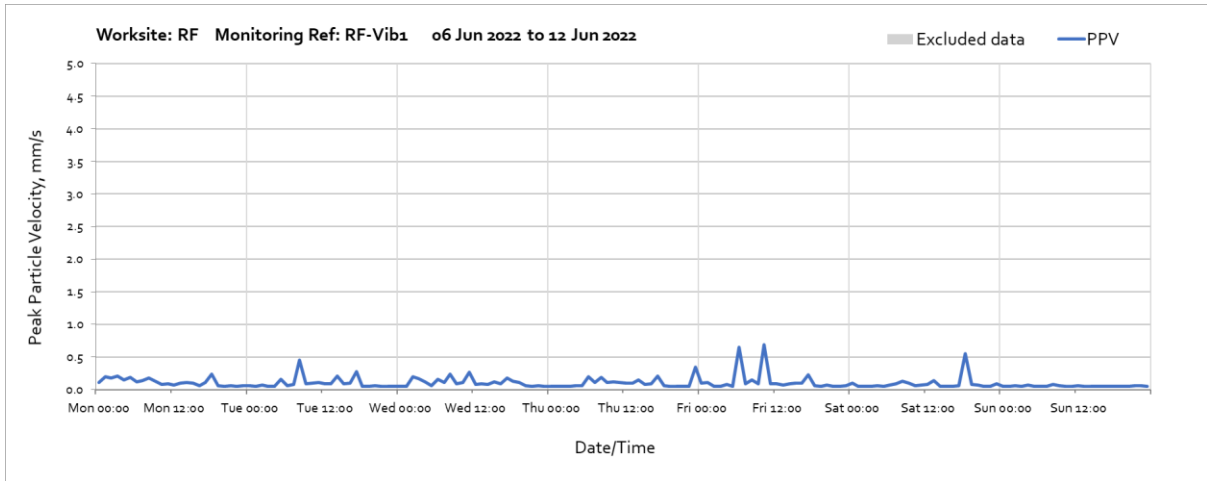
Worksite: SE – Monitoring Ref: SE-Vib 1



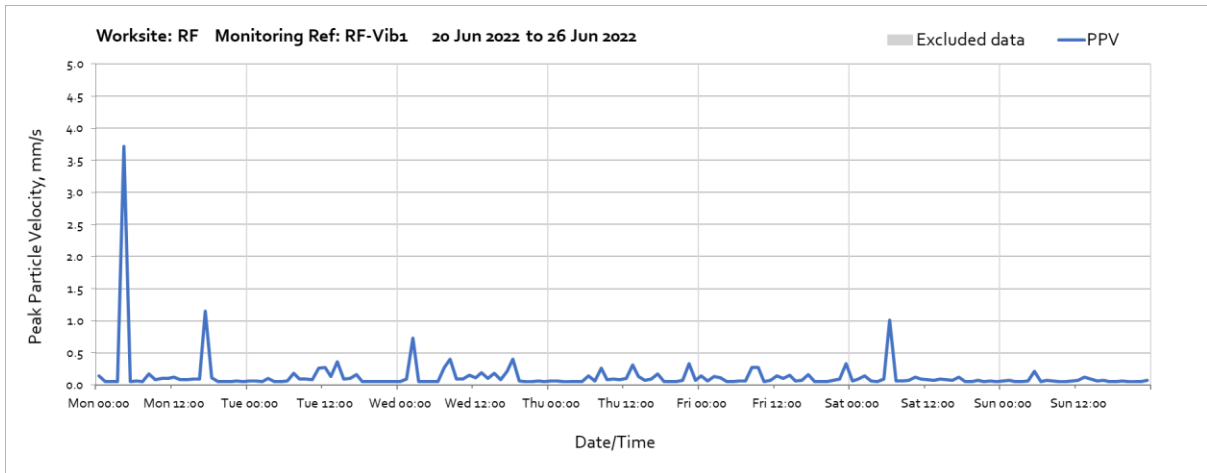
Note: Missing data from the beginning of the month till 13:00 on Wednesday 29th June was due to monitor failure caused by water ingress. Missing data from 22:00 to 23:00 on Thursday 30th June was due to a system glitch.

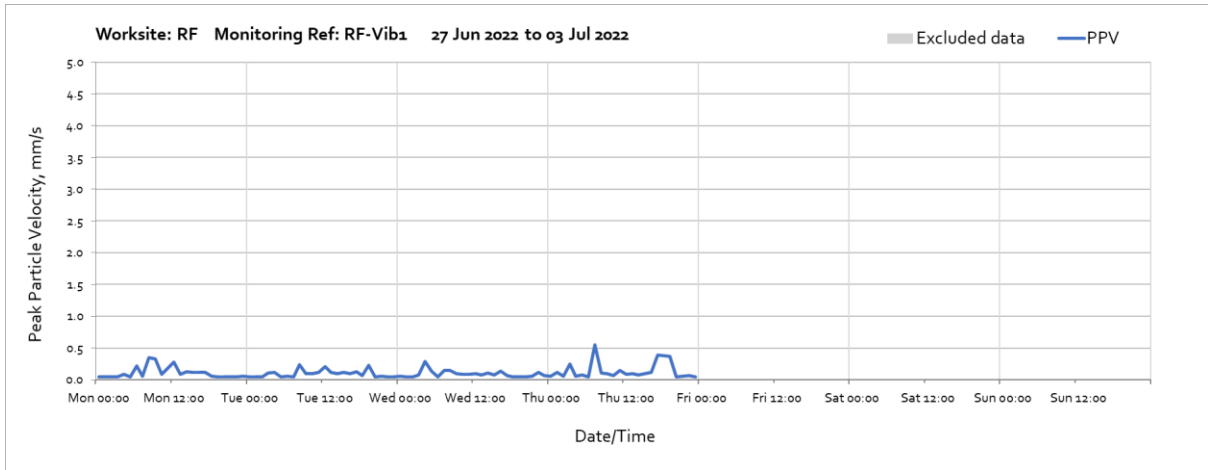
Worksite: RF – Monitoring Ref: RF-Vib 1





Note: High vibration levels measured at 11:00 on Monday 13th June were due to maintenance of the monitoring equipment.





Worksite: ER – Monitoring Ref: ER-Vib 1-Temp

