

Construction Noise and Vibration Monthly Report – March 2022

Buckinghamshire

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Non-Technical Summary

This Noise and Vibration Monitoring Report fulfils HS2 Limited's commitment detailed in the Environmental Minimum Requirements (EMRs), Annex 1, Code of Construction Practice, to present the results of noise monitoring carried out within Buckinghamshire (BS) during the month of March 2022.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of A422 Turweston North Worksite (ref.: A422 TN) where topsoil stripping and excavations were undertaken.
- Noise monitoring was undertaken in the vicinity of School End worksite (ref.: SE) where compound setup, stone deliveries and topsoil stripping works were undertaken.
- Noise monitoring was undertaken in the vicinity of Rosehill Farm worksite (ref.: RF) where no work activities were undertaken during the reporting period.
- Noise monitoring was undertaken in the vicinity of Hermitage Chetwode worksite (ref.: HC), where no works were undertaken during the reporting period.
- Noise monitoring was undertaken in the vicinity of West Street Overbridge worksite (ref.: WSO) where temporary utility diversions, construction of access road, stone deliveries and construction of causeway structure were undertaken.
- Noise monitoring was undertaken in the vicinity of Addison Road worksite (ref.: AR) where piling works, concrete pours and utility diversions were underway.
- Noise monitoring was undertaken in the vicinity of School Hill Compound worksite (ref.: SHC) where construction of site access roads was undertaken.
- Noise monitoring was undertaken in the vicinity of the School Hill UTX worksite (ref.: SHU) where drainage works, backfilling and site demobilisation works were underway.
- Noise monitoring was undertaken in the vicinity of the Quainton worksite (ref.: QAR) where utility diversion works were underway.
- Noise monitoring was undertaken in the vicinity of the FCC Sidings worksite reference (ref: FCC) where construction of site access road and crane demolition works were underway.
- Noise monitoring was undertaken in the vicinity of Meadoway and Glebe House, Aylesbury worksite (ref: MW&GH) where compound establishment, road construction (including road tie-in with highway), and earthworks were undertaken.

- Noise monitoring was undertaken in the vicinity of Oat Close Worksite (ref: OC) where earthworks, stockpile management, access road maintenance works and material deliveries were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane Worksite (ref.: NLL) where earthworks and stockpiling were underway.
- Noise monitoring was undertaken in the vicinity of Ellesborough Road Worksite (ref.: ER) where access road construction was underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref: RLE) where compound enabling works, asphaltting, earthworks, construction of access road and internal site haul road works, concrete pours, piling and ground investigation works were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref: LL) where asphaltting, earthworks, piling and stabilising of haul road were undertaken.
- 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 construction of temporary and permanent access roads, piling works, installation of temporary utilities, plant works, drainage works and removing of spoil were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road Worksite (ref: CR) where site maintenance and operation, stockpile management and shaft construction were undertaken.
- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site maintenance and operation, ground post installation, including drilling and grouting works, dewatering works and piling works were underway.
- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site maintenance and operation, ground treatment works, dewatering works, temporary capping of beams, shaft excavation works and piling were underway.
- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where general site operations, stockpile management, shaft collar construction works, dewatering works, piling, road maintenance, secondary lining, construction of concrete structures, tunnel connections and construction of basement were underway.

- Noise monitoring was undertaken in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where general plant operations, piling works, road maintenance, secondary lining for concrete walls and floors, tunnel connections and basement construction were underway.
- Noise monitoring was undertaken in the vicinity of Load Test Pile 1 worksite (ref.: LTP #1), where piling (for the construction of the jetty, cofferdam, and main structure), compound operations, ground investigation works, realignment of River Colne, drilling works, backfilling and masking around abutments and walls, pumping water management, maintenance of haul roads, installation of satellite welfare, maintenance for generator farms, material storage, pile trimming, fencing works, utility diversion and installation, environmental maintenance works, construction of concrete slabs and demolitions of reinforced concrete slab, asphaltting, pier construction works, erection of bridge deck and gantries, and invasive vegetation removal were underway.

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

- Amersham where water diversion works were underway;
- East West Rail Overbridge where pouring of concrete for abutments, concrete repairs and wingwall rebar fixing works were undertaken;
- Charndon Lodge Underbridge where installation of abutment wall rebar were undertaken;
- Perry Hill Overbridge where piling, excavation and pile cropping works were underway;
- Oxford Line where earthworks and temporary drainage works were underway;
- Hills Farm where topsoil stripping and material deliveries were underway;
- Calvert Infrastructure Maintenance Depot (IMD) where temporary watercourse diversions were underway;
- East West Rail Culvert where installations of temporary watercourse diversion and culvert demolition were undertaken;
- Doddershall where earthworks and topsoil stripping were underway;
- Creighton Road where traffic light installations, construction of ducts and concrete chambers were underway;
- A422 South Turweston cutting where compound development and maintenance works, stone deliveries excavations were underway;

- Small Dean where access road construction, compound setup, concrete pours, piling, ground investigation, and haul road works were underway.
- Wendover Dean where access road construction, compound setup, concrete pours, ground investigation and haul road works were underway.
- Vegetation clearance and construction of drainage ponds were undertaken throughout the HS2 route.

The HS2 threshold levels for significant noise impacts, which are defined in Information Paper E23 (<https://www.gov.uk/government/publications/hs2-information-papers-environment>), were exceeded two (2) 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 31st March 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:
 - topsoil stripping; and
 - excavations.
- School End worksite reference SE (see Plan 2 in Appendix A), where works activities included:
 - compound setup;
 - stone deliveries; and
 - topsoil stripping works.

- Rosehill Farm worksite reference RF (see Plan 2 in Appendix A), where no works were undertaken during the reporting period.
- Hermitage Chetwode Worksite reference – HC (see plan 2 in Appendix A), where no works were undertaken during the reporting period.
- West Street Overbridge worksite reference WSO (see Plan 2 in Appendix A), where works activities included:
 - construction of causeway structure;
 - temporary utility diversions;
 - stone deliveries; and
 - construction of access road.
- Addison Road worksite reference AR (see Plan 3 in Appendix A), where works activities included:
 - piling works, including pile cropping;
 - concrete pours; and
 - utility diversion works.
- School Hill Compound worksite reference SHC (see Plan 3 in Appendix A), where works activities included:
 - construction of site access roads.
- School Hill UTX worksite reference - SHU (see Plan 3 in Appendix A), where works activities included:
 - installation of foul chamber;
 - backfilling; and
 - site demobilisation works, including removal of hoarding.
- FCC Sidings worksite, reference – FCC (see Plan 3 in Appendix A) where works activities included:
 - construction of site access road; and
 - crane demolition works.
- Quanton worksite, reference – QAR (see Plan 4 in Appendix A) where works activities included:
 - utility diversion works, including construction of platform, trench works and culvert crossing installations.

- Meadowway and Glebe House, Aylesbury Worksite, reference – MW&GH (see Plan 5 in Appendix A), where works activities included:
 - construction of the A418 Oxford Road Main Compound and A418 security plaza access road;
 - road tie-in with highway; and
 - earthworks.
- Oat Close Worksite, reference – OC (see Plan 5 in Appendix A), where works activities included:
 - earthworks and 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:
 - earthworks and including stockpiling.
- Ellesborough Road Worksite, reference – ER (see Plan 6 in Appendix A), where works activities included:
 - access road construction.
- Rocky Lane Embankment Worksite, reference – RLE (see Plan 7 in Appendix A), where works activities included:
 - compound enabling works;
 - asphaltting and earthworks;
 - construction of bentonite access road and internal site haul road works;
 - concrete pours of the bentonite plant slab;
 - sheet piling; and
 - ground investigation works.
- Leather Lane Worksite, reference – LL (see Plan 8 in Appendix A), where works activities included:
 - asphaltting;
 - earthworks;

- piling works; and
- stabilising of the haul road.
- 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:
 - construction of temporary and permanent access roads;
 - piling works;
 - drainage works;
 - installation of temporary utilities;
 - general plant works; and
 - removal of spoil.
- Chesham Road Worksite reference – CR (see Plan 8 in Appendix A), where works activities included:
 - site maintenance and operation
 - stockpile management; and
 - shaft construction, which included setting up of cutting shoe, concrete pour of shaft walls and sinking of shaft to formation levels.
- Little Missenden Vent Shaft worksite reference LM (see Plan 9 in Appendix A), where works activities included:
 - site maintenance and operation
 - ground post treatment, including drilling and grouting works;
 - dewatering works; and
 - secant piling works.
- Amersham Vent Shaft Worksite, reference – AM (see Plan 10 in Appendix A), where works activities included:
 - site maintenance and operation
 - ground post treatment, including drilling and grouting works;

- dewatering works;
 - temporary capping of beams, including ground monitoring;
 - shaft excavation works; and
 - secant piling works.
- Chalfont St Giles Vent Shaft Worksite, reference - CSG (see Plan 11 in Appendix A), where works activities included:
 - site maintenance and operation, including tower crane erection;
 - stockpile management;
 - collar construction works;
 - dewatering works;
 - secant piling works;
 - road maintenance works;
 - secondary lining to the concrete;
 - construction of reinforced concrete structures;
 - connection to tunnel; and
 - construction of basement;
 - Chalfont St Peter Vent Shaft Worksite, reference – CSP (see Plan 12 in Appendix A), where works activities included:
 - general plant operations;
 - basement secant piling works, including excavation and cutting of piles;
 - road maintenance works;
 - secondary lining for concrete walls and floors;
 - connections to tunnel, including demolition and reinforced concrete works; and
 - basement construction works, including reinforced concrete capping beam, ground beams, excavation of capping beam and basement, and waterproofing works.
 - Colne Valley Viaduct - Load Test Pile 1 Worksite, reference – CVV-LTP #1 (see Plan 13 in Appendix A), where works activities included:
 - piling for the construction of the jetty;

- construction of a cofferdam (including piling, operation of support plant and excavation);
- main piling works including bored piling, de-sanding, installation of reinforcement cage and concrete piling, break-out of bored pile to prepare pile cap and installation of grout curtain around viaduct pile;
- compound operations, including de-sanding works;
- ground investigation works;
- realignment of River Colne, including removal of reinforced concrete crossing structures;
- core drilling for integrity test of concrete piles;
- construction of north abutment pile wall;
- pumping water management works;
- construction and maintenance of haul roads;
- installation of satellite welfare;
- operation and maintenance for generator farms;
- pile trimming;
- stockpiling;
- fencing and finishing works;
- diversion and installation of utilities;
- environmental maintenance;
- asphaltting works; and
- bridge deck erection gantries works.

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

- Amersham where water diversion works were underway;
- East West Rail Overbridge where pouring of concrete for abutments, concrete repairs and wingwall rebar fixing works were undertaken;
- Charndon Lodge Underbridge where installation of abutment wall rebar were undertaken;
- Perry Hill Overbridge where piling, excavation and pile cropping works were underway;

- Oxford Line where earthworks and temporary drainage works were underway;
- Hills Farm where topsoil stripping and material deliveries were underway;
- EWR Culvert where installations of temporary watercourse diversion and culvert demolition were undertaken;
- Doddershall where earthworks and topsoil stripping were underway;
- Creighton Road where traffic light installations, construction of ducts and concrete chambers were underway;
- A422 South Turweston cutting where compound development and maintenance works, stone deliveries excavations were underway;
- Small Dean where access road construction, compound setup, concrete pours, sheet piling, ground investigation, and haul road works were underway.
- Wendover Dean where access road construction, compound setup, concrete pours, ground investigation and haul road works were underway.
- Vegetation clearance and construction of drainage ponds were undertaken throughout the HS2 route.

1.1.5 The applicable standards, guidance, and monitoring methodology are outlined in the construction noise and vibration monitoring methodology report which can be found at the following location <https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2>. Noise and vibration monitoring reports for previous months can also be found at this location.

1.2 Measurement Locations

1.2.1 Forty-three (43) noise and three (3) vibration monitoring installations were active in March in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in March 2022.

1.2.2 An additional noise monitor (ref.: TN-NMP1) was installed in March 2022 in the proximity of the Turweston North Worksite, ref.: TN.

1.2.3 An additional noise monitor (ref.: QAR-NMP2) was installed on the 24th of March in the proximity of the Quainton Worksite, ref.: QAR.

1.2.4 Two additional noise monitors (ref.: NLL-NMP1 and NLL-NMP2) were installed on the 23rd of March in the proximity of the Nash Lee Lane Worksite, ref.: NLL.

- 1.2.5 Two additional noise monitors (ref.: ER-NMP1 and BL-NMP1) were installed on the 15th of March and on the 23rd of March respectively in the proximity of the Ellesborough Road Worksite, ref.: ER.
- 1.2.6 The vibration monitor, ref.: SE-Vib1, installed in proximity of the School End worksite (ref.: SE), was damaged in February 2022 and no vibration data was obtained during March 2022 whilst maintenance of the monitor was being undertaken.
- 1.2.7 The noise monitor at ref.: PIC-NMP1, was taken offline due to power supply issues during March 2022 whilst a permanent solution is sought.
- 1.2.8 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
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

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

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

2 Summary of Results

2.1 Summary of Measured Noise Levels

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

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

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average L _{Aeq,T} (Highest day L _{Aeq,T})					Saturday Average L _{Aeq,T} (Highest day L _{Aeq,T})					Sunday / Public Holiday Average L _{Aeq,T} (Highest Day L _{Aeq,T})	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
A422 TN	TN-NMP1	Turweston, Brackley	Free-field	49.8 (55.0)	52.6 (57.5)	47.9 (51.3)	46.1 (51.6)	45.7 (53.1)	47.2 (48.3)	49.3 (49.9)	49.2 (50.7)	48.3 (51.6)	45.0 (48.0)	46.7 (49.6)	46.4 (51.9)
SE	SE-NMP1	School End, Chetwode	Free-field	52.3 (61.2)	56.8 (67.2)	49.2 (65.7)	46.2 (68.7)	45.1 (59.2)	49.4 (57.5)	61.3 (68.7)	62.7 (71.6)	60.9 (72.5)	50.7 (61.6)	52.9 (61.7)	43.5 (55.0)
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Free-field	47.7 (50.1)	50.0 (55.8)	47.2 (51.0)	44.1 (54.3)	45.2 (54.4)	46.7 (47.2)	48.3 (49.4)	48.2 (50.3)	47.3 (49.8)	45.8 (52.4)	47.1 (52.0)	45.1 (52.4)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	47.9 (58.3)	51.2 (55.4)	43.0 (49.7)	37.3 (42.6)	40.0 (50.8)	43.8 (45.1)	47.9 (48.9)	50.2 (50.9)	46.9 (51.7)	44.0 (49.7)	44.1 (48.7)	40.5 (48.8)
WSO	WSO-NMP1	West Street, Twyford	Free-field	52.6 (54.9)	54.8 (60.8)	50.5 (52.8)	44.8 (53.5)	44.2 (53.3)	50.3 (51.4)	50.7 (51.7)	51.0 (53.2)	50.2 (56.6)	45.6 (53.0)	50.0 (53.4)	44.0 (53.0)
	WSO-NMP2	Twyford	Free-field	48.3 (58.3)	48.8 (55.7)	45.2 (48.6)	43.6 (46.9)	44.0 (55.7)	46.1 (47.6)	49.1 (50.4)	50.2 (53.8)	47.8 (53.5)	44.3 (49.1)	45.5 (50.1)	43.1 (48.3)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	50.6 (69.2)	53.9 (65.2)	48.1 (61.3)	43.9 (63.1)	47.8 (68.2)	46.9 (48.5)	50.0 (52.0)	49.0 (51.8)	47.5 (53.6)	46.0 (57.8)	49.2 (59.0)	43.2 (52.6)
SHC	SHC-NMP1	School Hill Compound, Calvert	Free-field	52.3 (61.2)	56.8 (67.2)	49.2 (65.7)	46.2 (68.7)	45.1 (59.2)	49.4 (57.5)	61.3 (68.7)	62.7 (71.6)	60.9 (72.5)	50.7 (61.6)	52.9 (61.7)	43.5 (55.0)

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
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Free-field	54.1 (56.2)	57.4 (66.4)	50.0 (55.0)	44.5 (51.7)	45.1 (54.0)	50.7 (51.9)	53.2 (63.0)	49.8 (51.4)	49.7 (58.0)	43.8 (52.7)	51.3 (62.6)	45.1 (53.8)
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	53.3 (60.1)	55.4 (70.7)	54.6 (64.6)	51.9 (66.5)	43.5 (52.1)	51.3 (51.3)	50.8 (50.8)	55.0 (55.0)	56.3 (61.3)	43.7 (51.1)	49.9 (53.5)	44.2 (52.6)
FCC	FCC-NMP1	Calvert South	Free-field	58.7 (62.9)	58.9 (66.4)	48.8 (60.9)	41.3 (50.8)	44.4 (61.1)	50.3 (52.3)	53.1 (59.2)	55.6 (61.6)	47.7 (54.9)	42.8 (50.5)	46.5 (51.1)	49.2 (60.3)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	54.9 (57.8)	54.8 (58.9)	54.5 (58.3)	52.4 (58.2)	49.3 (57.3)	53.3 (53.5)	55.8 (56.3)	56.3 (57.2)	54.6 (57.7)	49.0 (54.1)	53.3 (55.5)	50.8 (57.4)
	MW-NMP1	Aylesbury, Buckinghamshire	Free-field	64.7 (66.1)	63.4 (65.4)	63.5 (65.5)	60.8 (64.1)	57.6 (64.8)	62.2 (62.5)	63.6 (64.7)	63.7 (64.9)	62.5 (64.8)	56.4 (59.9)	62.3 (65.2)	57.9 (64.5)
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	Free-field	47.6 (54.8)	51.3 (57.1)	47.6 (53.8)	46.1 (53.5)	44.7 (55.2)	53.8 (53.8)	54.5 (56.2)	55.2 (56.9)	52.4 (56.4)	48.4 (54.2)	50.6 (56.1)	36.5 (42.4)
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville	Free-field	47.7 (51.5)	47.7 (59.1)	44.8 (48.5)	43.0 (51.4)	43.9 (58.6)	48.3 (57.8)	48.5 (54.9)	47.0 (48.8)	45.3 (48.1)	41.3 (48.5)	44.7 (50.7)	44.4 (58.4)
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	48.8 (59.4)	55.8 (62.0)	45.2 (47.6)	44.1 (48.8)	44.2 (58.3)	46.1 (46.1)	46.0 (46.4)	46.0 (47.3)	45.3 (48.3)	41.3 (47.2)	44.5 (47.4)	46.8 (53.3)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	56.3 (57.9)	57.2 (61.7)	53.1 (56.0)	51.6 (55.0)	51.0 (55.8)	51.2 (51.2)	54.4 (54.4)	52.9 (52.9)	53.3 (55.4)	50.3 (53.0)	51.7 (52.4)	52.6 (56.7)

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	56.4 (56.8)	57.9 (58.3)	58.3 (59.6)	55.5 (57.4)	51.3 (57.4)	51.8 (51.8)	53.9 (53.9)	54.9 (54.9)	54.4 (55.8)	49.6 (52.5)	52.3 (53.0)	- * (-)*
ER	ER-NMP1	Ellesborough Rd, Wendover	Free-field	56.5 (59.2)	56.5 (58.7)	55.7 (58.5)	52.1 (57.1)	50.6 (58.2)	54.2 (55.8)	54.6 (54.7)	54.5 (54.6)	53.7 (56.0)	51.0 (60.4)	53.8 (57.5)	49.5 (56.0)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	52.1 (52.9)	50.8 (54.8)	50.8 (52.4)	50.1 (51.3)	49.9 (52.6)	50.6 (50.6)	49.4 (49.4)	48.4 (48.4)	49.4 (50.4)	49.9 (51.0)	49.6 (50.4)	50.0 (52.1)
RLE	SDVC-NMP1	Rocky Lane, Wendover	Free-field	64.2 (66.4)	63.1 (65.5)	63.0 (66.3)	60.1 (64.8)	57.6 (66.1)	61.8 (63.3)	62.3 (64.1)	61.9 (64.4)	61.2 (65.2)	55.5 (61.0)	61.1 (63.7)	57.6 (64.4)
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	50.1 (56.9)	56.4 (61.3)	48.0 (52.6)	45.8 (54.6)	43.8 (53.4)	48.9 (54.2)	54.0 (58.6)	48.2 (51.9)	48.4 (54.6)	42.7 (50.8)	47.7 (53.8)	43.7 (51.7)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	58.6 (61.6)	61.0 (65.6)	56.8 (59.6)	54.0 (57.8)	51.4 (59.3)	55.5 (57.9)	57.5 (59.1)	55.8 (59.8)	55.3 (64.3)	49.6 (54.6)	54.6 (58.2)	51.3 (59.2)
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee	Free-field	49.1 (55.3)	54.1 (59.8)	50.1 (57.0)	47.5 (55.8)	46.3 (58.8)	47.2 (50.3)	53.0 (54.2)	50.8 (52.7)	52.8 (60.6)	49.3 (58.8)	48.3 (58.1)	42.8 (48.4)
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	48.3 (55.2)	51.3 (57.4)	45.9 (55.3)	43.1 (56.6)	42.4 (59.3)	50.4 (56.1)	54.9 (62.2)	56.5 (62.9)	53.6 (65.3)	45.9 (58.8)	49.7 (58.2)	40.1 (48.1)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	50.8 (53.8)	52.6 (54.8)	49.7 (52.6)	49.2 (54.0)	49.9 (56.1)	50.3 (52.7)	52.5 (54.7)	51.8 (54.4)	49.5 (53.5)	50.8 (56.3)	50.4 (54.4)	50.6 (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
	SH-NMP1	Bury Farm, South Heath	Free-field	50.0 (53.0)	52.8 (82.7)	46.4 (51.4)	44.3 (52.0)	42.5 (48.9)	47.8 (52.9)	49.5 (52.8)	48.2 (50.7)	45.6 (48.4)	42.8 (49.6)	48.0 (55.7)	43.0 (51.4)
NP	NP-NMP1	North Portal worksite, Great Missenden	Free-field	56.1 (59.1)	58.7 (61.9)	49.9 (62.8)	45.8 (60.2)	43.5 (52.3)	53.3 (55.4)	53.9 (55.4)	50.8 (53.0)	47.5 (50.7)	42.8 (55.9)	47.5 (54.7)	42.3 (51.7)
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Free-field	51.0 (56.3)	51.6 (65.7)	47.0 (51.1)	42.1 (50.4)	42.6 (53.0)	49.8 (50.6)	50.7 (51.9)	51.7 (57.8)	49.2 (61.8)	41.8 (50.2)	49.0 (57.2)	42.1 (52.8)
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	60.2 (66.1)	58.5 (61.6)	58.2 (61.5)	53.7 (58.8)	51.6 (63.5)	57.0 (58.0)	57.5 (59.0)	59.2 (64.0)	58.1 (69.1)	51.7 (62.4)	56.2 (61.1)	51.1 (61.0)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	62.7 (65.6)	67.4 (72.2)	64.8 (72.4)	60.2 (71.9)	55.5 (63.6)	61.2 (62.7)	64.2 (66.9)	62.9 (63.3)	60.6 (63.7)	54.2 (59.4)	59.4 (63.5)	54.5 (61.8)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	60.6 (63.0)	60.6 (62.5)	60.1 (62.2)	56.4 (59.8)	52.2 (59.8)	57.5 (59.3)	59.2 (60.6)	59.8 (61.0)	57.9 (60.6)	50.9 (56.4)	57.5 (60.8)	51.4 (59.1)
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Free-field	61.1 (63.9)	60.4 (65.1)	60.3 (62.2)	56.5 (59.9)	53.2 (62.0)	58.3 (59.7)	59.4 (60.8)	59.6 (61.3)	58.1 (60.9)	52.1 (56.8)	58.5 (69.1)	52.5 (59.7)
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	49.0 (52.6)	51.6 (55.5)	46.8 (54.2)	41.7 (54.2)	45.3 (59.1)	47.1 (48.9)	50.9 (56.8)	47.3 (48.7)	46.1 (50.9)	45.0 (54.0)	47.8 (54.8)	44.2 (53.6)
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	52.7 (69.4)	55.7 (62.7)	47.5 (55.2)	42.8 (56.4)	44.8 (57.0)	48.1 (50.0)	49.7 (51.1)	46.3 (47.4)	46.1 (53.4)	44.2 (56.4)	47.8 (54.6)	44.6 (51.0)

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
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite	Free-field	58.6 (60.7)	58.1 (61.2)	55.8 (60.4)	52.0 (55.3)	49.7 (58.4)	53.5 (54.3)	59.0 (65.7)	56.4 (57.1)	54.7 (61.3)	49.6 (56.4)	55.4 (61.8)	49.7 (56.3)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	48.3 (50.7)	49.7 (52.4)	47.3 (52.1)	44.1 (51.0)	43.2 (50.3)	48.1 (50.5)	49.0 (51.7)	48.7 (50.8)	46.9 (51.0)	42.3 (47.0)	47.8 (55.4)	42.1 (48.1)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	58.7 (60.0)	57.4 (59.3)	57.0 (60.6)	54.6 (58.9)	51.9 (66.4)	55.1 (56.1)	57.6 (59.6)	57.2 (58.8)	55.8 (58.3)	49.9 (55.3)	55.8 (59.1)	51.0 (59.4)
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	63.1 (66.0)	62.1 (64.5)	61.5 (65.3)	57.7 (62.1)	56.1 (64.6)	59.0 (60.4)	61.1 (61.6)	61.3 (62.7)	60.0 (67.0)	53.9 (59.0)	59.5 (67.6)	55.4 (62.7)
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham	Free-field	60.9 (63.1)	60.2 (62.7)	58.1 (61.3)	53.8 (61.0)	52.8 (62.2)	57.9 (59.8)	59.7 (60.1)	59.6 (61.0)	57.1 (61.3)	50.8 (58.2)	58.2 (64.7)	52.9 (62.5)
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	51.4 (53.9)	51.6 (55.2)	52.6 (57.8)	49.0 (55.5)	45.9 (54.9)	49.6 (51.6)	51.7 (55.0)	52.3 (59.8)	49.7 (56.1)	44.8 (52.6)	50.2 (62.6)	44.2 (52.3)
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	54.5 (60.2)	54.3 (62.1)	50.1 (51.9)	47.0 (51.6)	47.9 (59.0)	55.1 (58.3)	50.8 (51.5)	49.1 (50.3)	47.7 (52.1)	47.7 (57.4)	49.8 (59.7)	48.2 (57.4)

*No data available for this period as monitor NLL-NMP2 was installed on the 23rd of March and an issue with the SIM card that occurred from the 27th of March until the end of the month prevented data capture during this time period.

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
RF	RF-Vib 1	Old Stable Cottage, Rosehill Farm, Chetwode	2.94 (X-axis)
ER	ER-Vib1	Ellesborough Rd, Wendover	2.92 (X-axis)

2.1.3 Appendix C presents graphs of the noise and vibration monitoring data over the month for each of the measurement locations. Noise data presented consists of the hourly L_{Aeq} values and, where relevant, the $L_{Aeq,T}$ values (where the time period T has been taken to be the averaging period as specified in Table 1 of HS2 Information Paper E23). Vibration data presented consist of hourly PPV values. The full data set for the monitoring equipment can be found at the following location:

<https://data.gov.uk/dataset/24542ae7-dd44-444f-b259-871c4cc43b5e/environmental-monitoring-data>.

2.2 Exceedances of the LOAEL and SOAEL

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

2.2.2 The significant observed adverse effect level (SOAEL) is defined in the 'Planning Practice Guidance – Noise' as the level above which "noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area."

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

2.2.4 Where reported construction noise levels exceed the LOAEL and SOAEL at nearby receptors, relevant periods will be identified. Summary statistics to evaluate ongoing

qualification for noise insulation and temporary rehousing are also presented where relevant.

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

Table 5: Summary of Exceedances of LOAEL and SOAEL

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
A422 TN	TN-NMP1	Turweston, Brackley	All days	All periods	No exceedance	No exceedance
SE	SE-NMP1	School End, Chetwode	All days	All periods	No exceedance	No exceedance
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	All days	All periods	No exceedance	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	All days	All periods	No exceedance	No exceedance
WSO	WSO-NMP1	West Street, Twyford	All days	All periods	No exceedance	No exceedance
	WSO-NMP2	Twyford	All days	All periods	No exceedance	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	Weekdays	08:00-18:00	2	No exceedance
SHC	SHC-NMP1*	School Hill Compound, Calvert	Weekdays	08:00-18:00	3	No exceedance
				08:00-13:00	1	No exceedance
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Weekday Sunday	08:00-18:00	2	No exceedance
				07:00-22:00	2	No exceedance
QAR	QAR-NMP2	Station Rd, Quainton	Weekdays	08:00-18:00	1	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance
	MW-NMP1	Aylesbury, Buckinghamshire	All days	All periods	No exceedance	No exceedance
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	All days	All periods	No exceedance	No exceedance
	MF-NMP1*	Moat Farm, Marsh Lane, Stoke Mandeville	Nights	22:00-07:00	34	3

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	All days	08:00-18:00	1	No exceedance
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	All days	All periods	No exceedance	No exceedance
	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	All days	All periods	No exceedance	No exceedance
RLE	SDVC-NMP1	Rocky Lane, Wendover	Weekdays Saturdays	08:00-18:00 08:00-13:00	19 2	No exceedance No exceedance
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Weekdays	08:00-18:00	4	No exceedance
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	All days	All periods	No exceedance	No exceedance
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Saturdays	08:00-13:00	1	No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	All days	All periods	No exceedance	No exceedance
	SH-NMP1	Bury Farm, South Heath	Weekdays	All periods	No exceedance	No exceedance
NP	NP-NMP1*	North Portal worksite, Great Missenden	All days	18:00-19:00	1	No exceedance
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Weekdays	08:00-18:00	1	No exceedance
			Saturdays	13:00-14:00	1	No exceedance
Sundays			14:00-22:00	3	No exceedance	
				07:00-22:00	1	No exceedance
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, 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
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	08:00-18:00 18:00-19:00 19:00-22:00 07:00-08:00	1 9 30 2	No exceedance No exceedance No exceedance No exceedance
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
	CSG-NMP2*	Chalfont St Giles Vent Shaft	Weekdays	All periods	No exceedance	No exceedance
CSP	CSP-NMP1*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP2*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
CVV-LTP #1	CVV-LTP #1-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance
	CVV-WYC-NMP1**	Wyatt's Covert, Tilehouse Lane, Denham	Weekdays	07:00-08:00 08:00-18:00 18:00-19:00 19:00-22:00	23 1 16 12	No exceedance No exceedance No exceedance No exceedance
			Saturdays	07:00-08:00 13:00-14:00 14:00-22:00	1 3 20	No exceedance No exceedance No exceedance
			Sundays Nights	07:00-22:00 22:00-07:00	44 155	No exceedance No exceedance
CVV-DFS-NMP1**	Denham Film Studio, Uxbridge	Weekdays	18:00-19:00 19:00-22:00	1 7	No exceedance No exceedance	
		Saturdays	13:00-14:00 14:00-22:00	1 6	No exceedance No exceedance	
		Sundays Nights	07:00-22:00 22:00-07:00	3 119	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
CVV-MR	CVV-SVF-NMP1**	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Weekdays	07:00-08:00	2	No exceedance
			Saturdays	07:00-08:00	2	No exceedance
			Sundays	07:00-22:00	3	No exceedance
			Nights	22:00-07:00	96	No exceedance

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

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

2.2.6 Exceedances of the LOAEL were recorded at 15 monitoring locations during the month of March 2022.

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

Table 6: Summary of Total Exceedances of SOAEL

Worksite Reference	Measurement Reference	Monitor Address	Total of SOAEL exceedances in the month
OC	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville	2

2.2.8 Two night-time SOAEL exceedances at monitoring location ref.: MF-NMP1 were due to HS2 construction works during March 2022.

2.3 Exceedances of Trigger Level

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

Table 7: Summary of Exceedances of Trigger Levels

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

2.4 Complaints

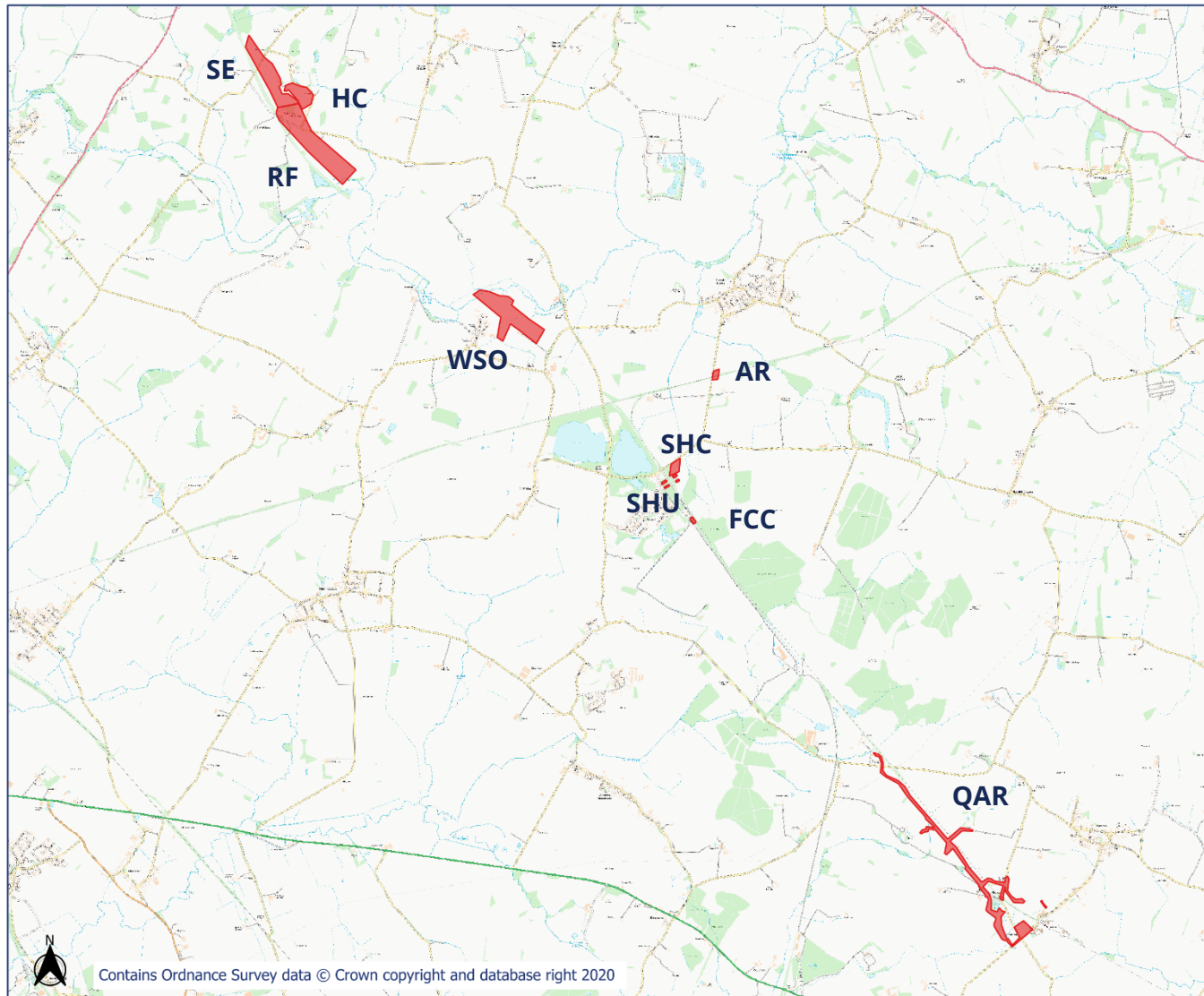
2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

Table 8: Summary of Complaints

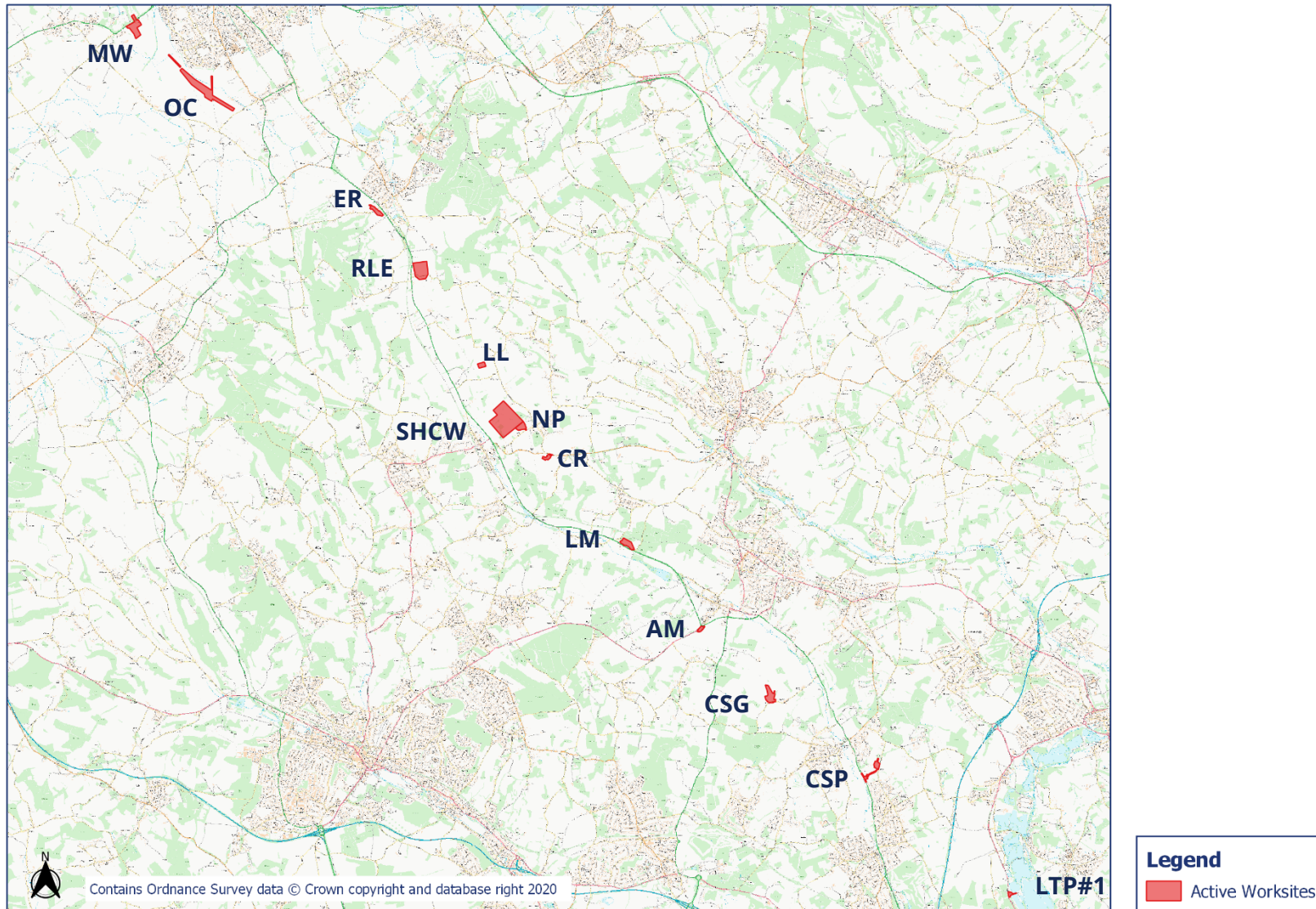
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-22-43392-C	NP	Complaint due to noise disturbance coming from the worksite outside working hours (at 07:30) on a Saturday.	Investigations shown that consent to work between 07:00 to 22:00 was approved by the Local Authority. Works on the day of the complaint commenced from 07:00 and finished at 14:00, no trigger levels were exceeded at nearby monitoring positions during this time.	The complainant has been contacted and map of monitor locations has been provided.
HS2-22-43452-C	CVV-LTP #1	Complaint due to continuous banging noise during the day.	Investigations confirmed that ongoing works have been undertaken in line with Section 61 consent and noise and vibration limits.	Noise and vibration levels are monitored all the time and they have been in line with Section 61 consent. The complainant has been contacted and information about the HS2 special cases process have been provided.
HS2-22-43360-C	MW&GH	Complaint regarding noise disturbance at night due to trains delivering work material near property.	Actions have already been taken to reduce stand by times for trains at the stabling loop. Stakeholder's property identified as being in close proximity to the stabling loop, where the majority of train movements are not HS2 related.	Stakeholder has been contacted and results of investigations have been provided.
HS2-22-43455-C HS2-22-43462-C	OC	Complaint due to construction noise during night-time causing lack of sleep.	Investigations confirmed that noise was caused by removal of aggregate from the overnight train deliveries.	Mitigation measures such as acoustic sound barriers are being constructed to reduce the noise impact of the works. Stakeholder has been contacted and information about the results of investigations have been provided.

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-22-43486-C	MW&GH	Complaint due to noise disturbance from deliveries around midnight and occurred for an hour.	Investigations shown the noise was likely caused by hammer tap whilst breaking seal of manhole covers for drainage surveys. However, the site team were briefed before undertaking any works and mitigation measures were taken to reduce noise disturbance.	Stakeholder has been contacted and information about the results of investigations have been provided.

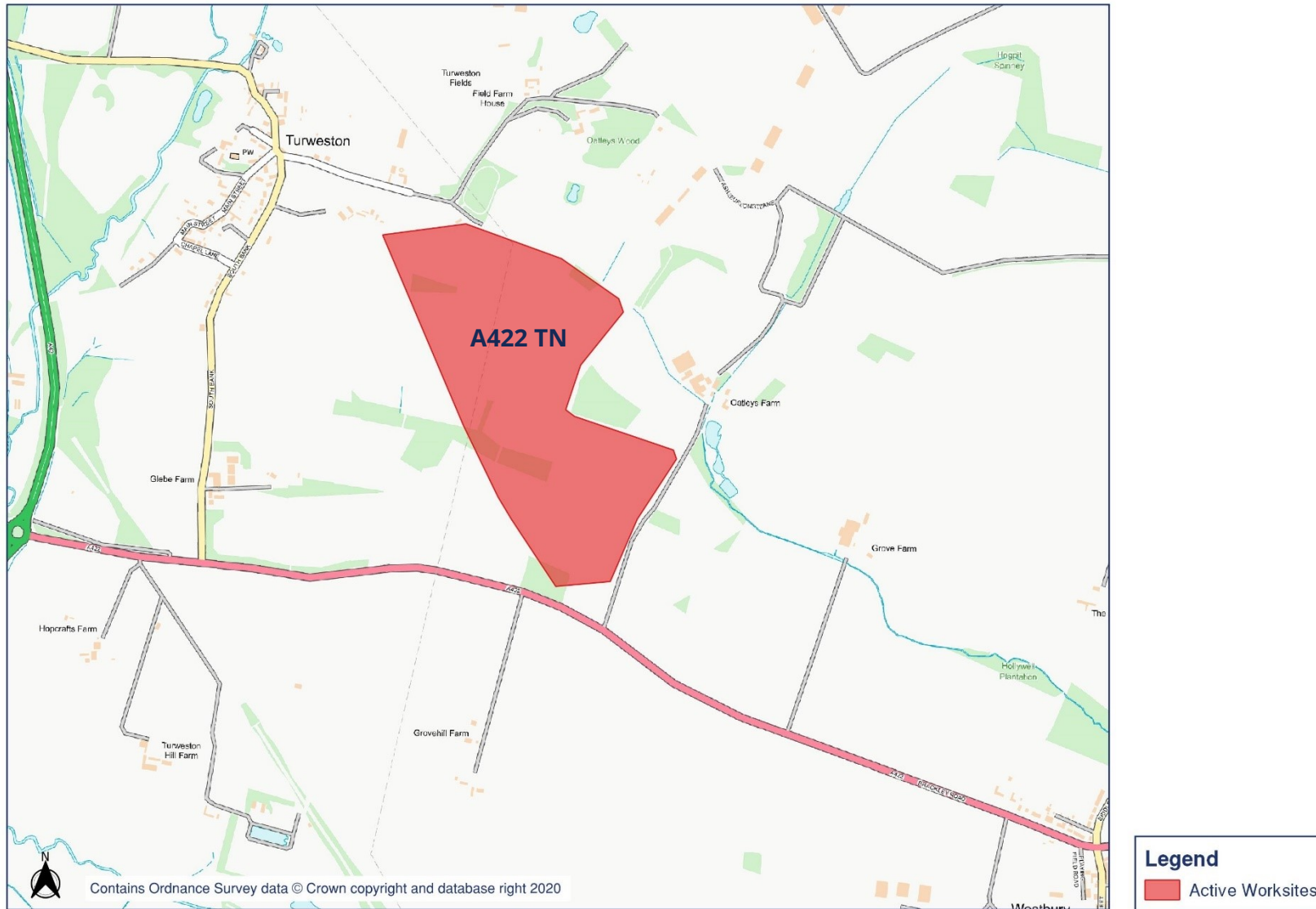
Appendix A Site Locations

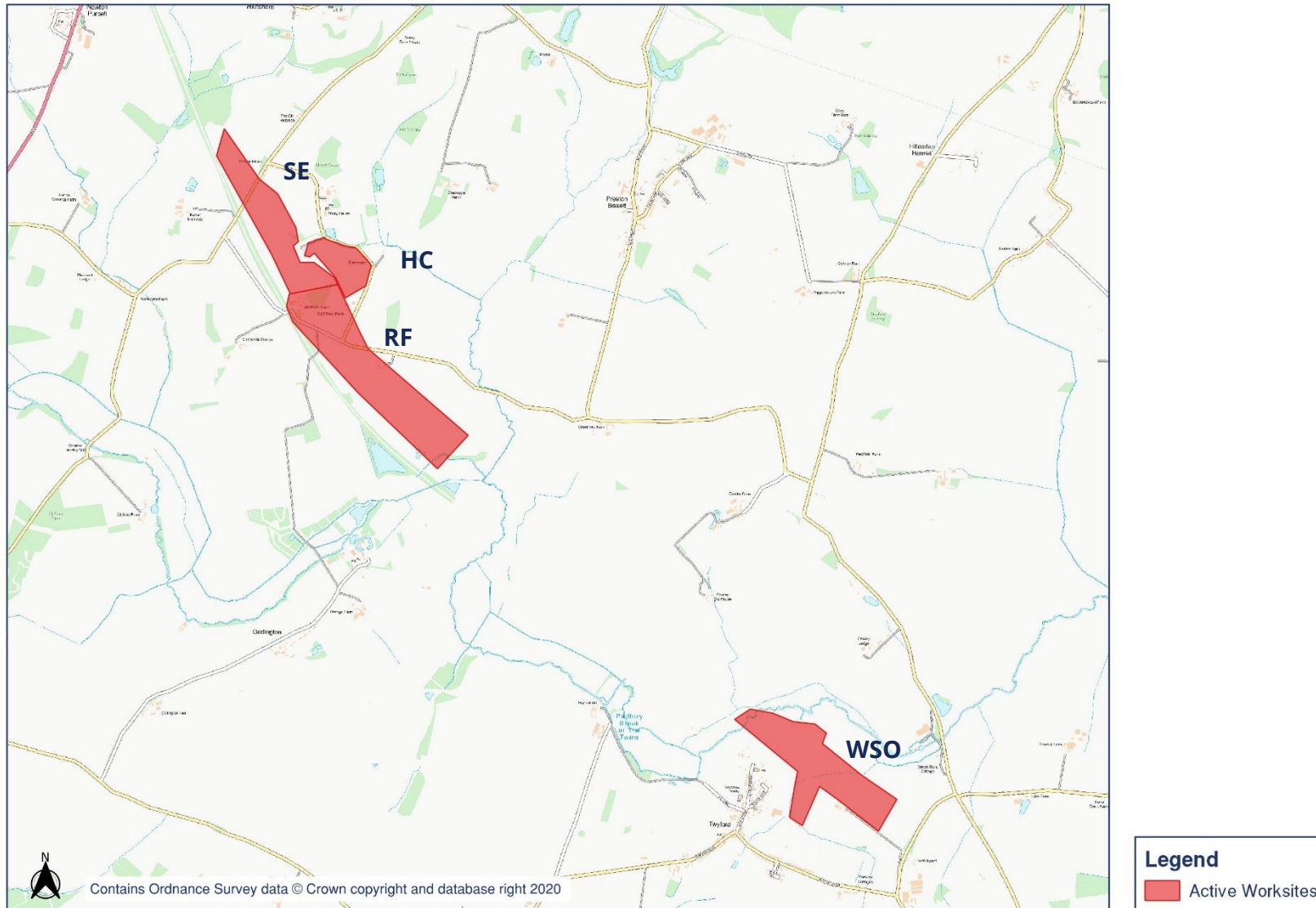


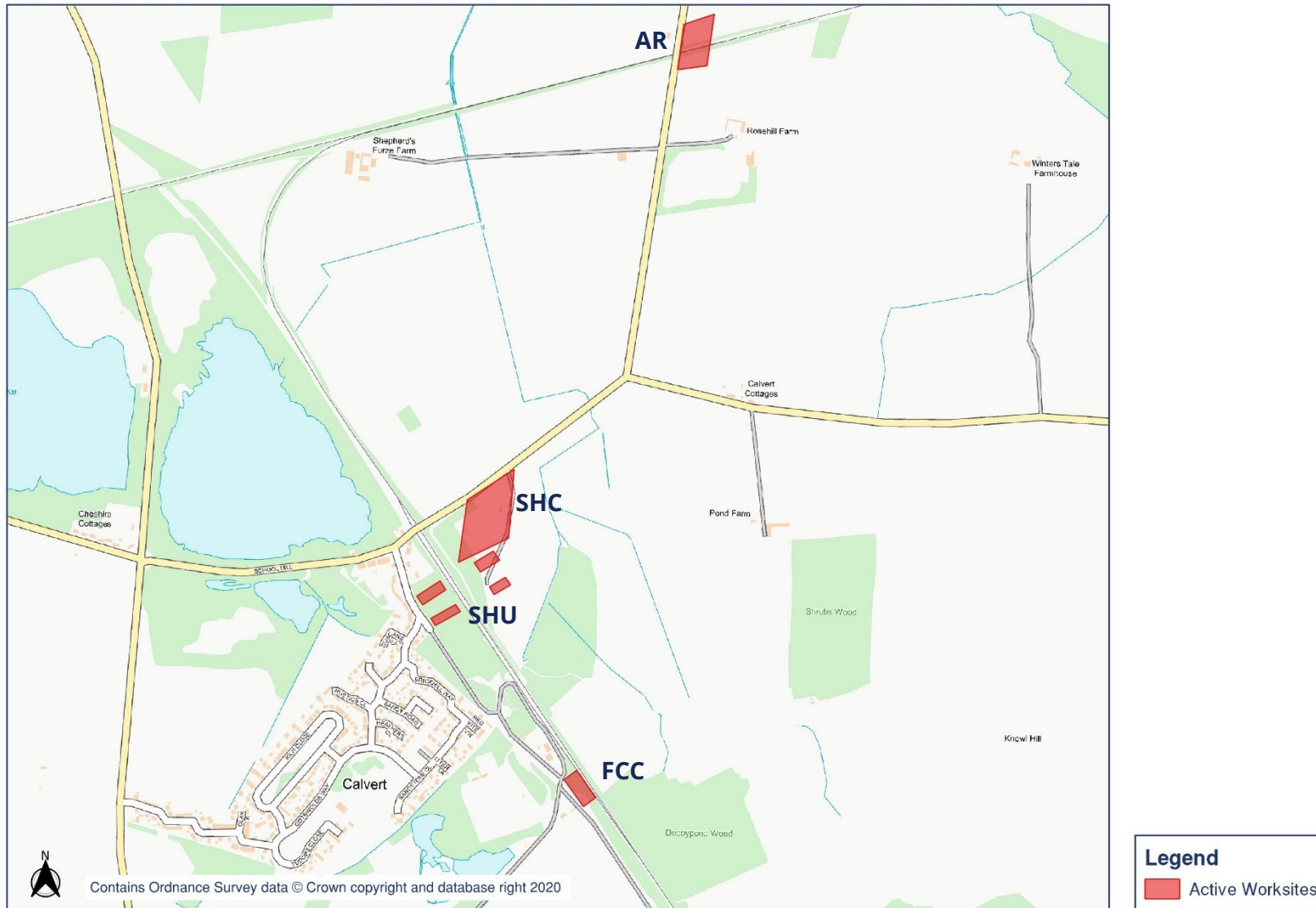
HS2 Worksite Identification Plan - Overview 2

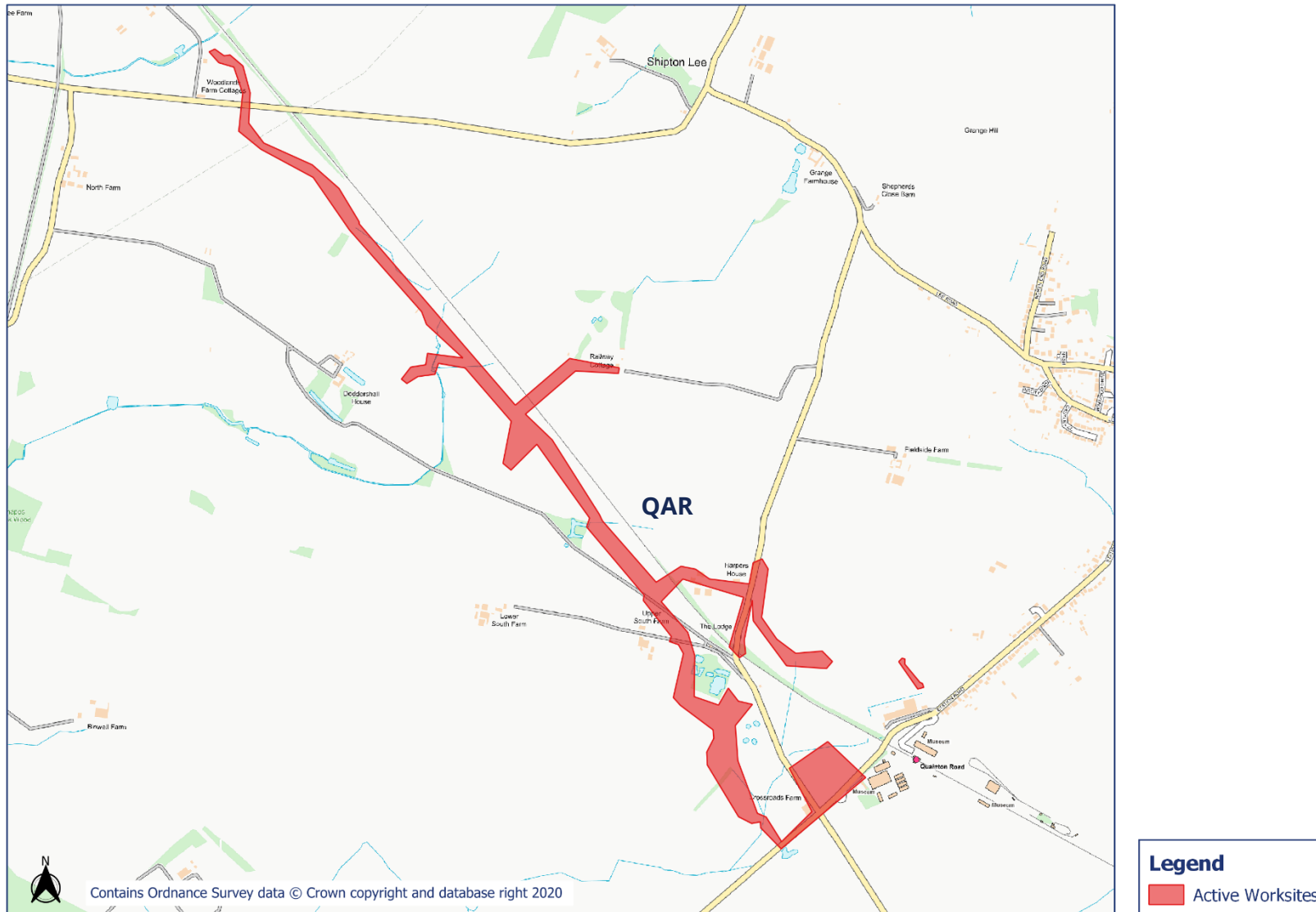


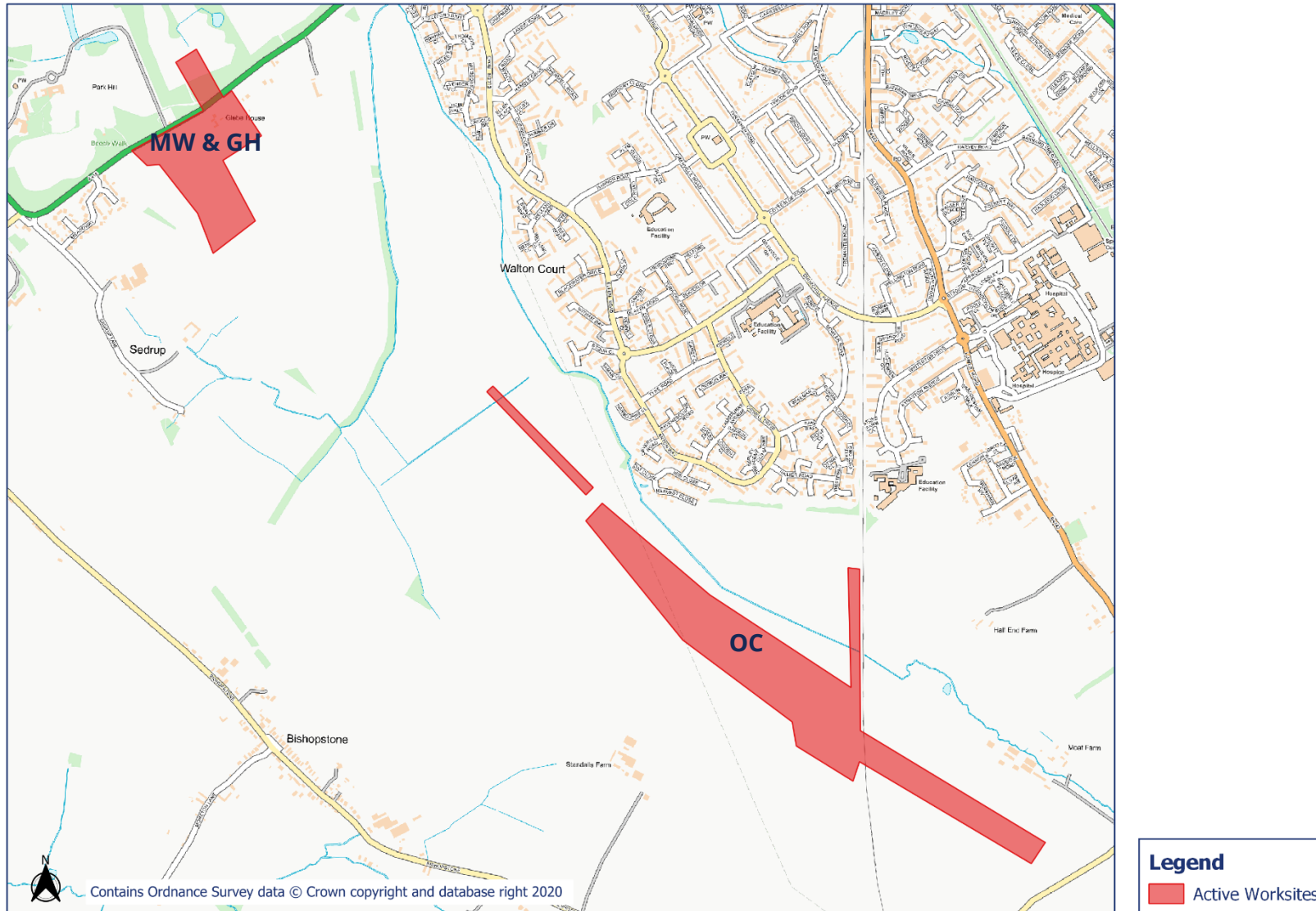
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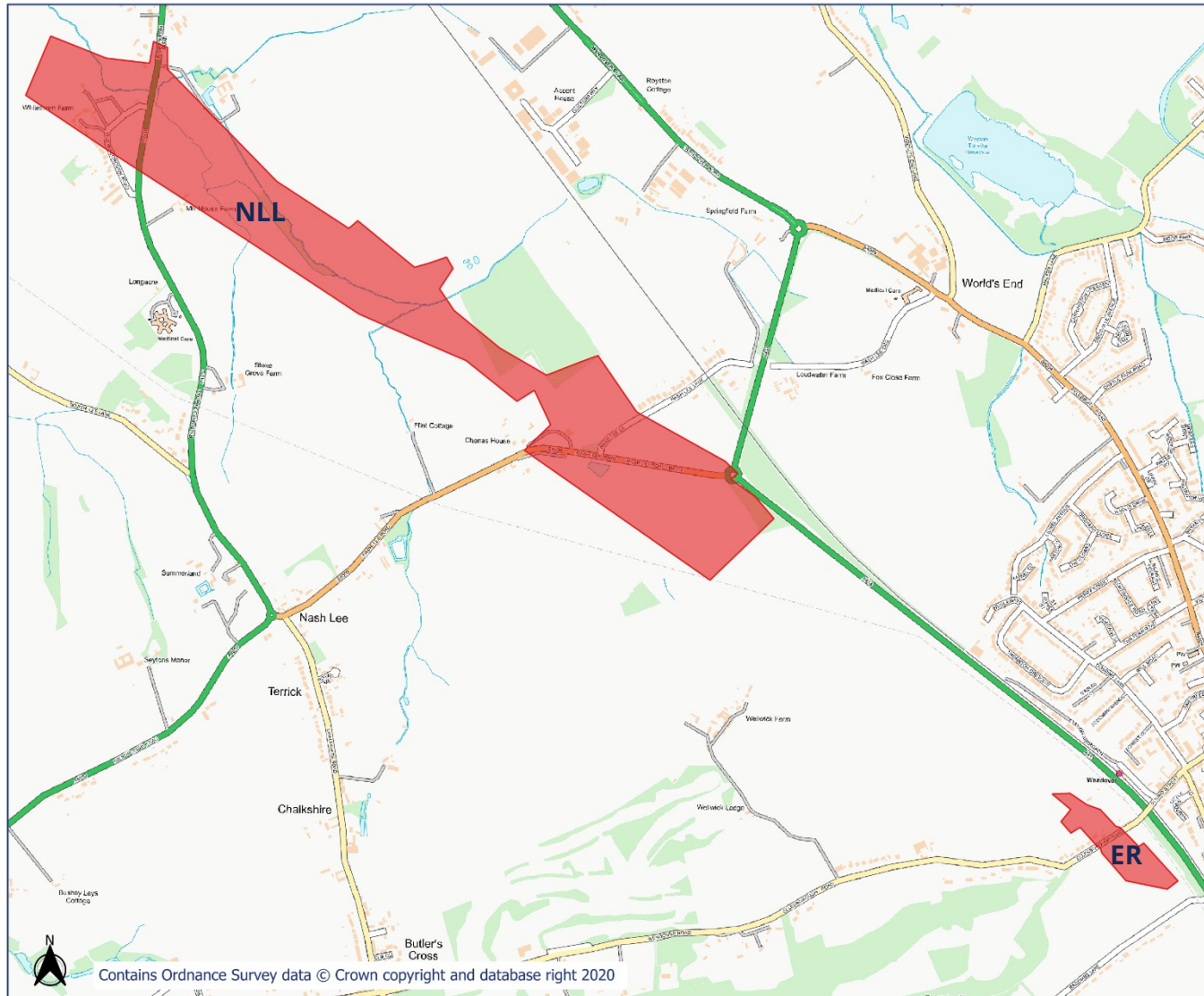


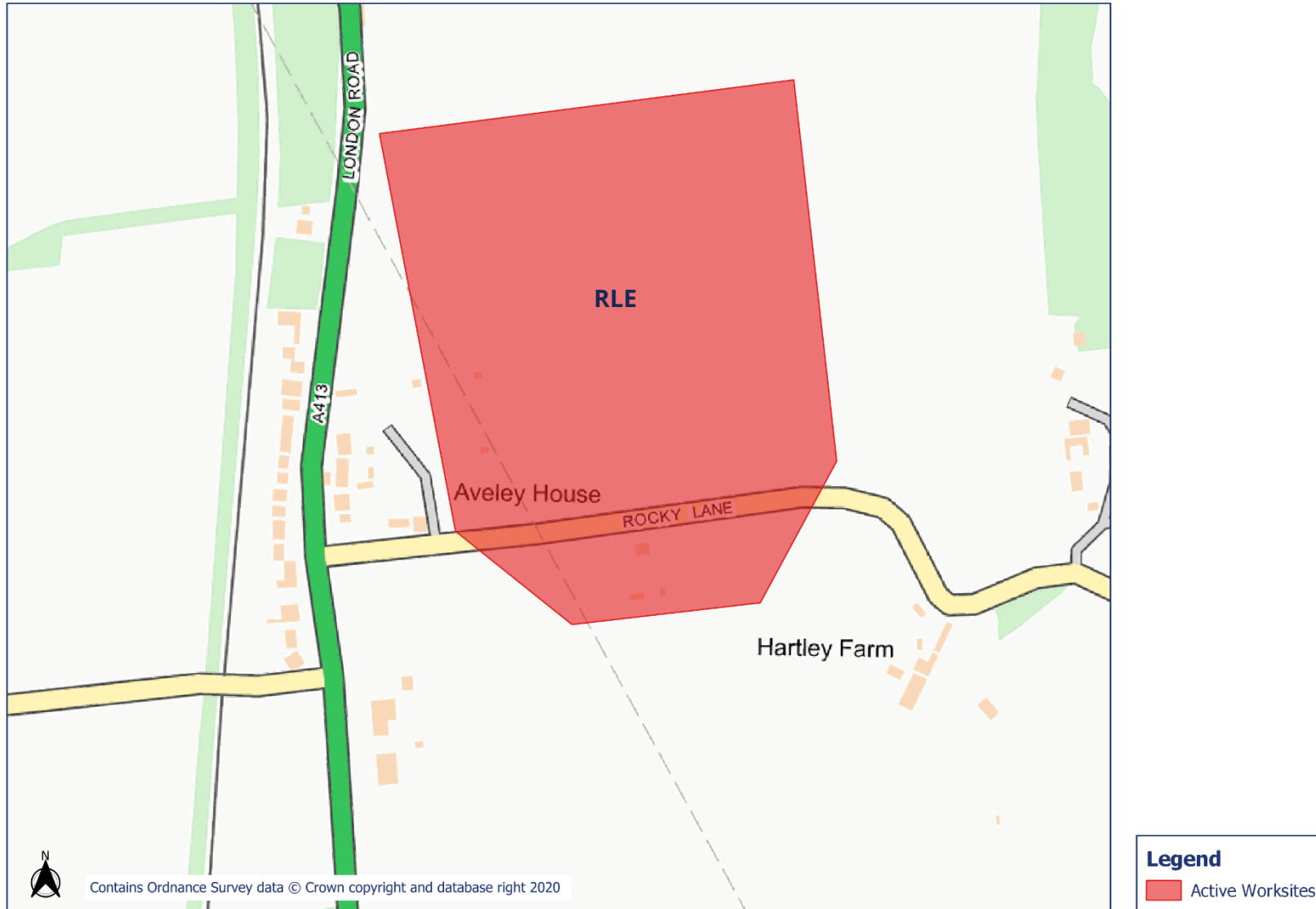


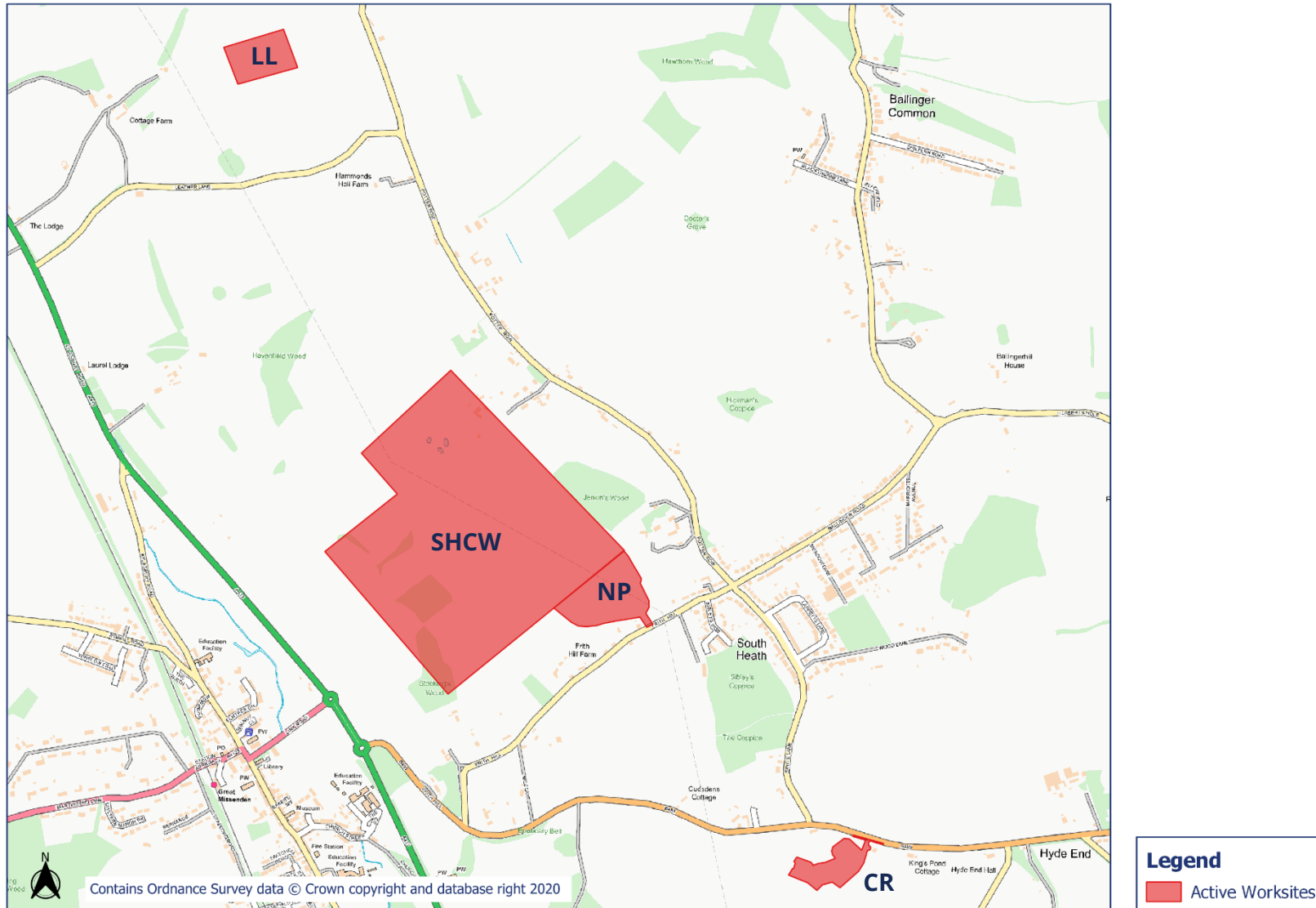




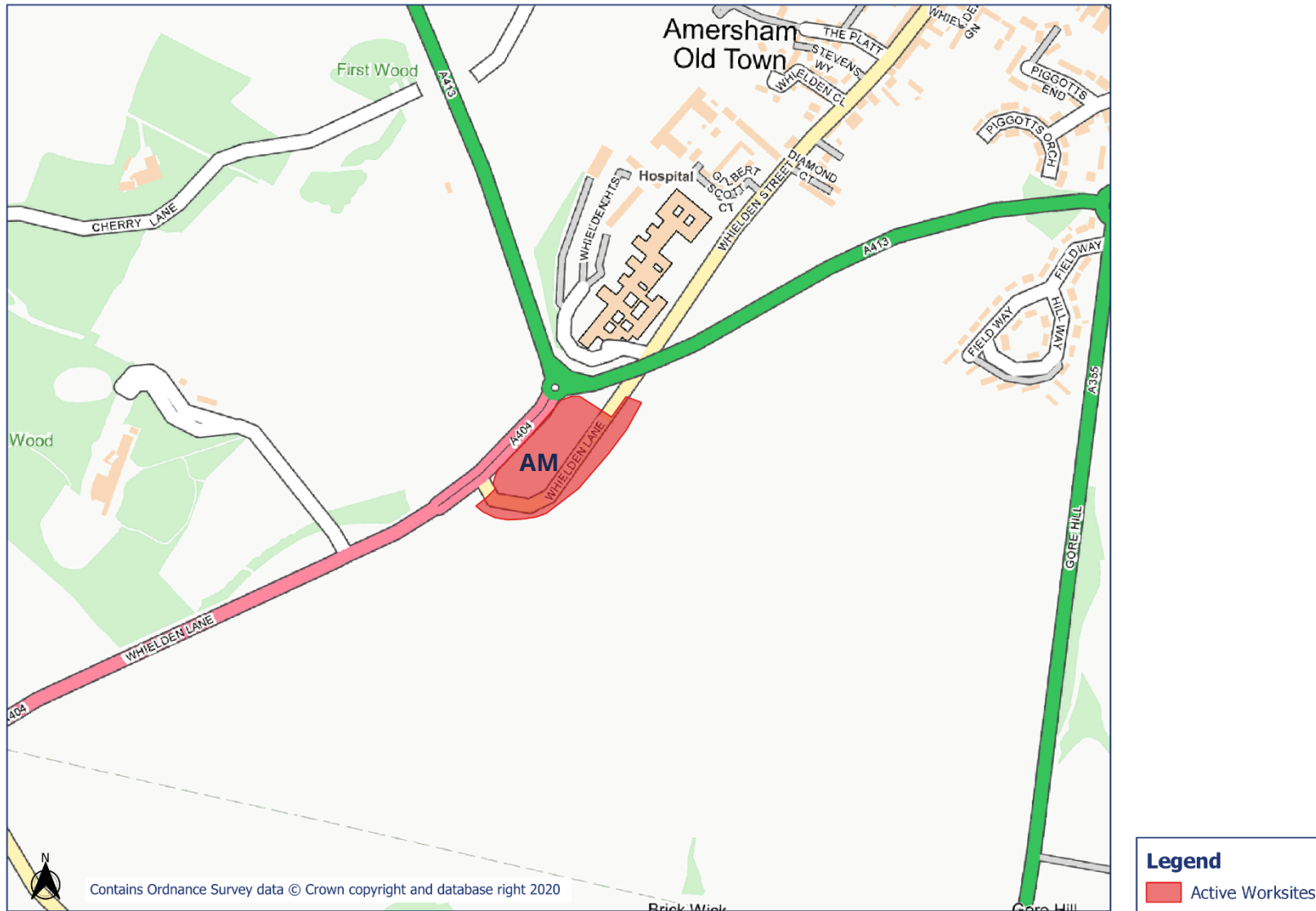






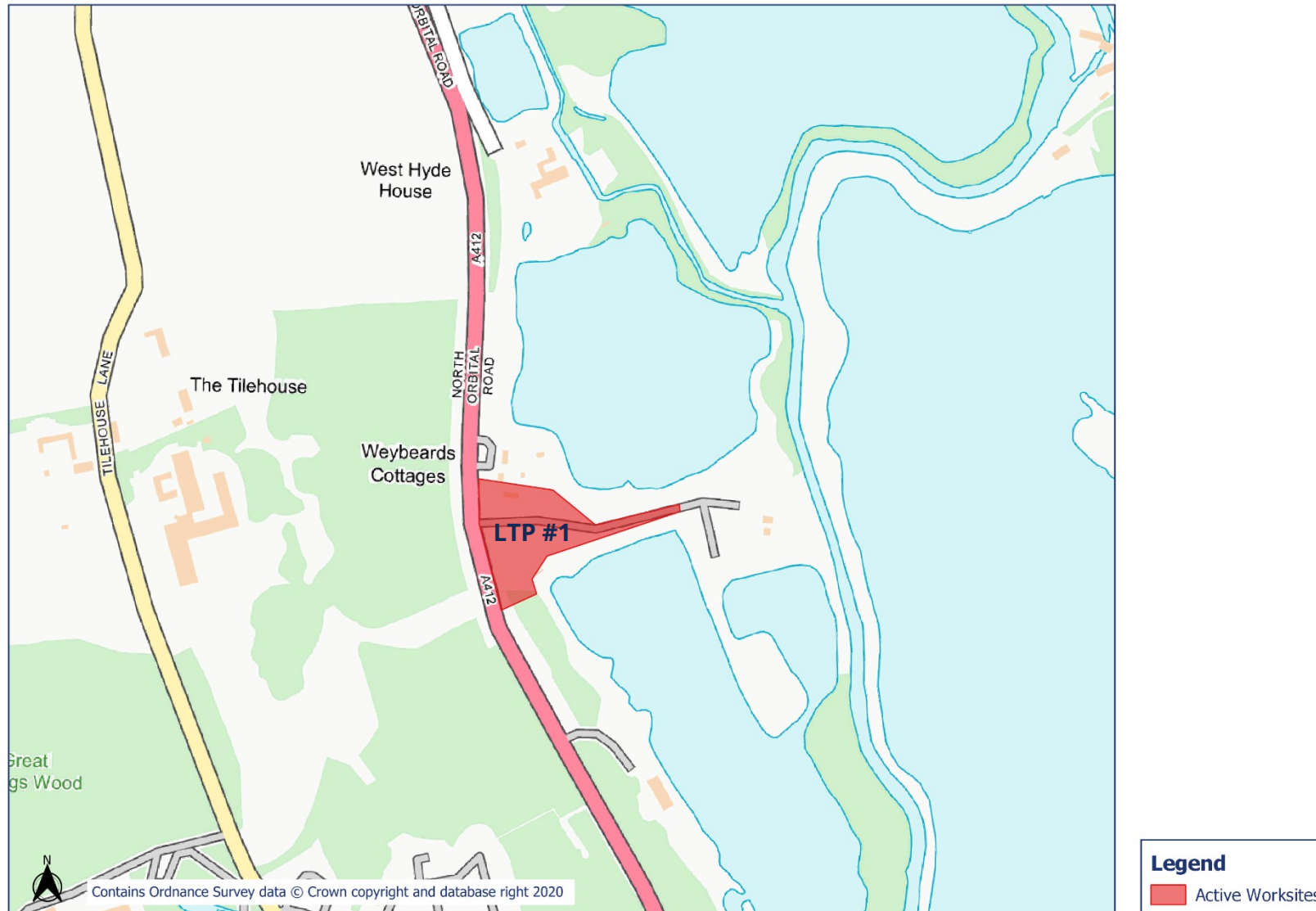




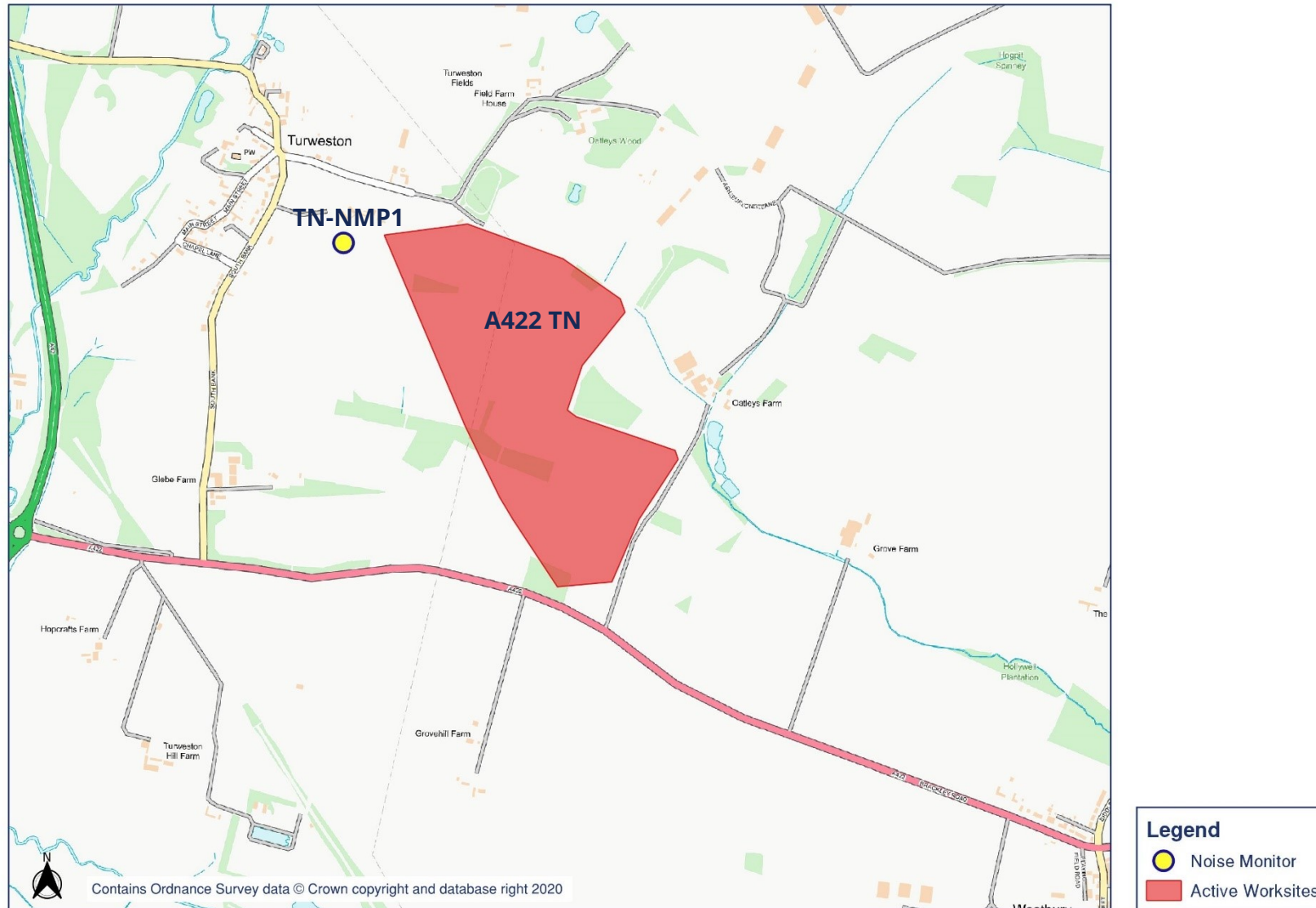


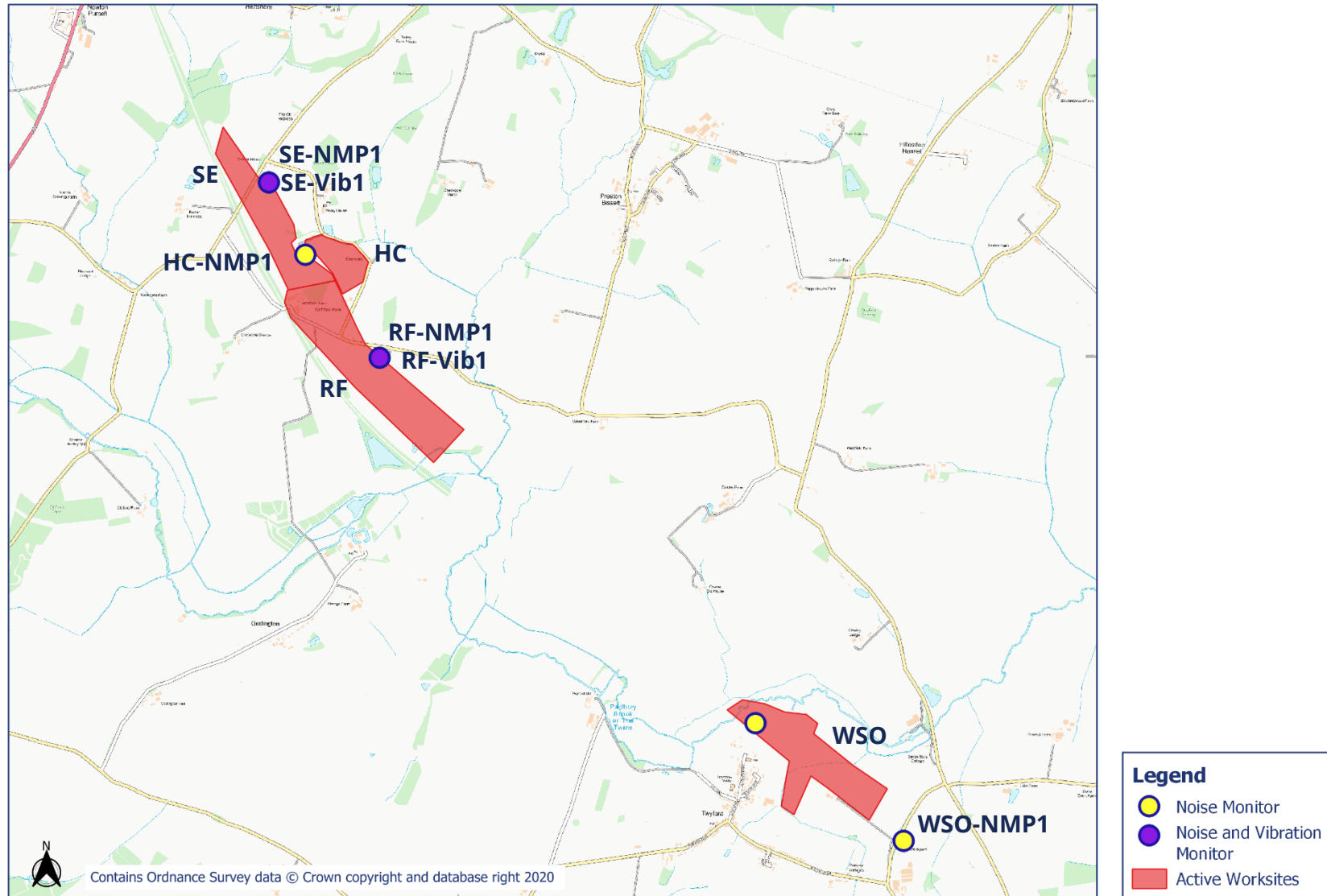




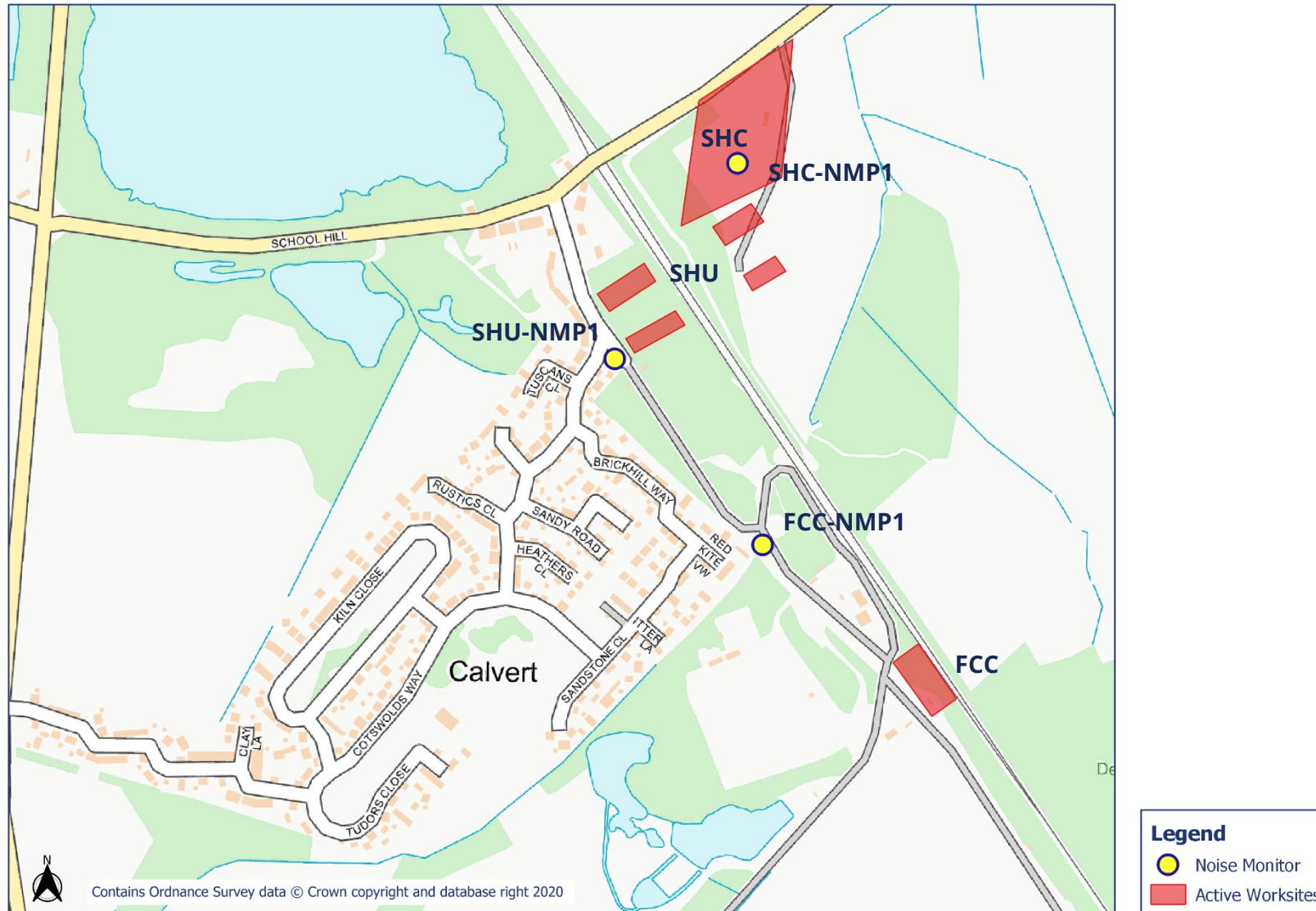


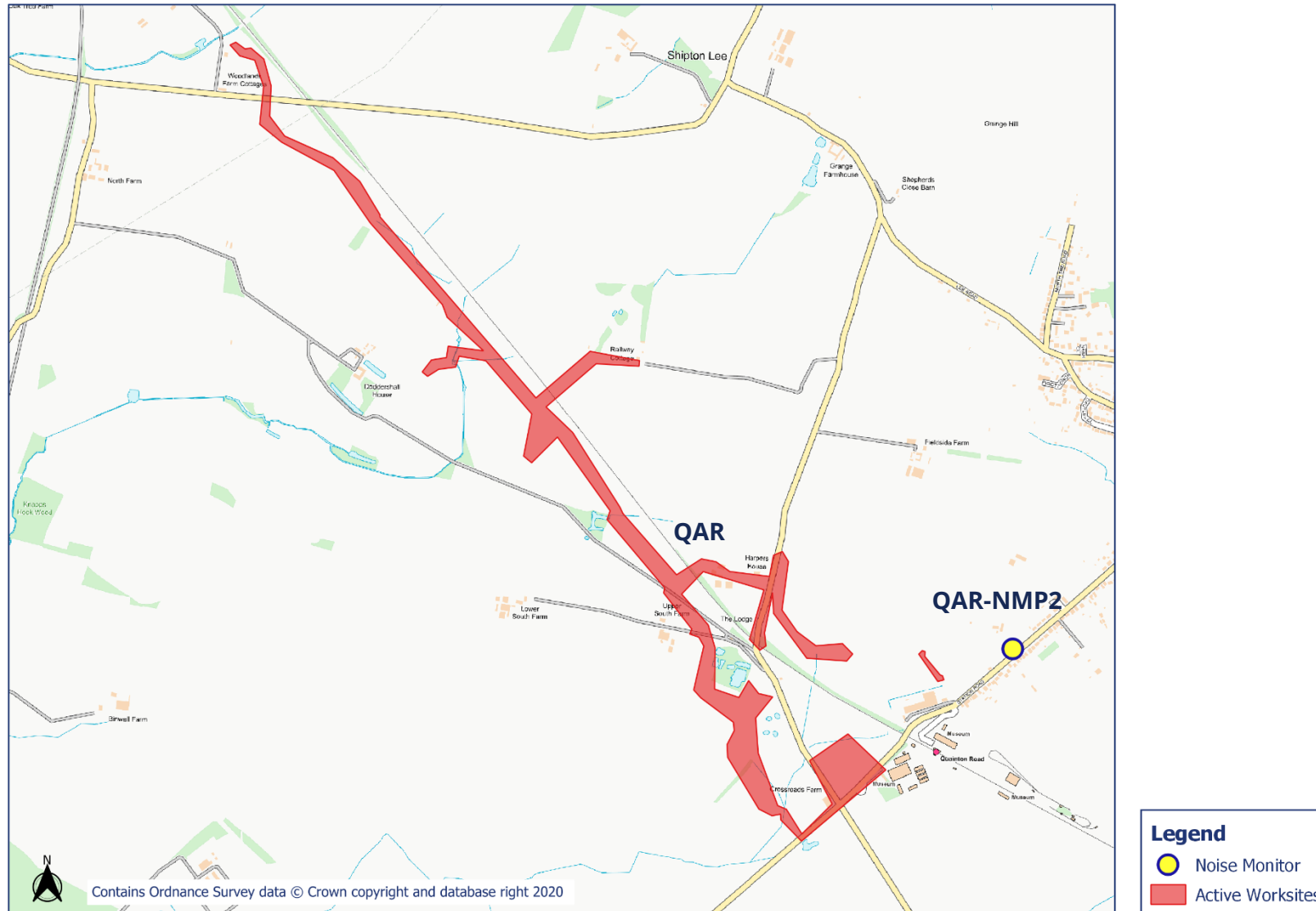
Appendix B Monitoring Locations

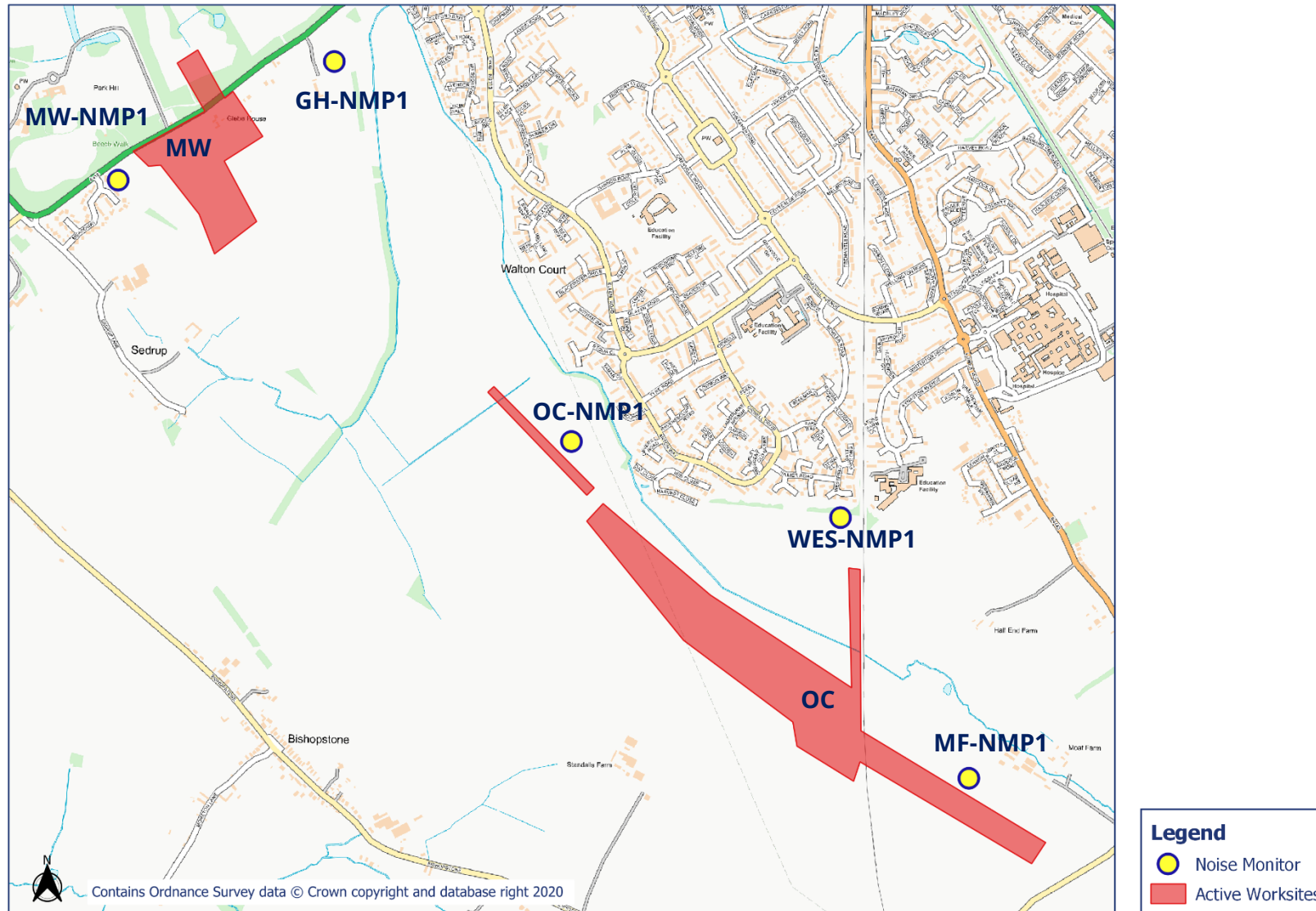


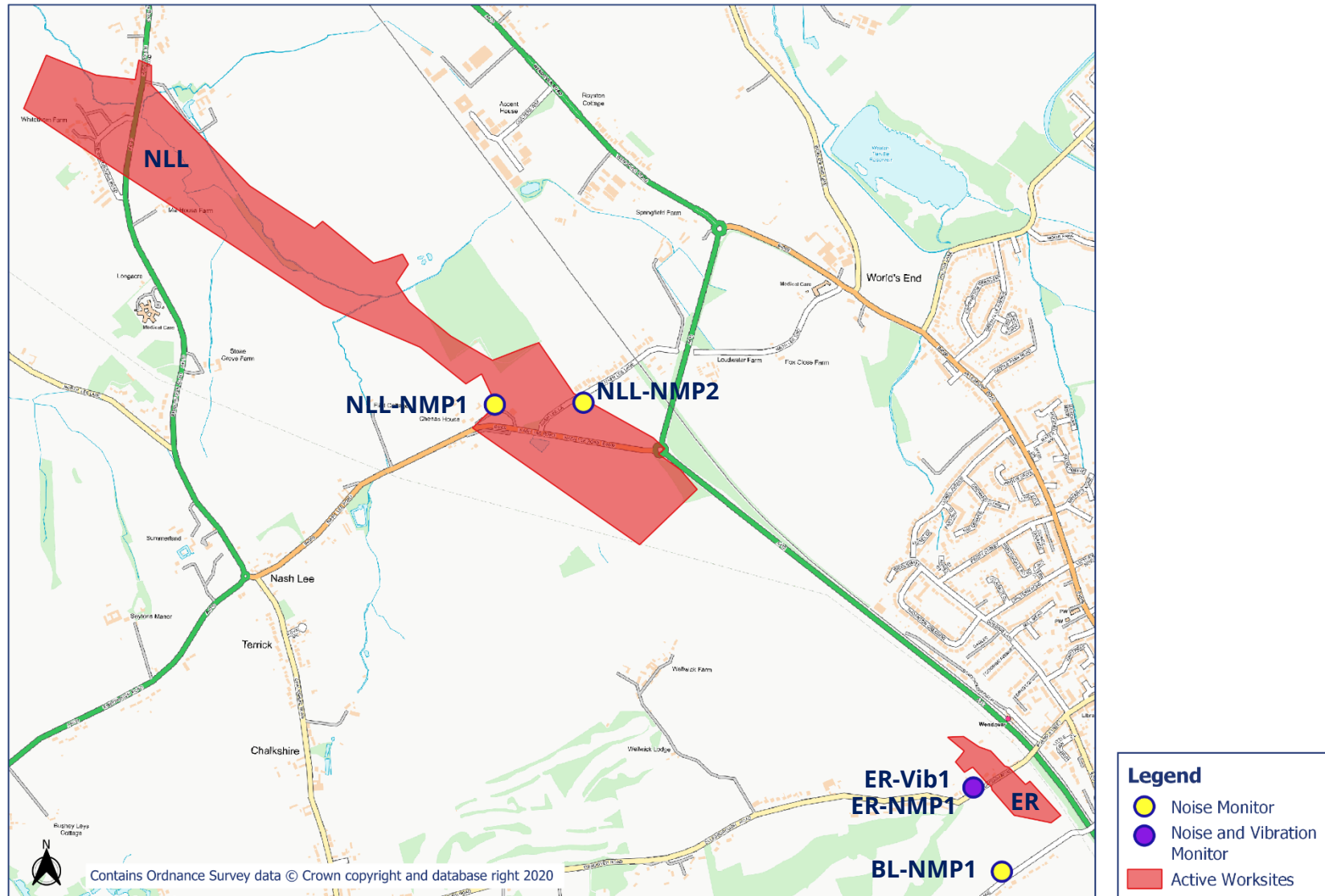


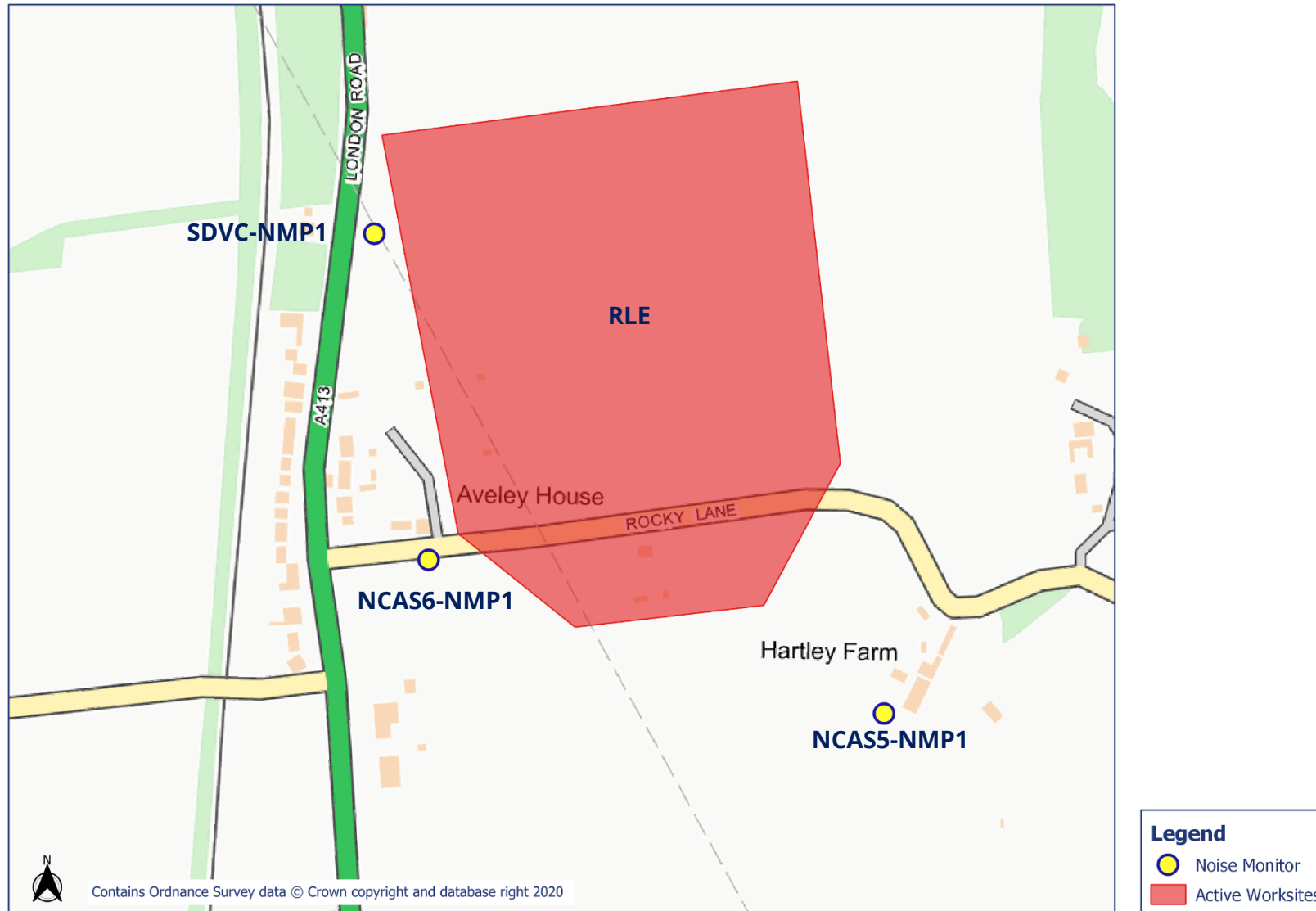


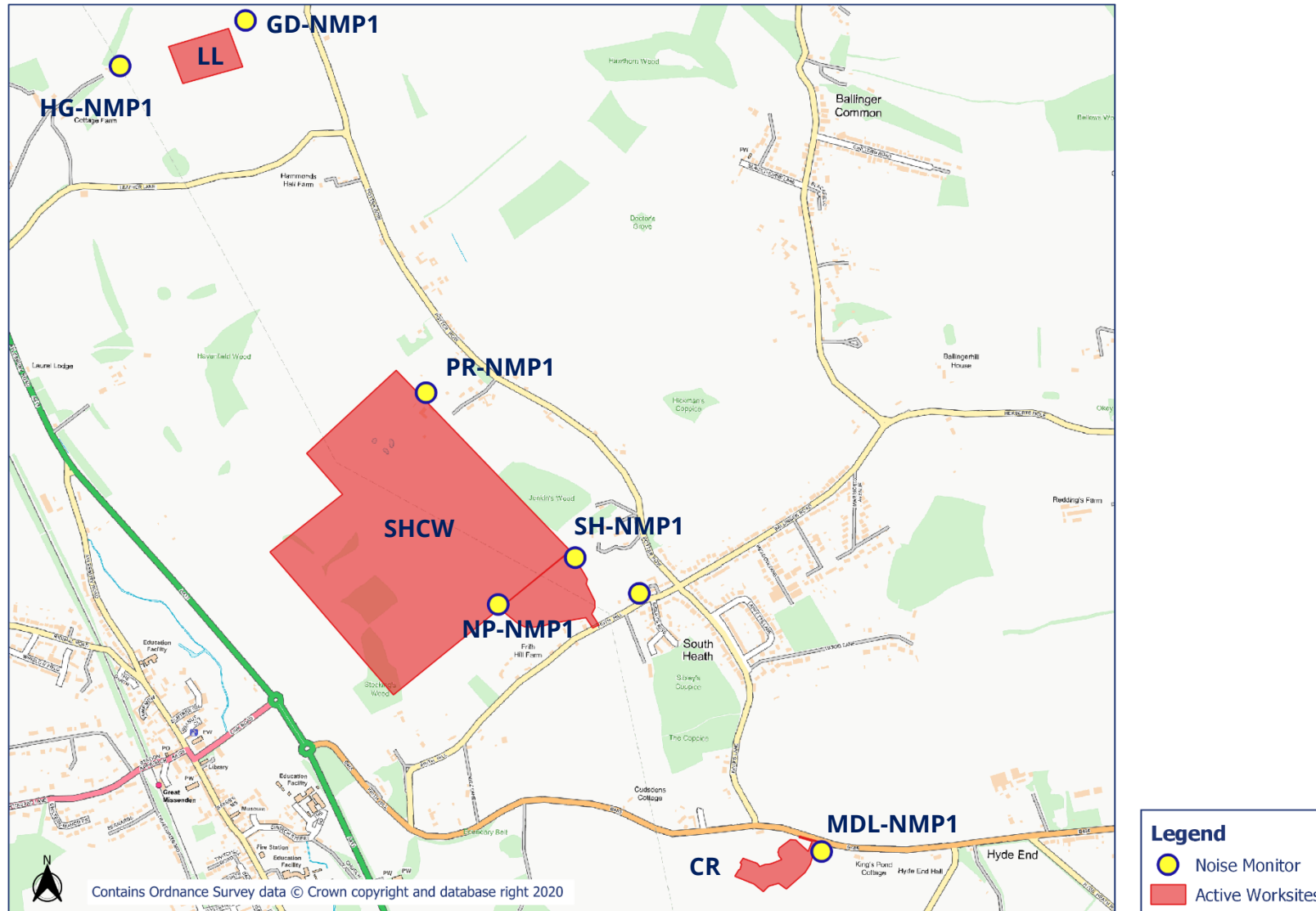




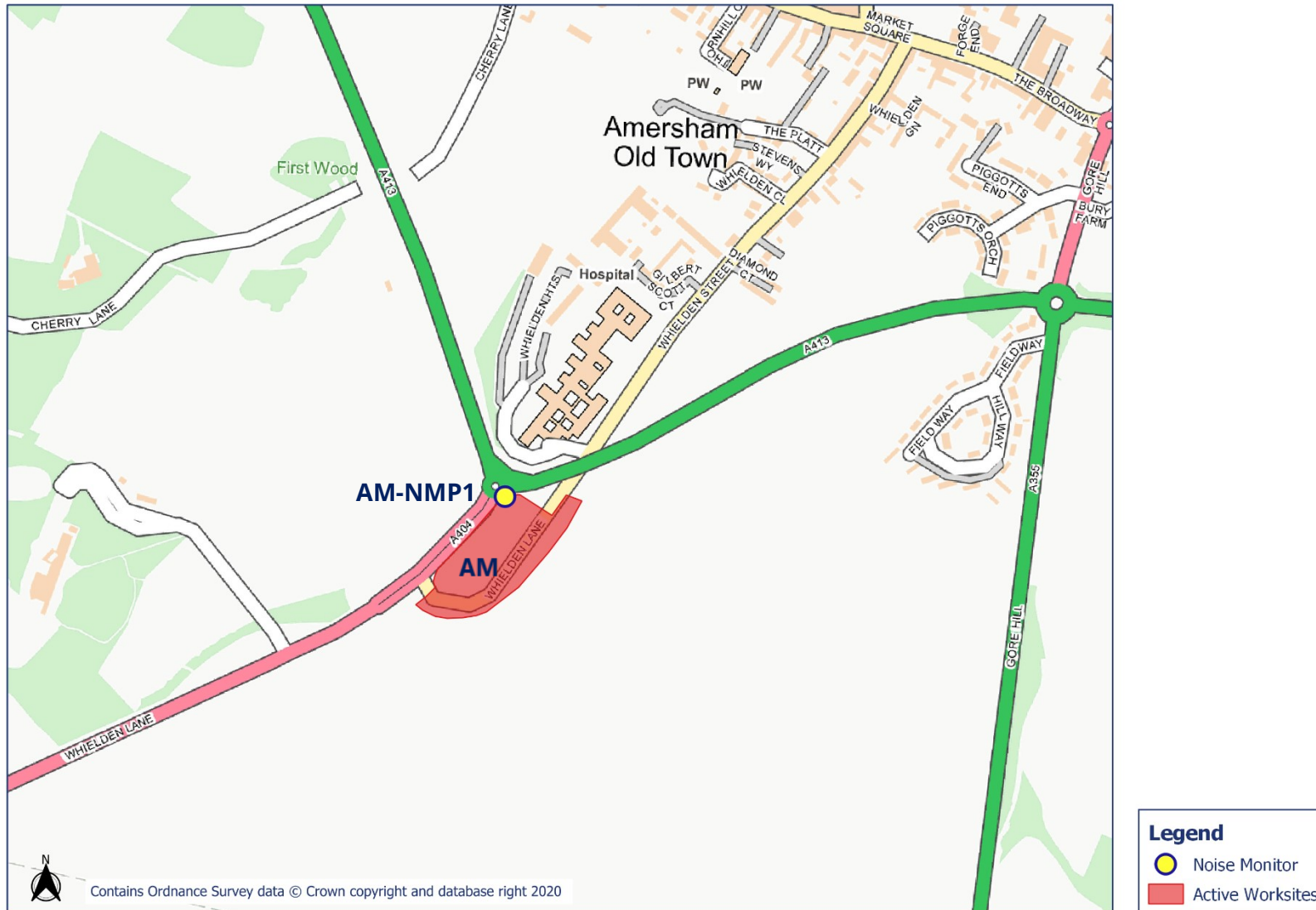


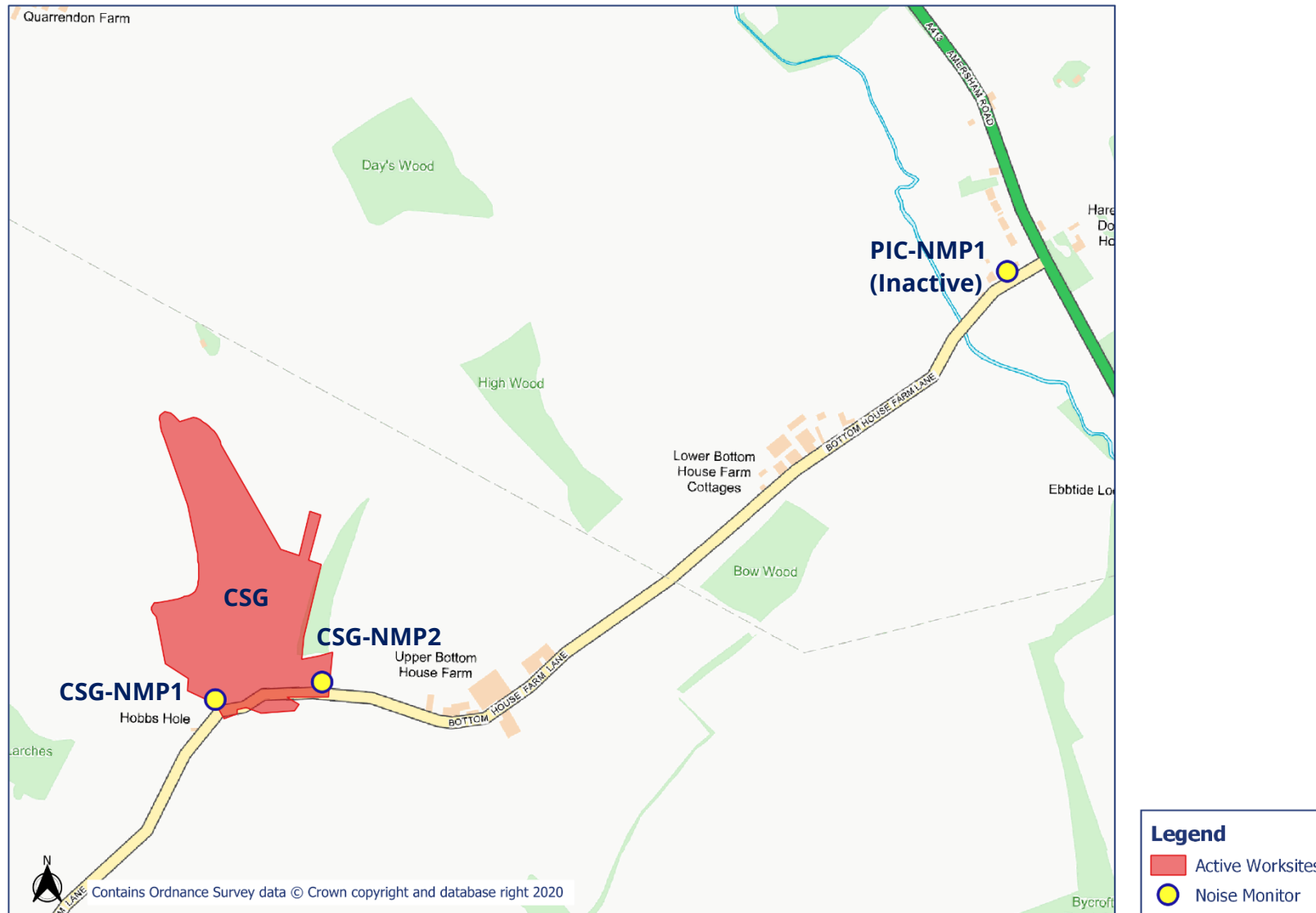


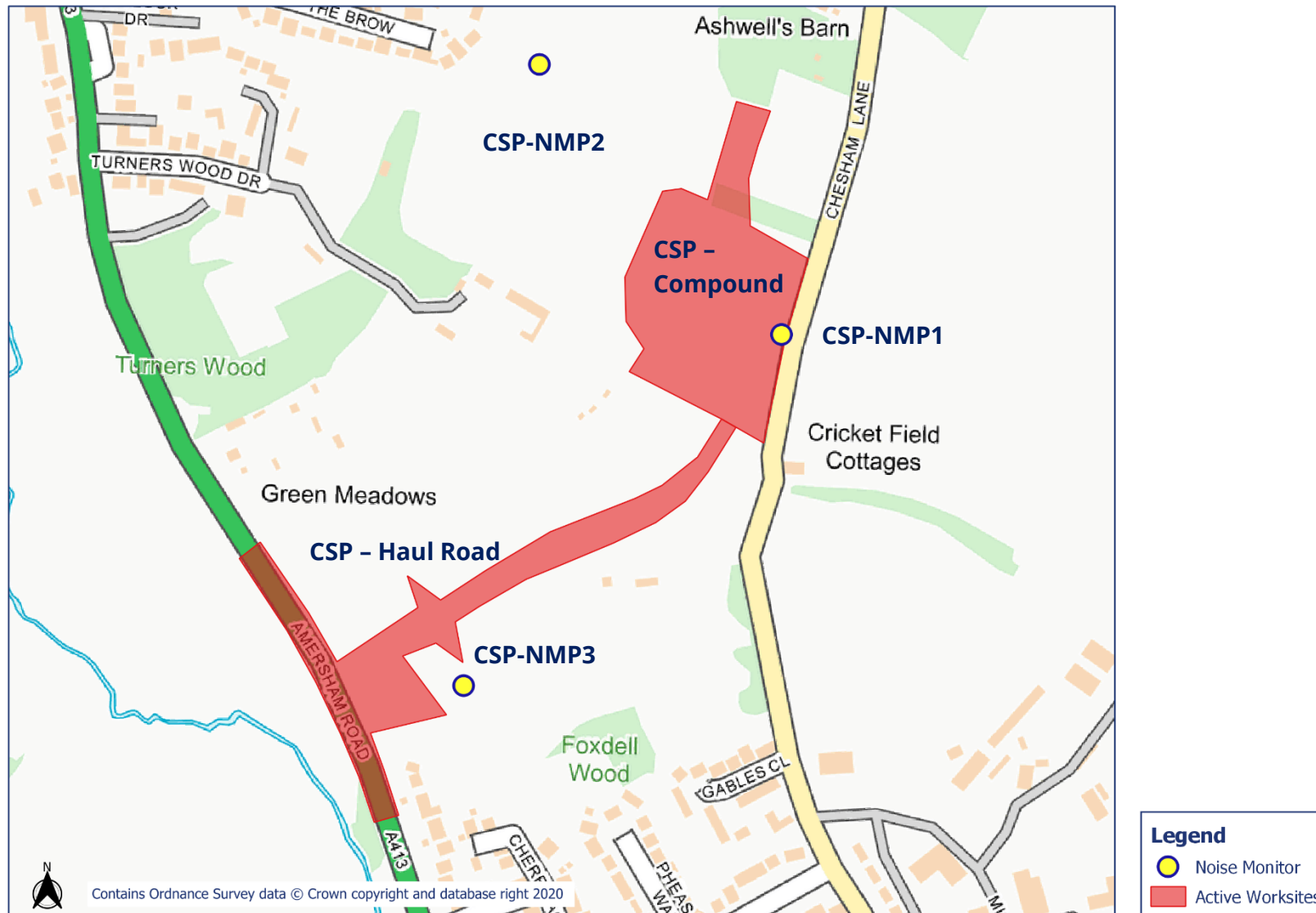


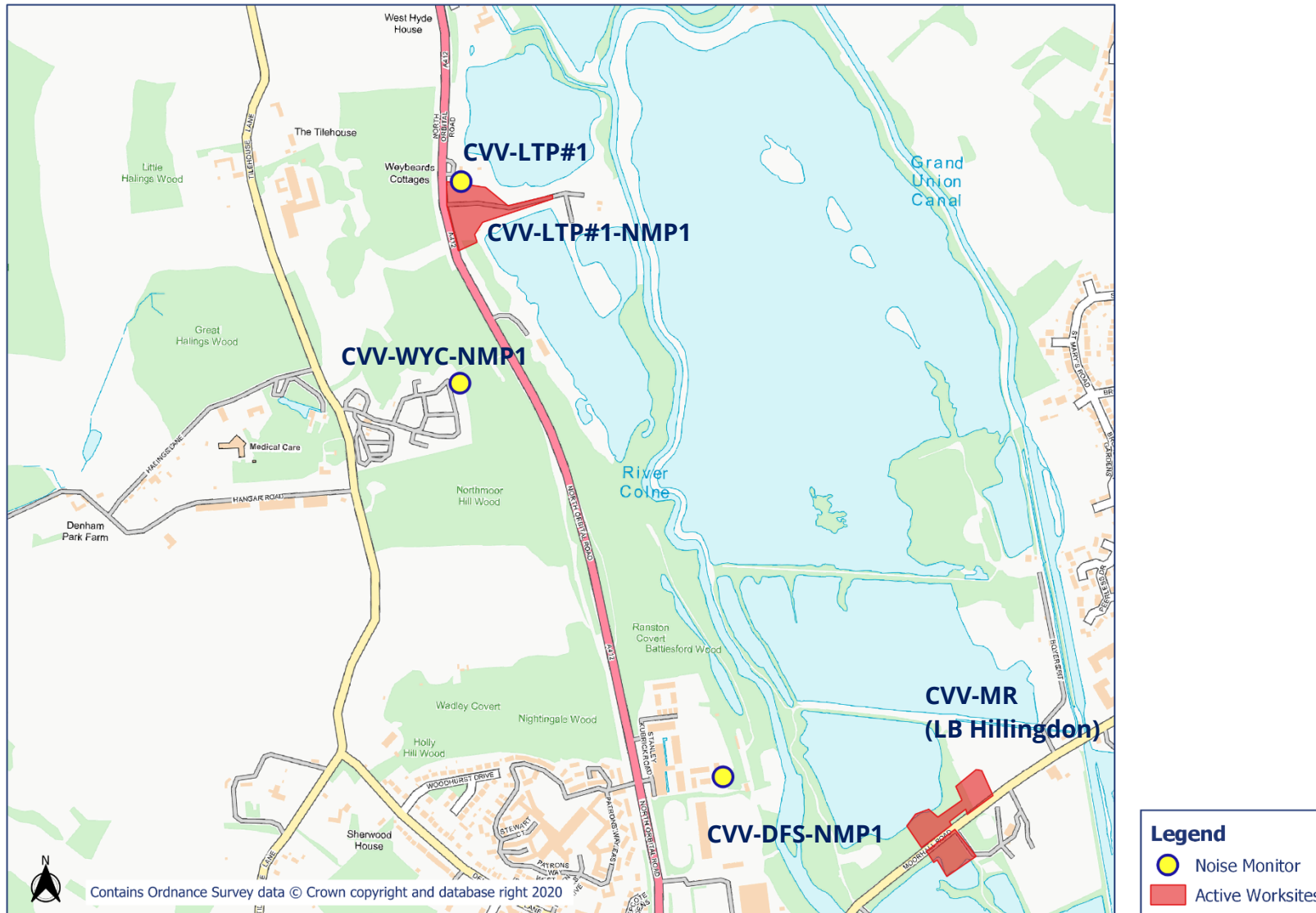


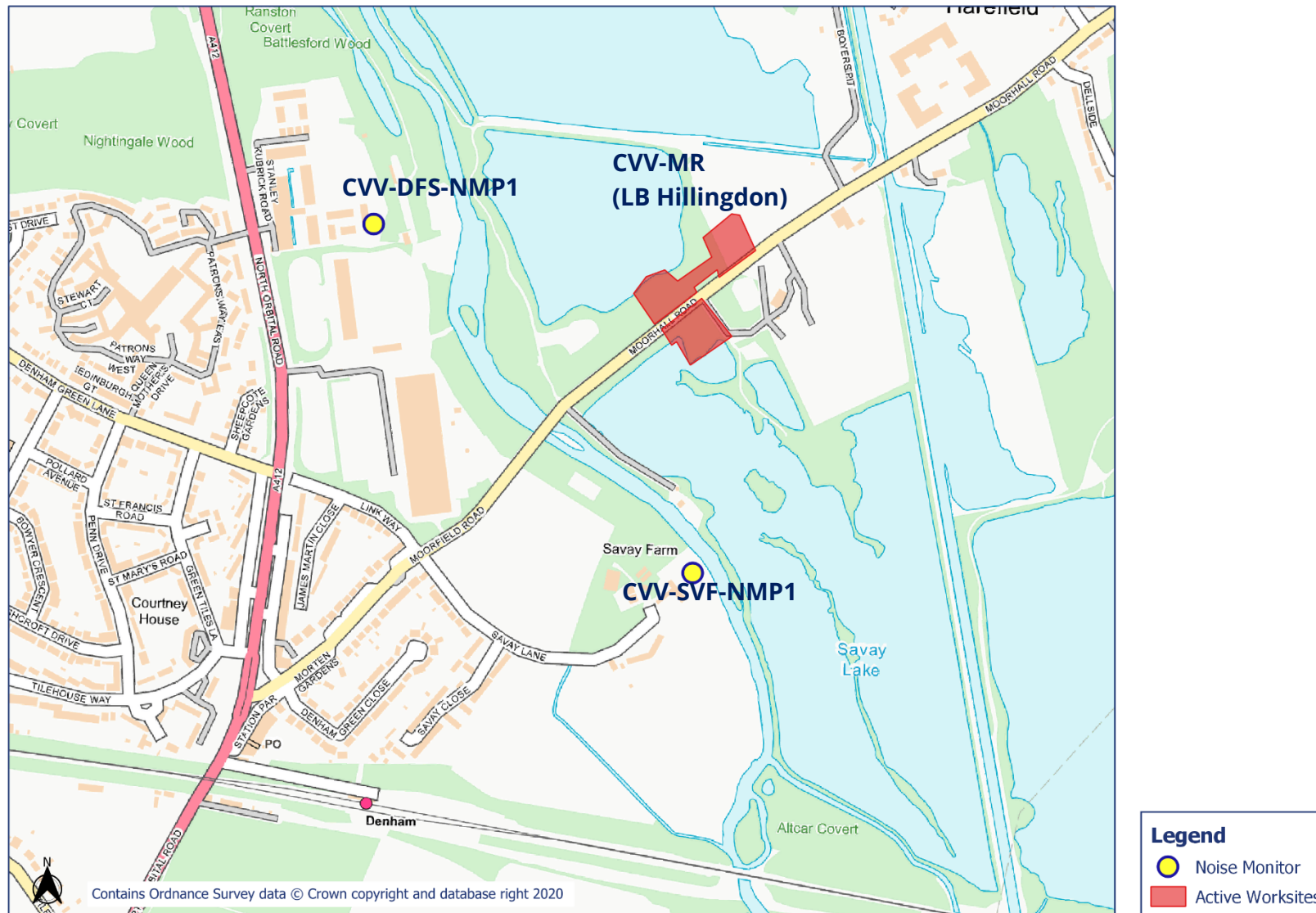










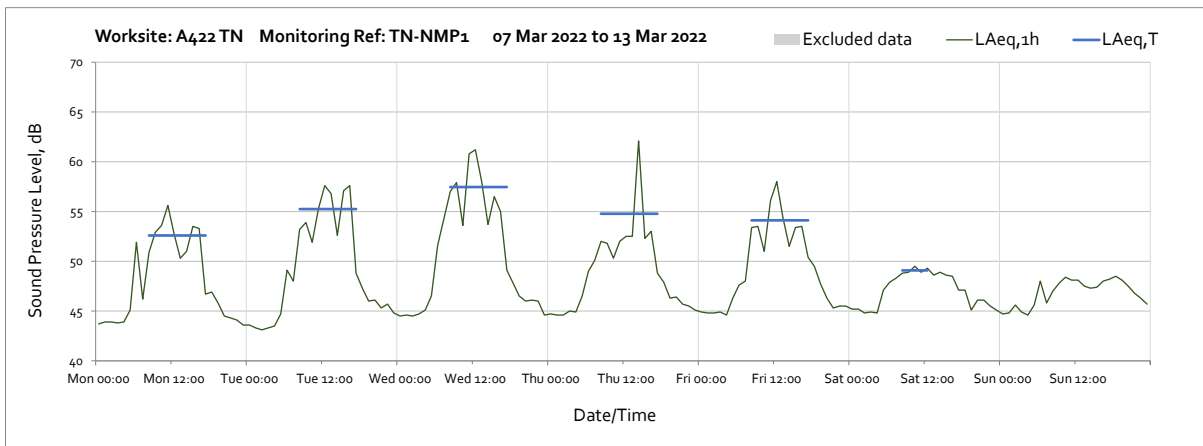
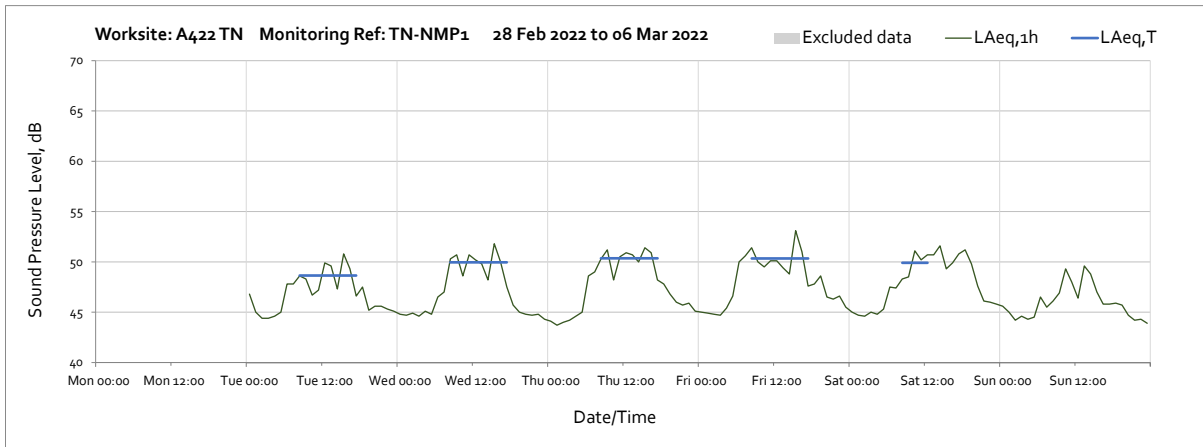


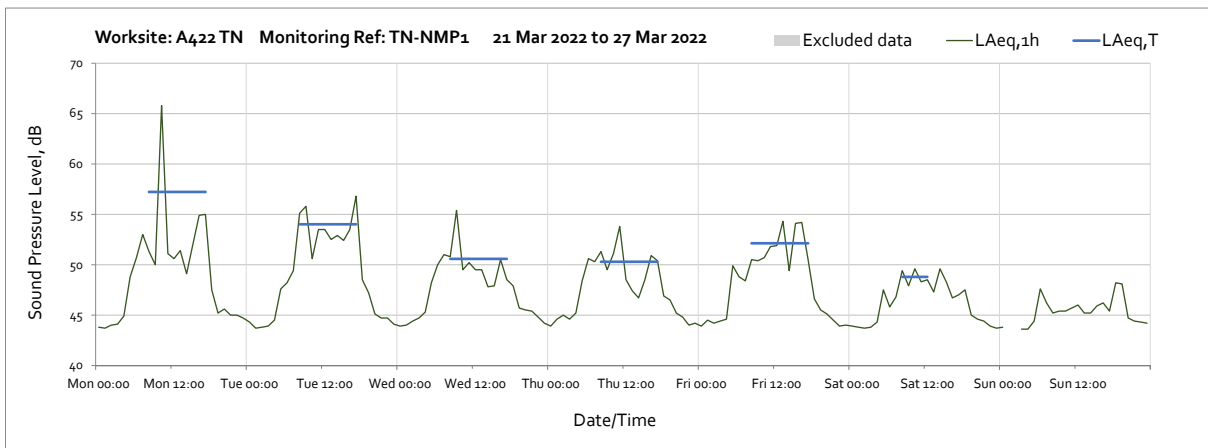
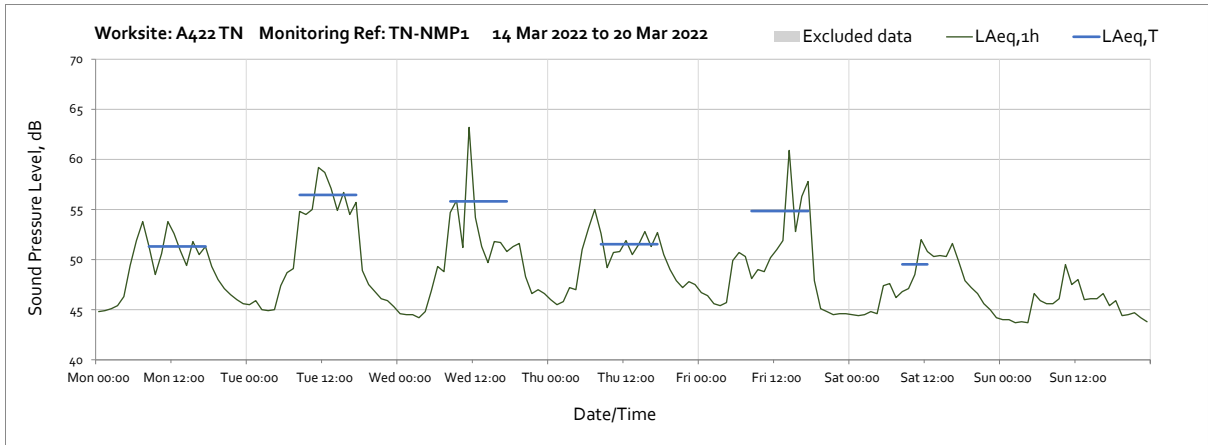
Appendix C Data

Noise

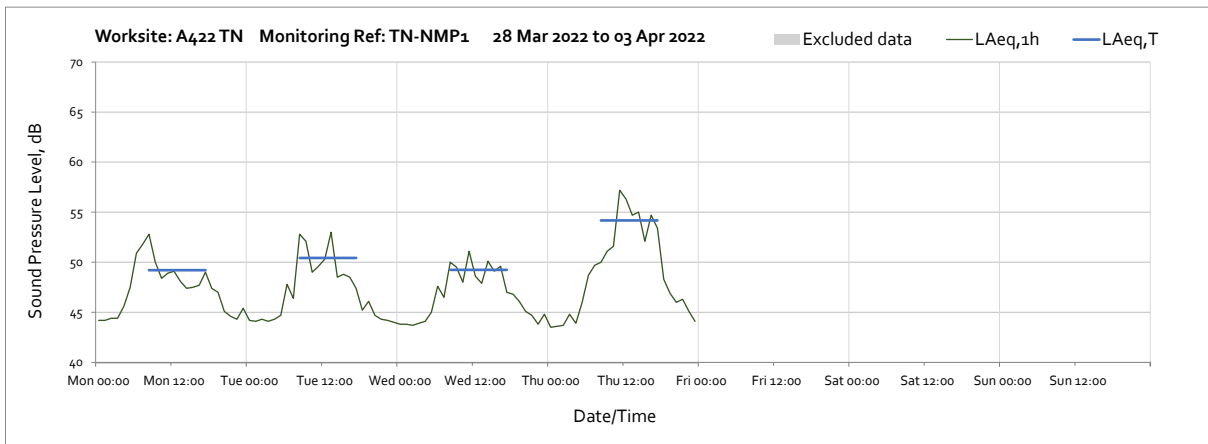
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have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

Worksite: A422 TN – Monitoring Ref: TN-NMP1

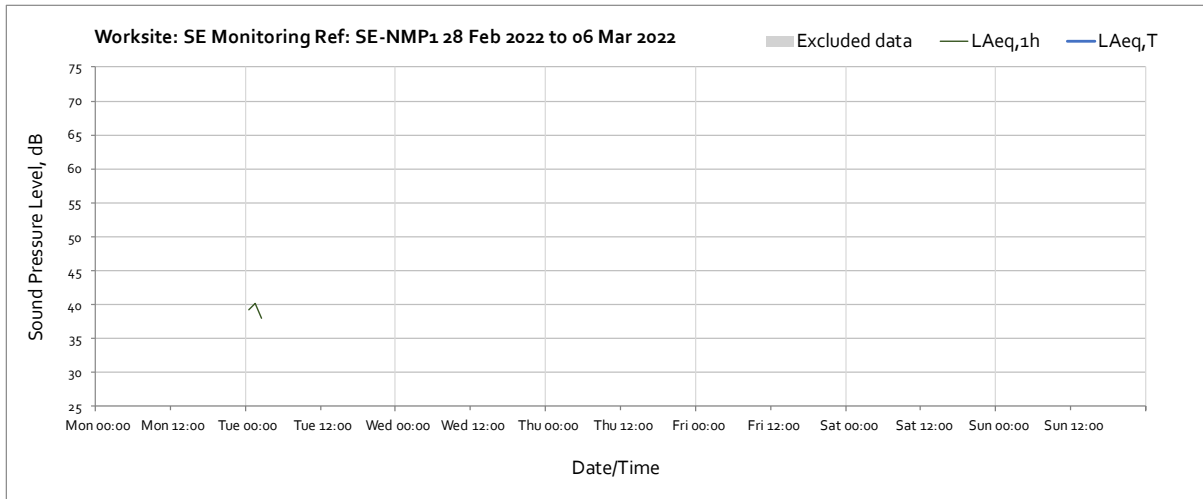




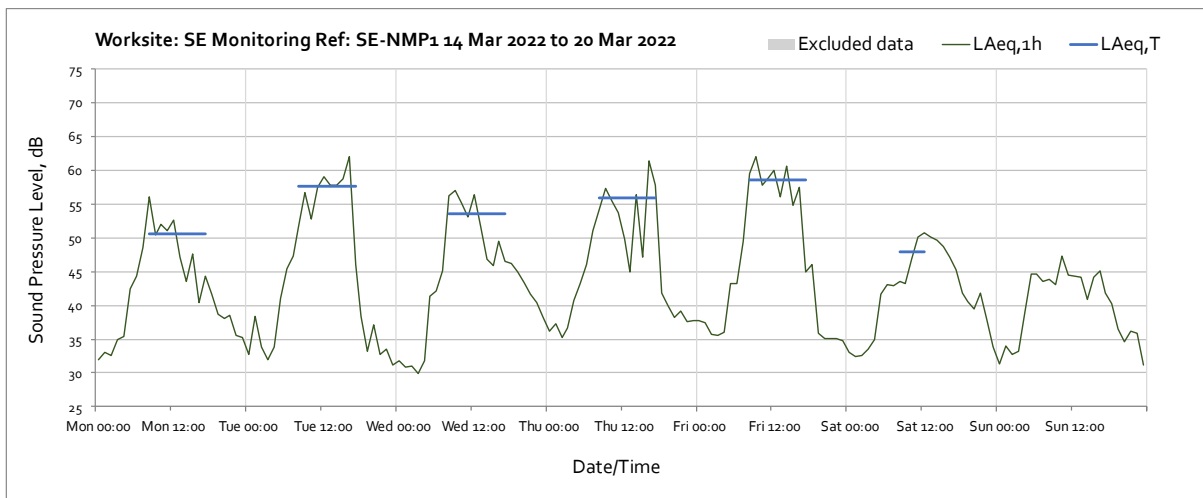
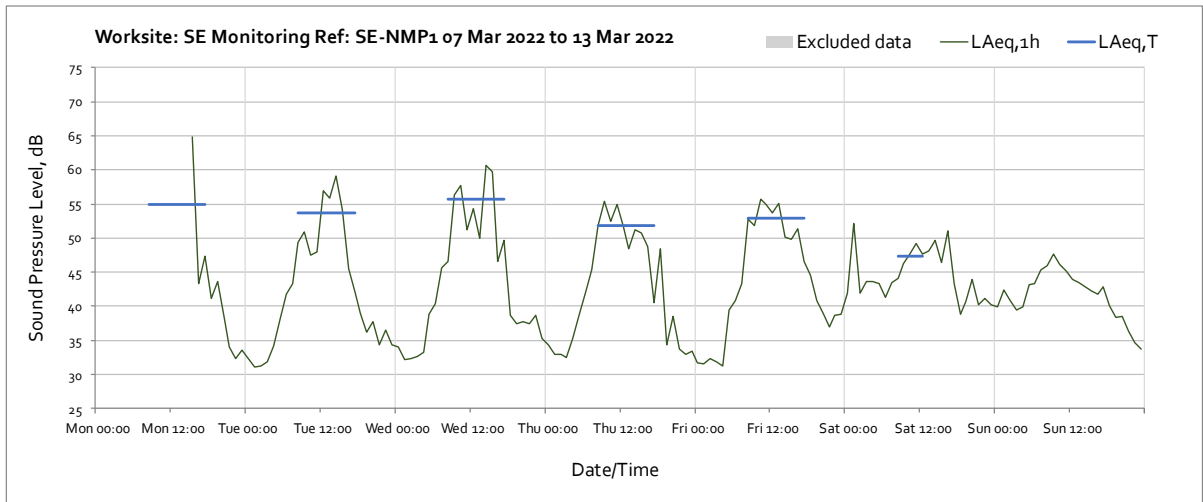
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



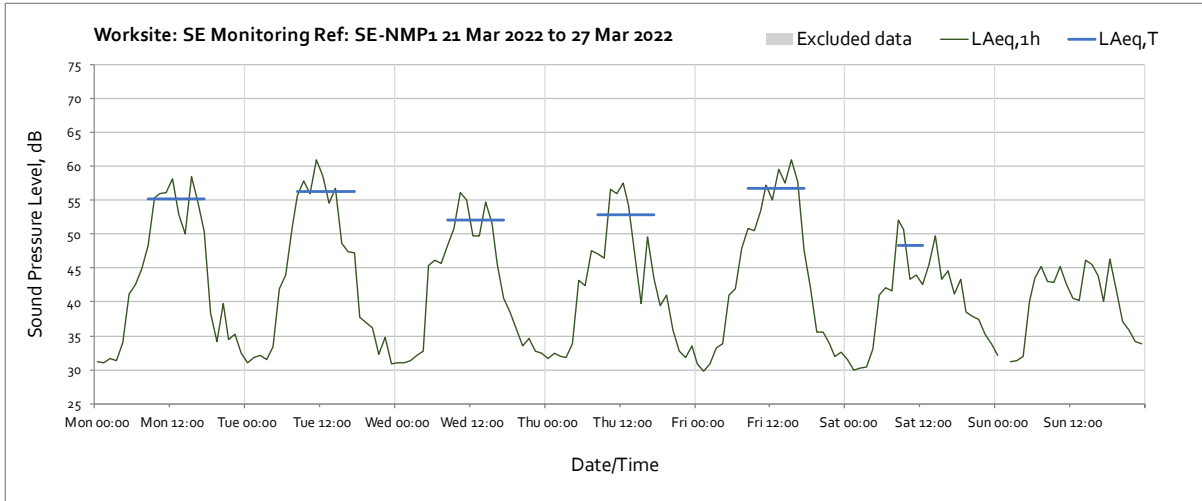
Worksite: SE – Monitoring Ref: SE-NMP1



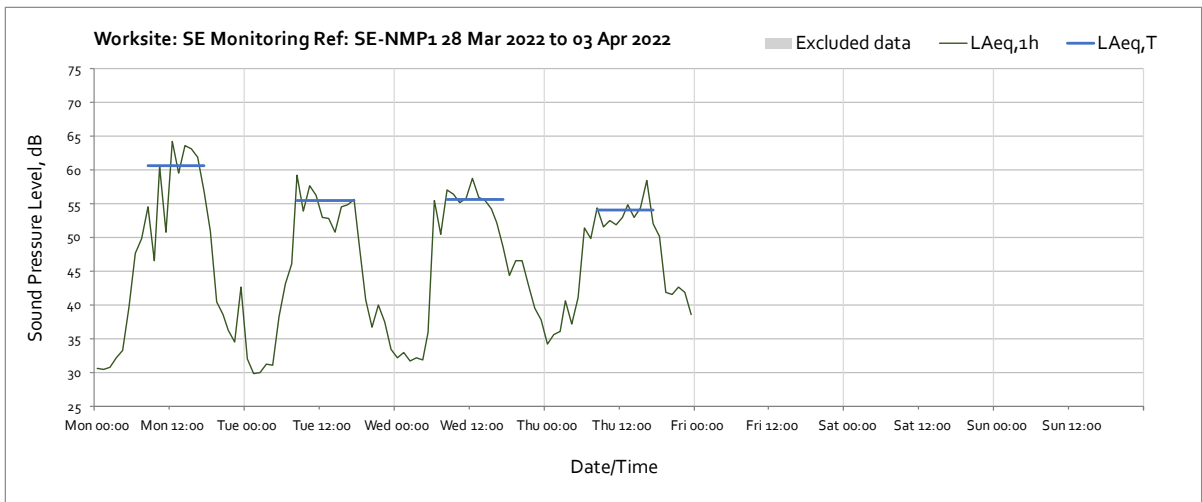
Note: Missing date between 03:00 on Tuesday 1st March and 15:00 on Monday 7th March were due to prolonged loss of remote connection triggering a software error that temporarily prevented data capture, which has now been resolved.



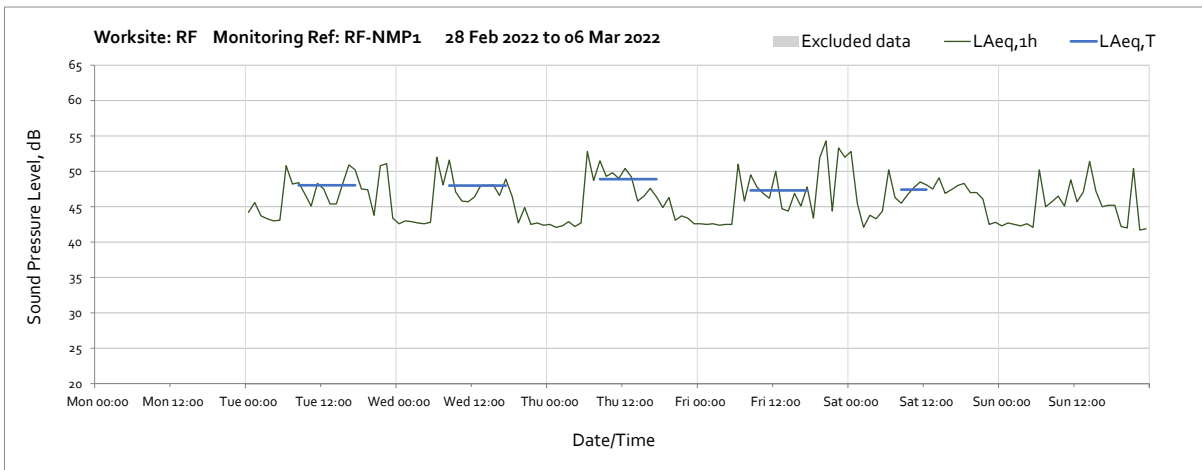
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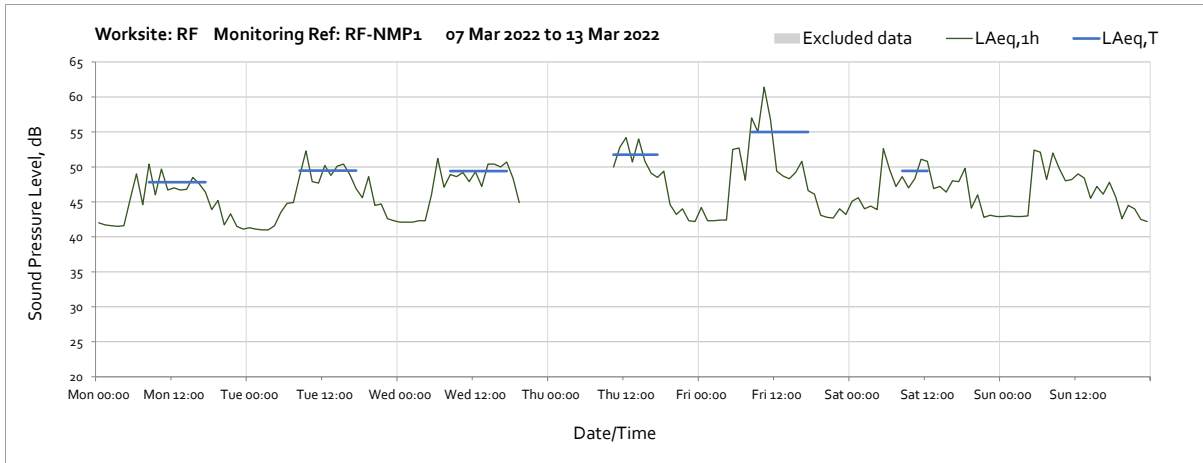


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

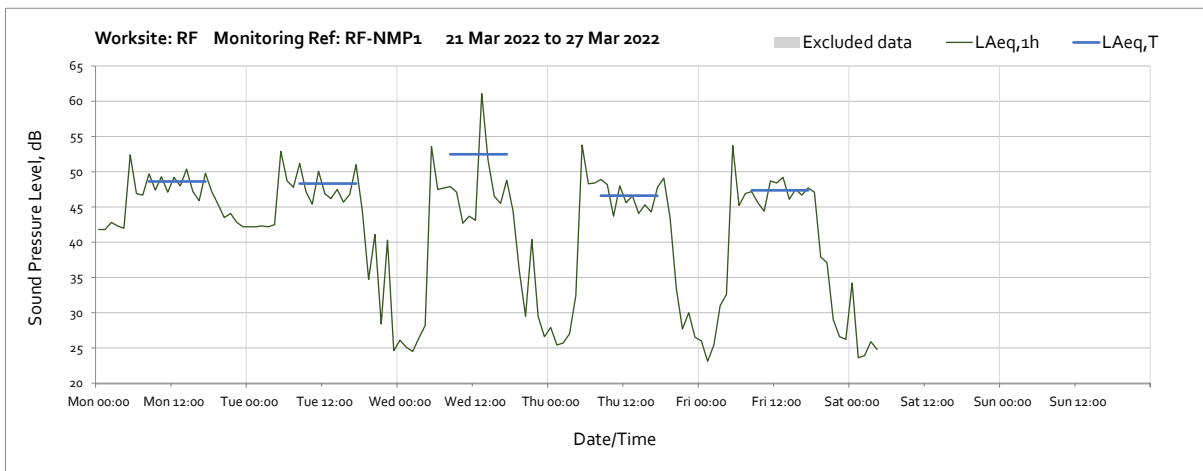
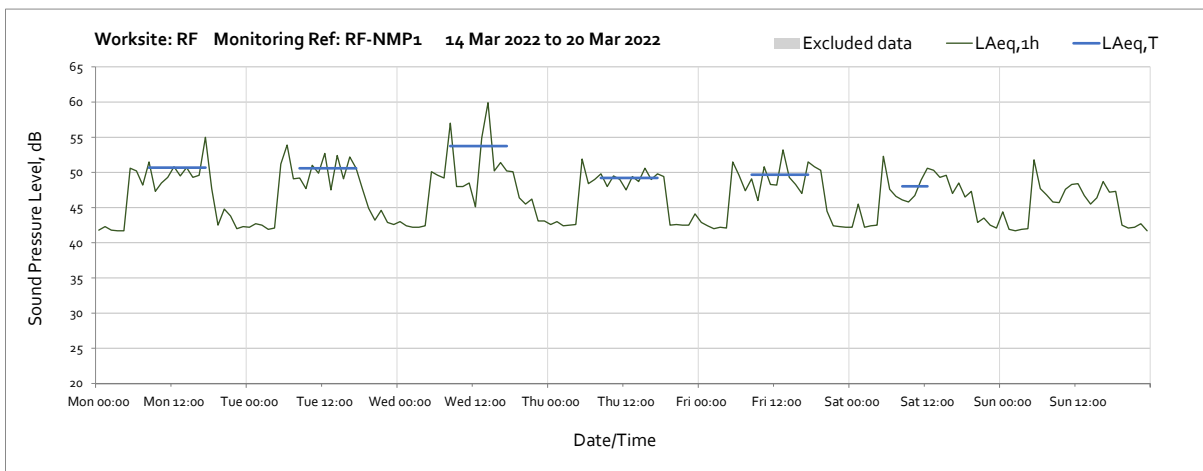


Worksite: RF - Monitoring Ref: RF-NMP1

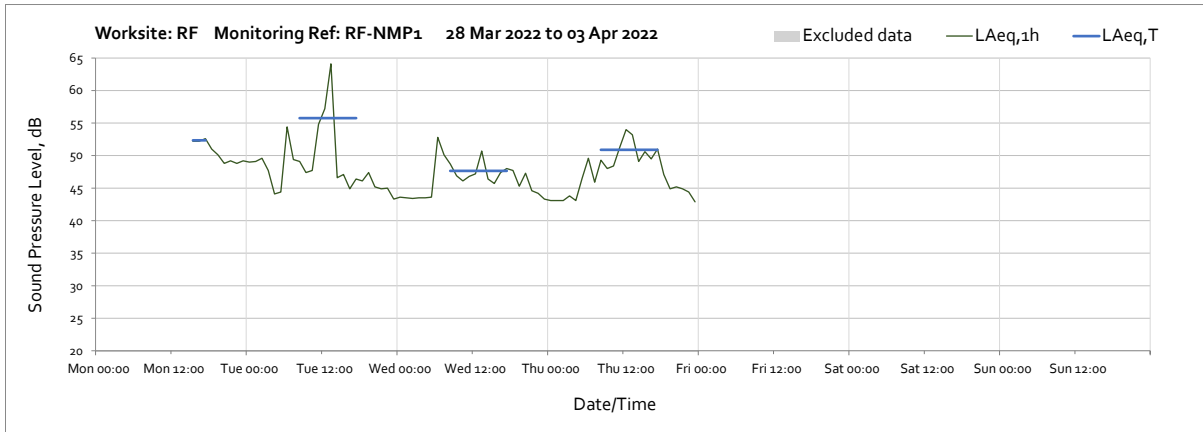




Note: Missing data between 20:00 on Wednesday 9th March and 09:00 on Thursday 10th March were due to loss of continuous power at the monitoring station.

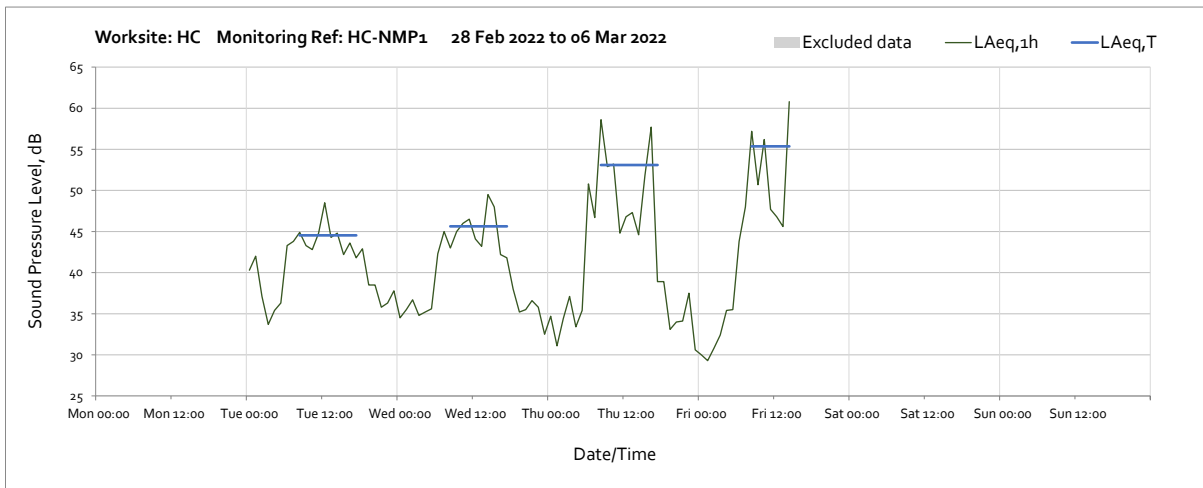


Note: Missing data between 04:00 on Saturday 26th March and 14:00 on Monday 28th March were due to loss of continuous power at the monitoring station.

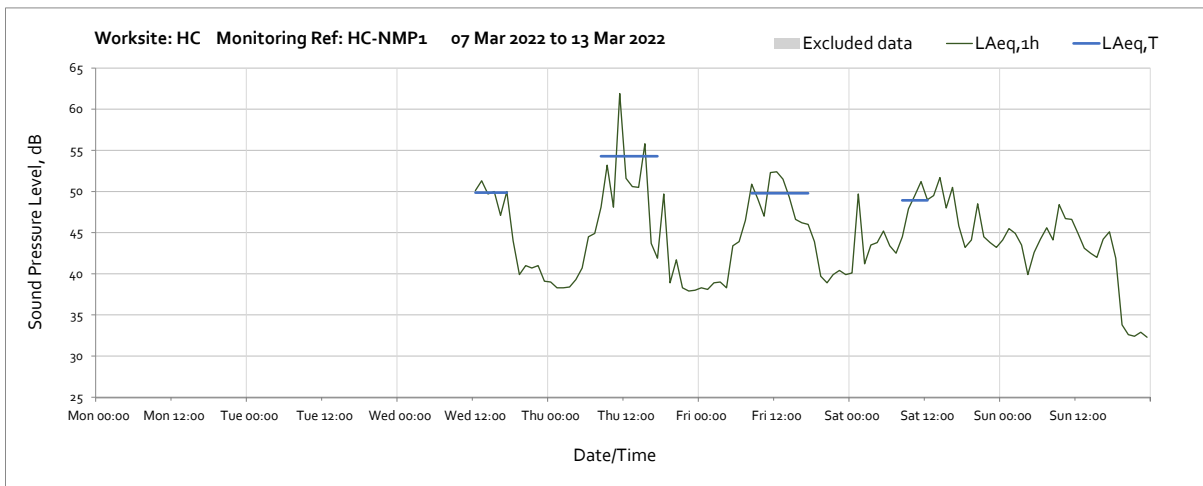


Note: Missing data between 04:00 on Saturday 26th March and 14:00 on Monday 28th March were due to loss of continuous power at the monitoring station.

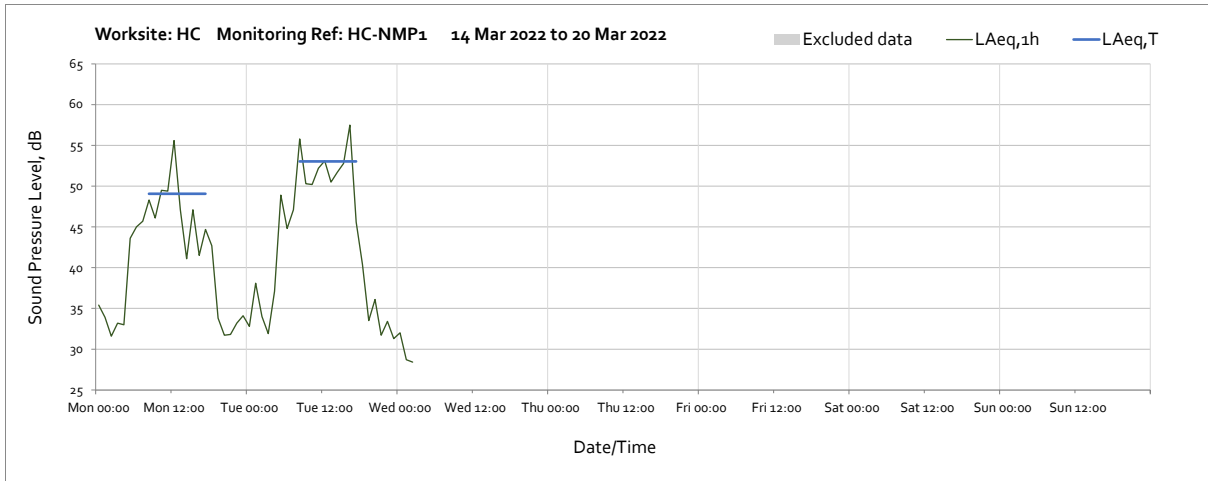
Worksite: HC - Monitoring Ref: HC-NMP1



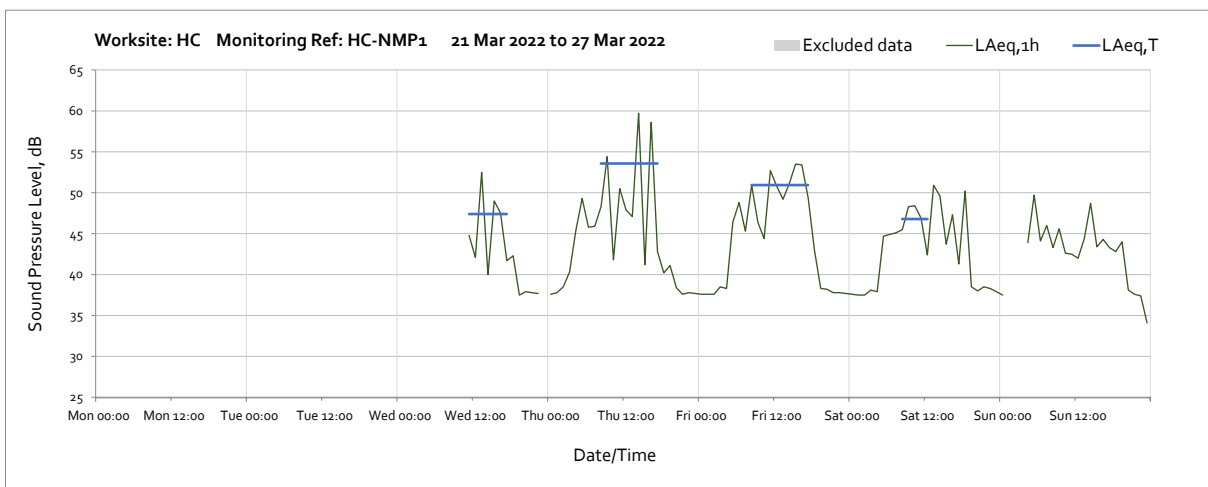
Note: Missing data between 15:00 on Friday 4th March and 11:00 on Wednesday 9th March were due to loss of continuous power at the monitoring station.



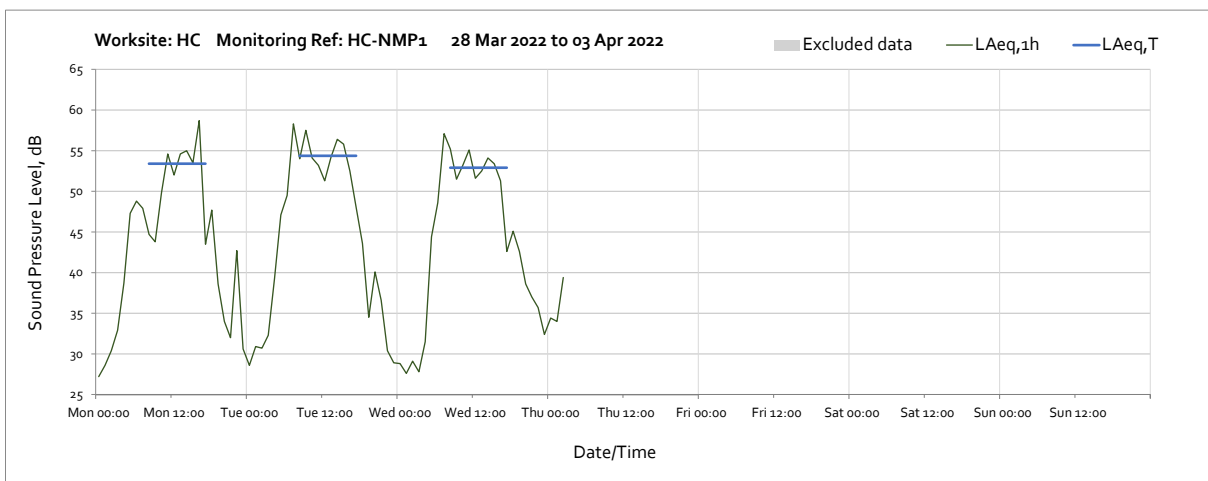
Note: Missing data between 15:00 on Friday 4th March and 11:00 on Wednesday 9th March were due to loss of continuous power at the monitoring station.



Note: Missing data between 03:00 on Wednesday 16th March and 11:00 on Wednesday 23rd March were due to loss of continuous power at the monitoring station.

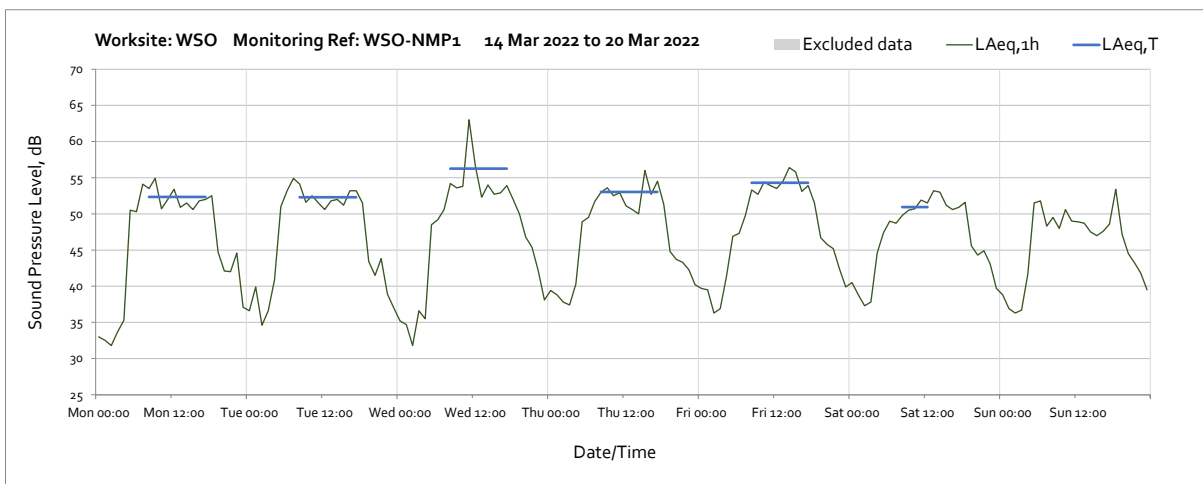
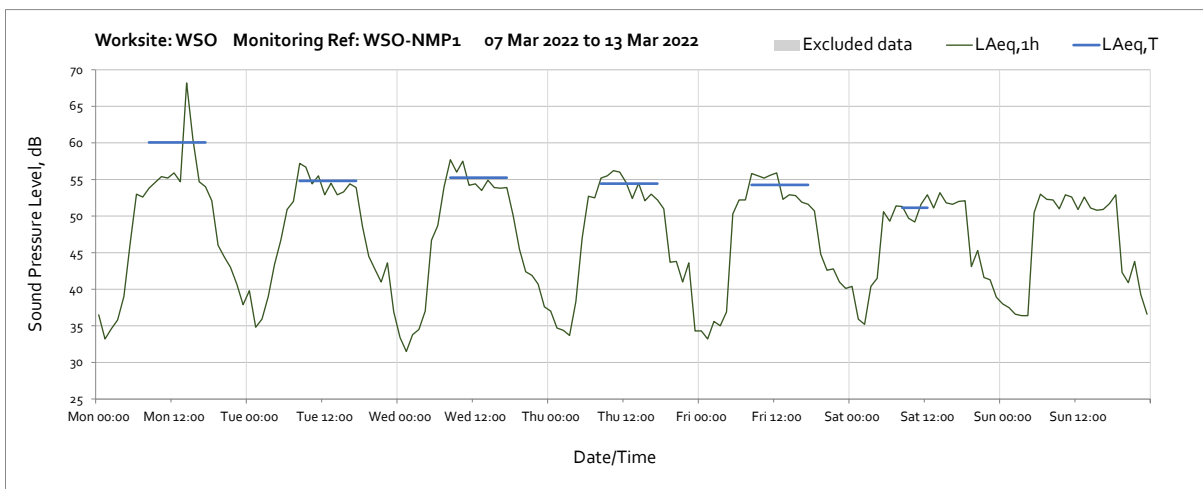
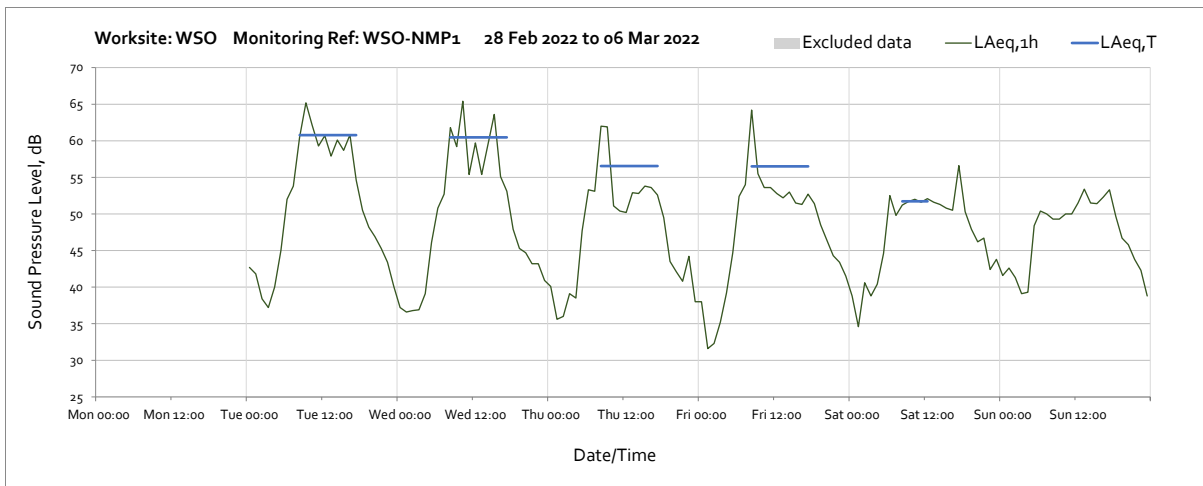


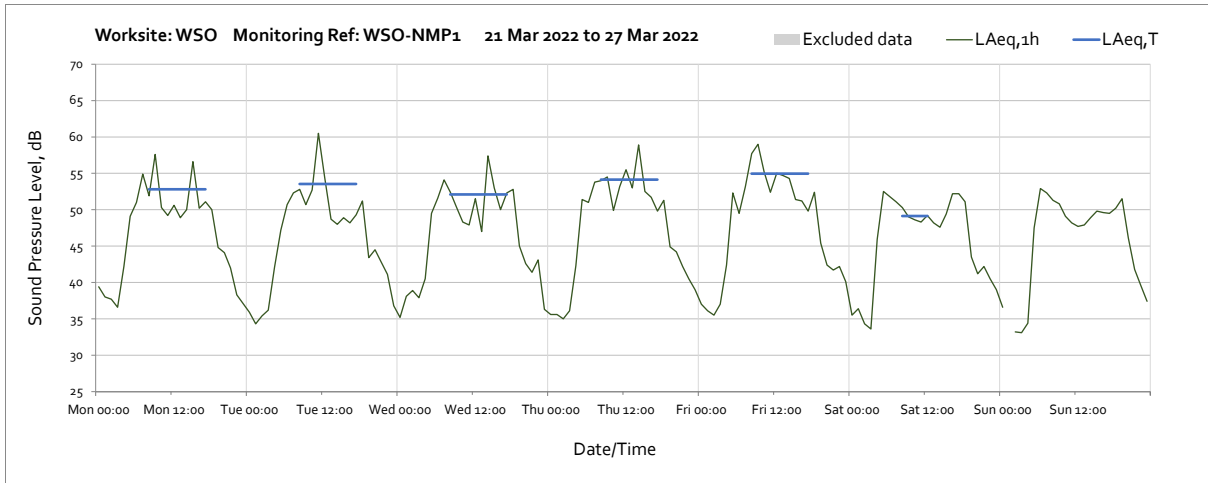
Note: Missing data throughout the week were due to loss of continuous power at the monitoring station.



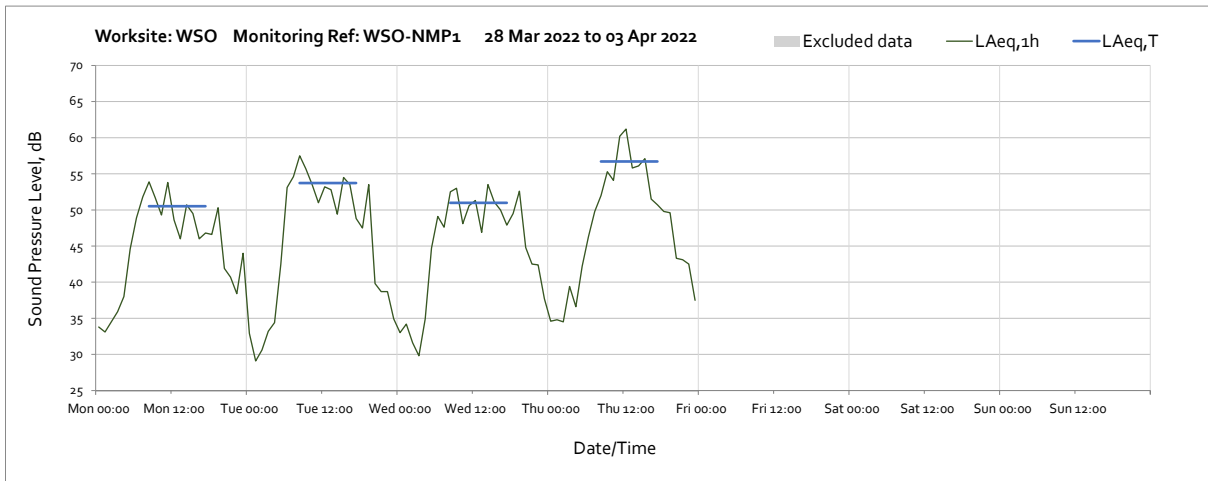
Note: Missing data from 03:00 on Thursday 31st March until the end of the month were due to loss of continuous power at the monitoring station.

Worksite: WSO – Monitoring Ref: WSO-NMP1

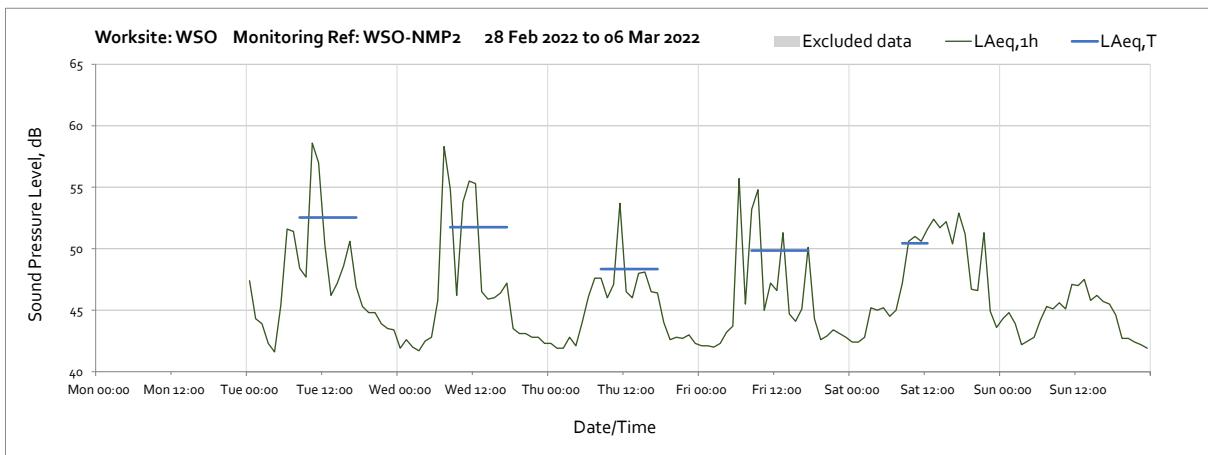


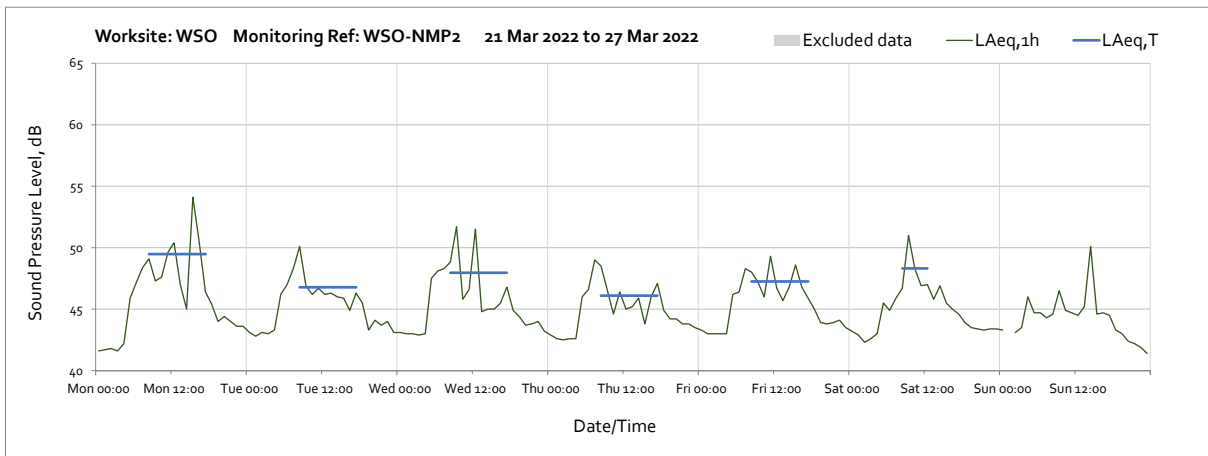
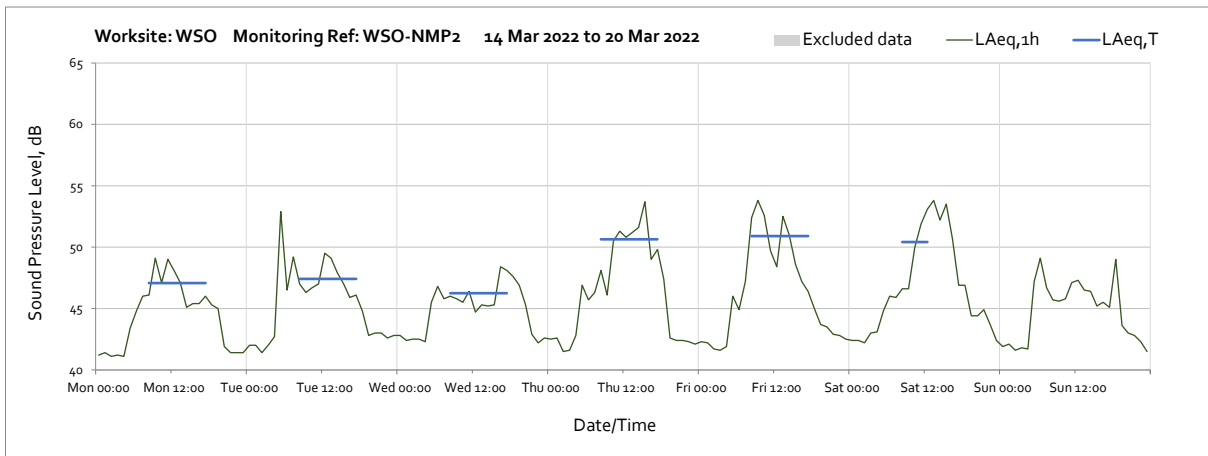
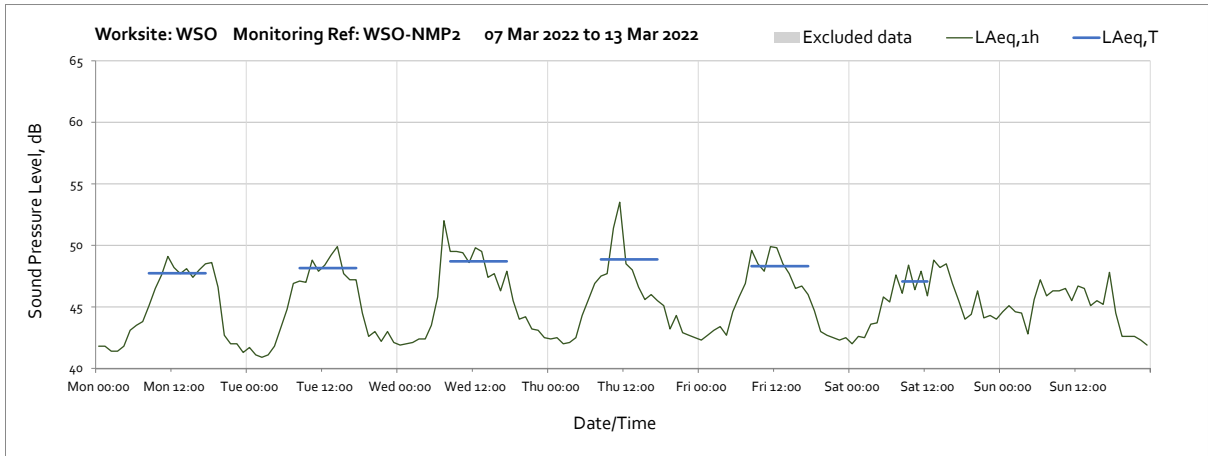


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

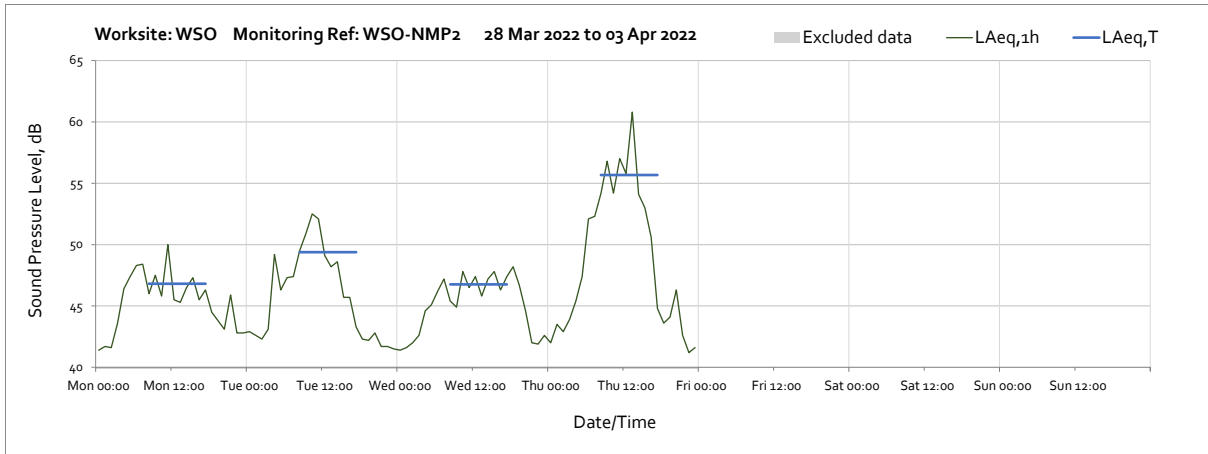


Worksite: WSO - Monitoring Ref: WSO-NMP2

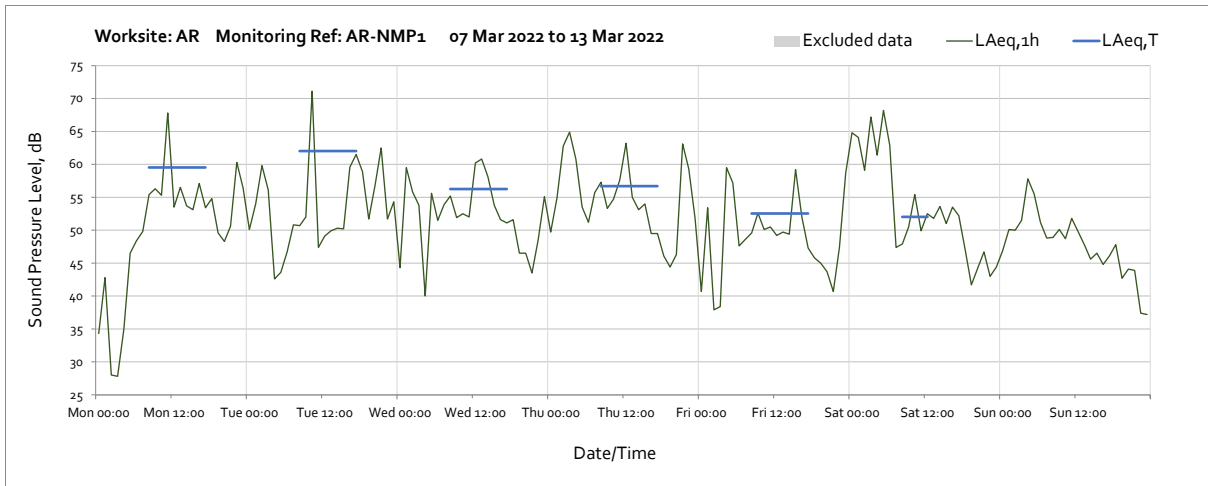
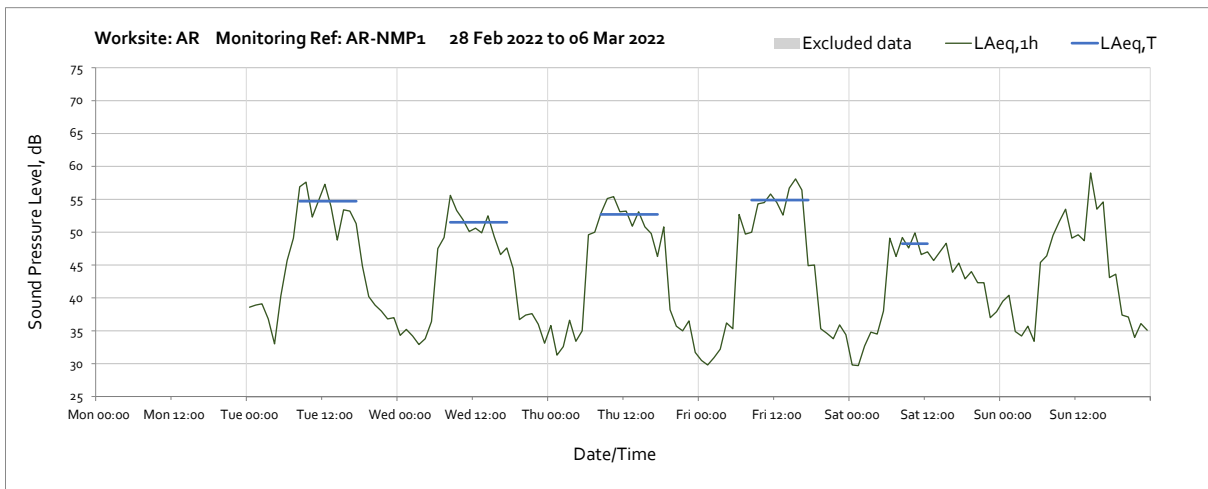


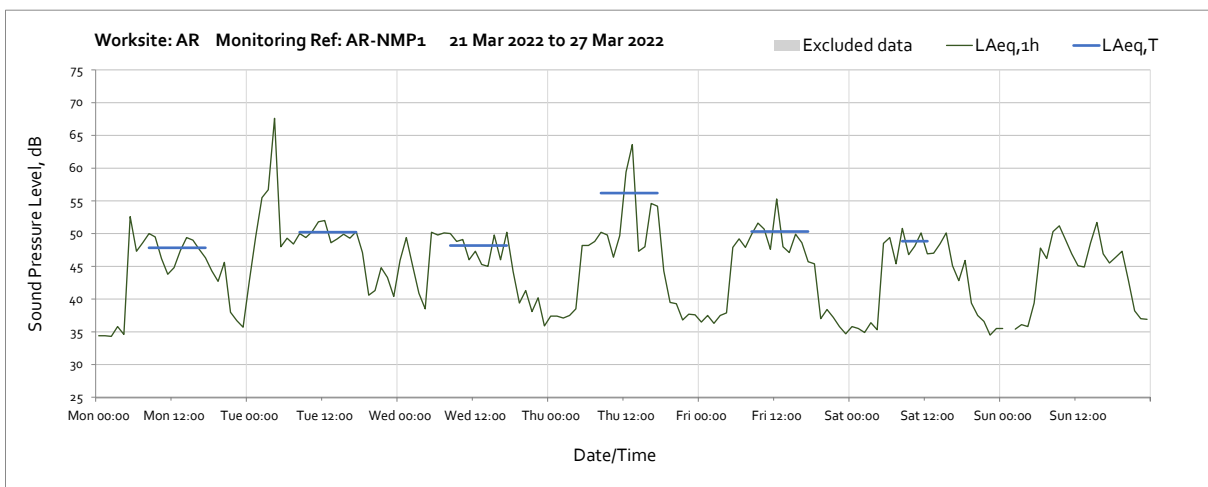
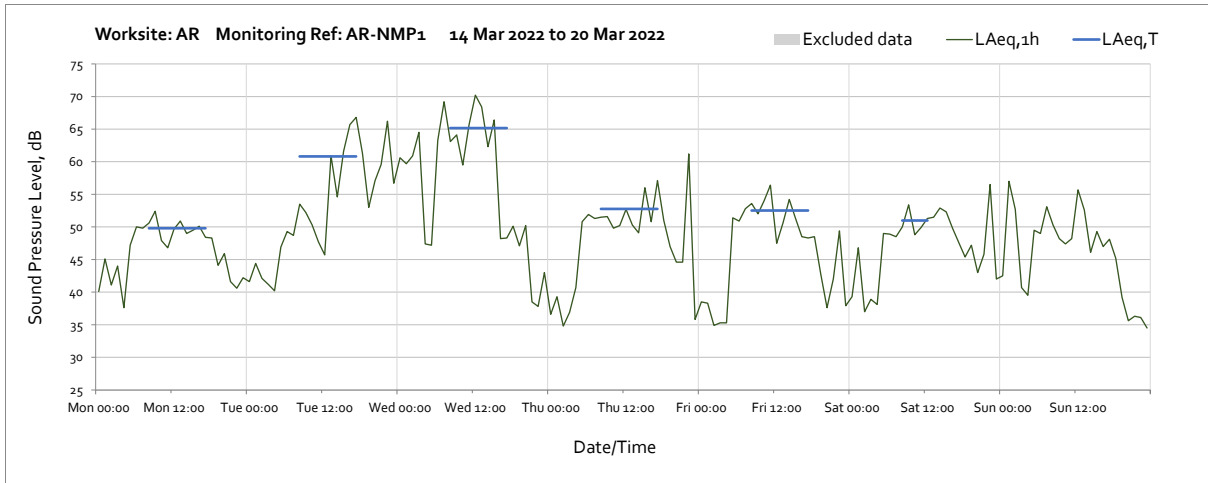


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

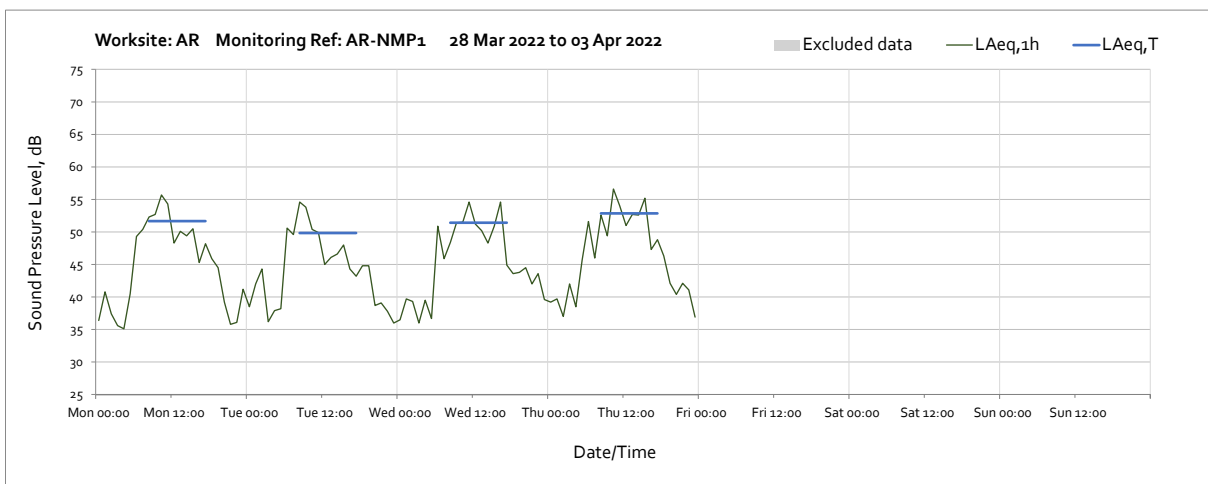


Worksite: AR - Monitoring Ref: AR-NMP1

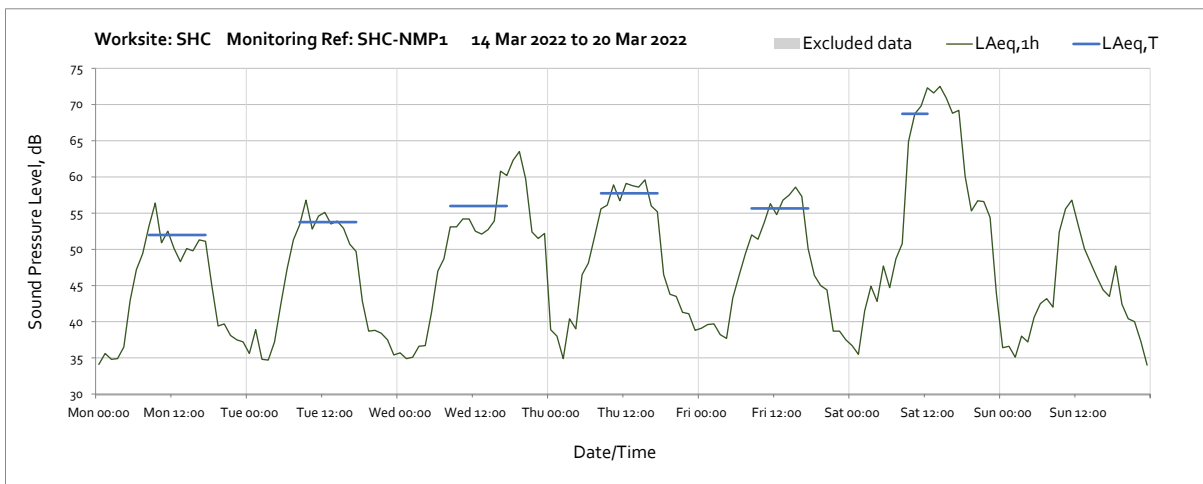
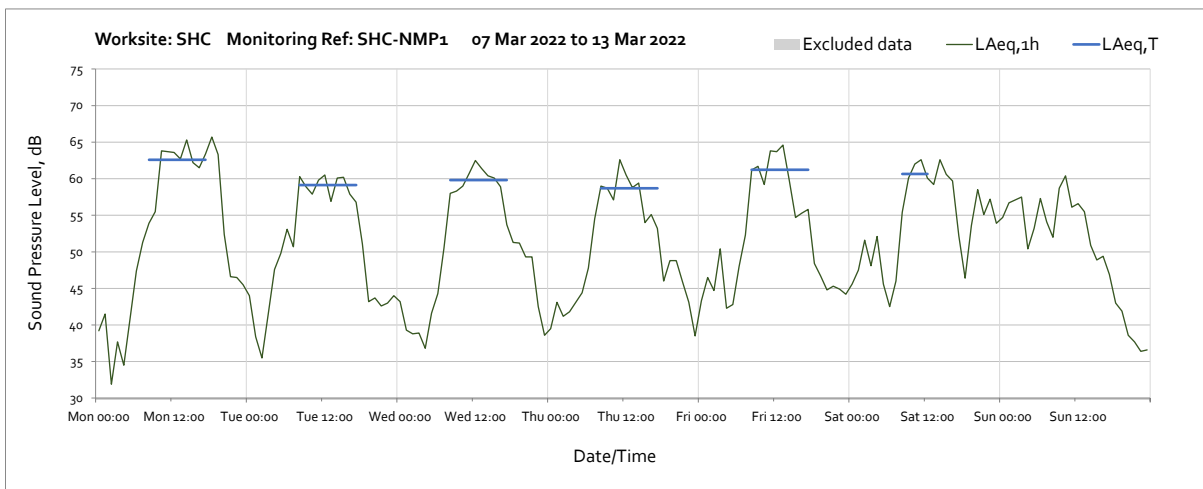
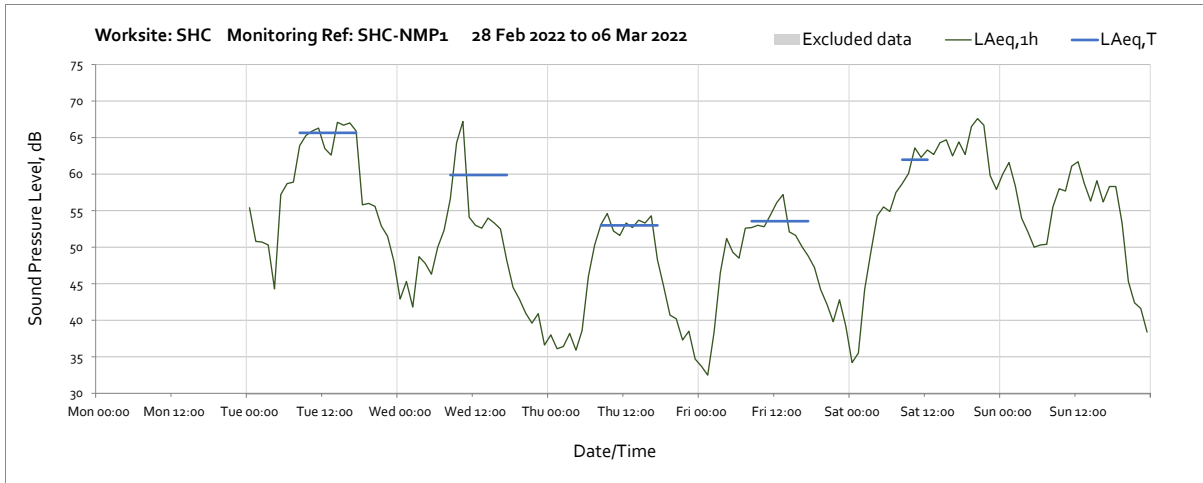


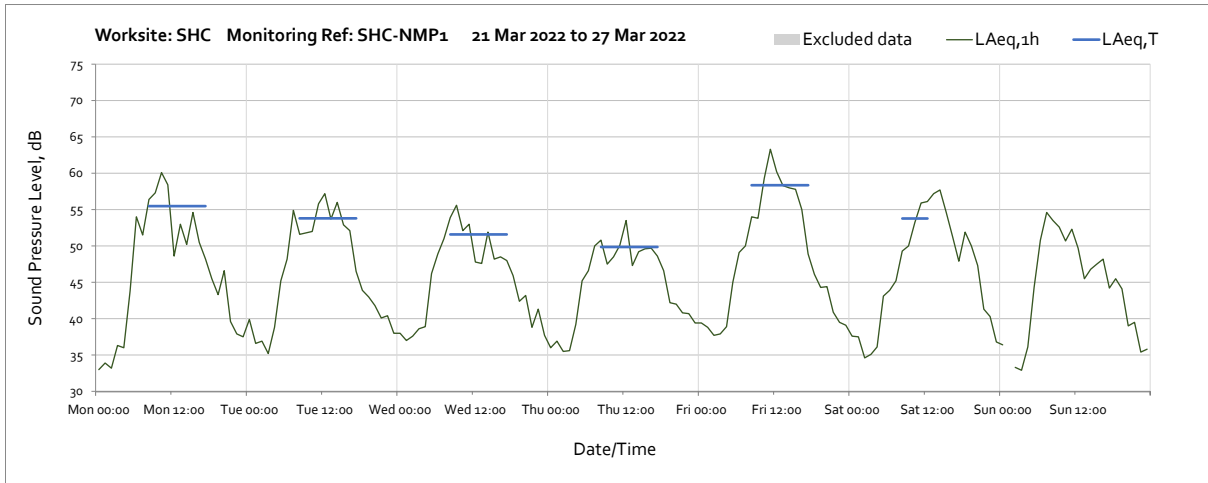


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

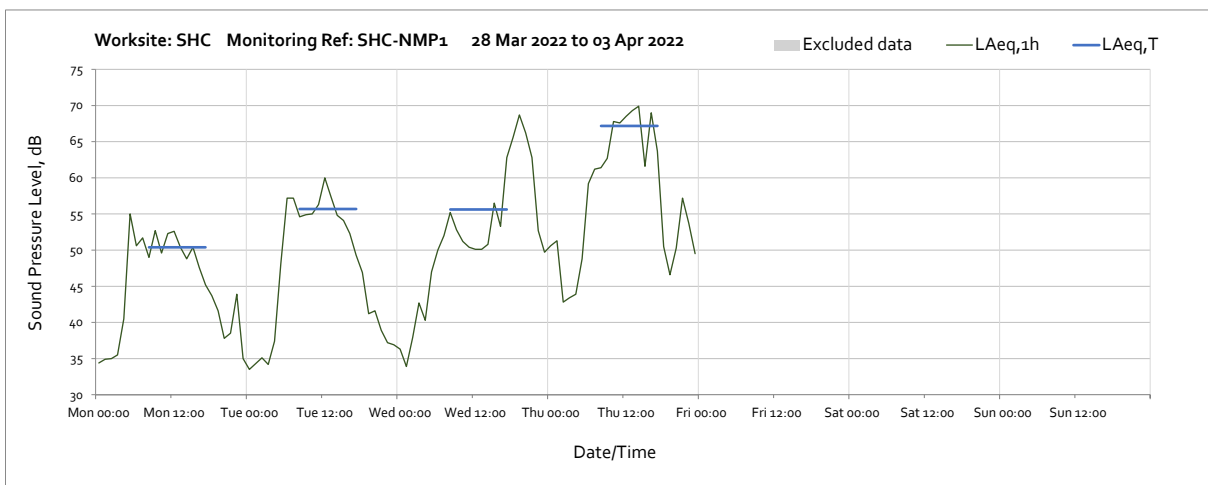


Worksite: SHC – Monitoring Ref: SHC-NMP1

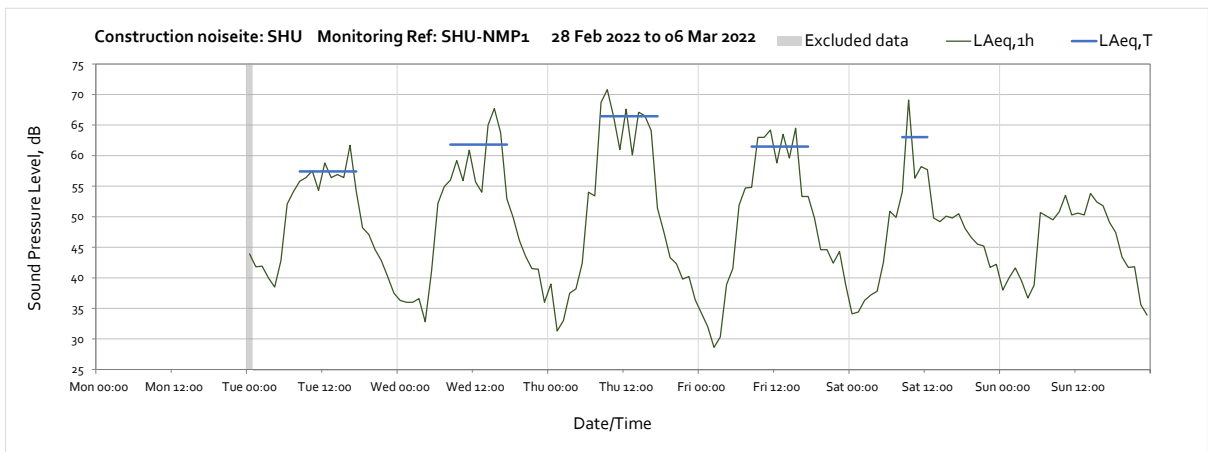


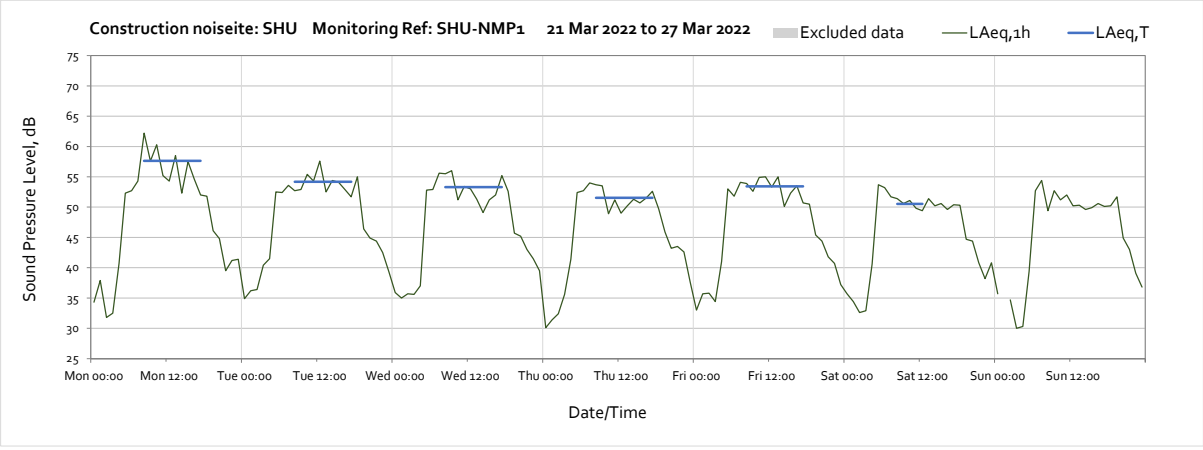
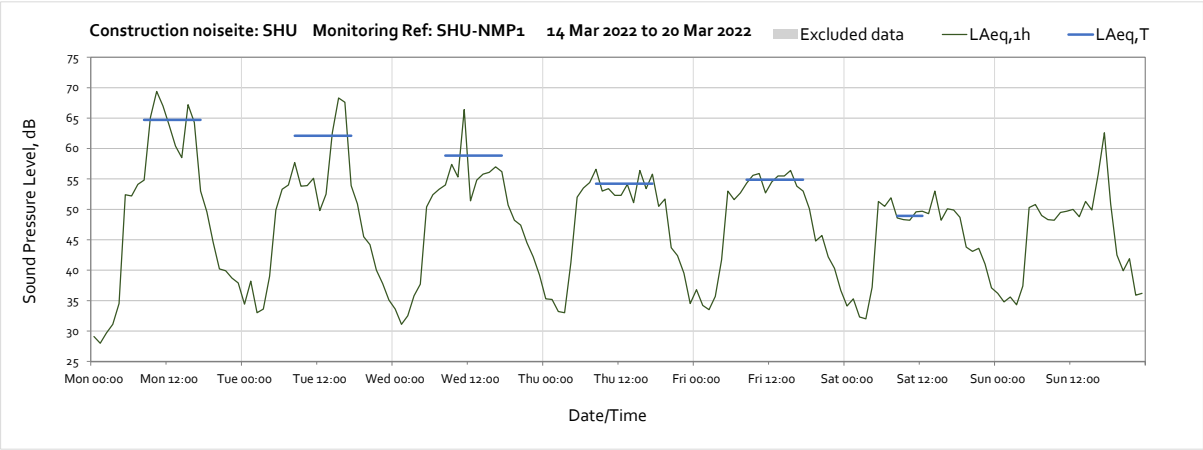
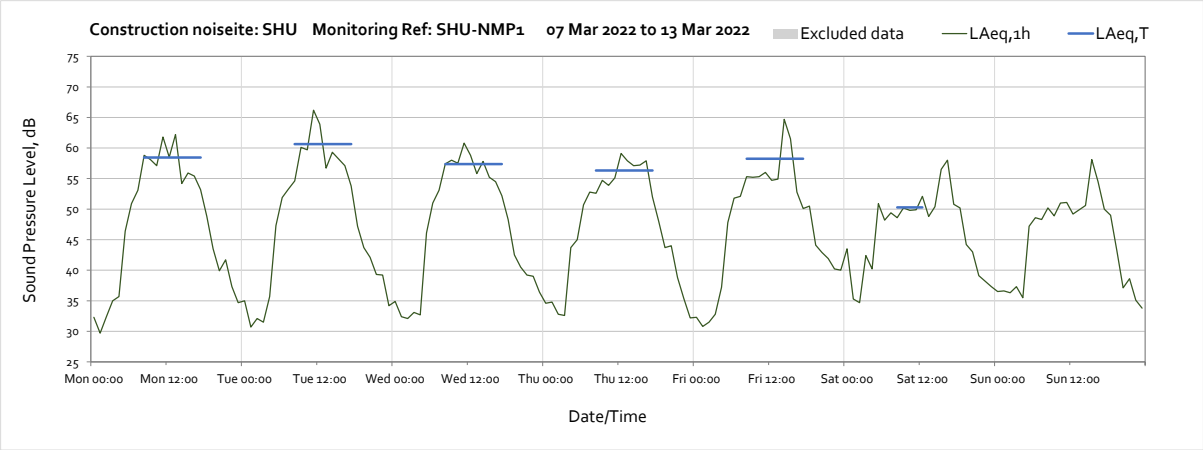


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

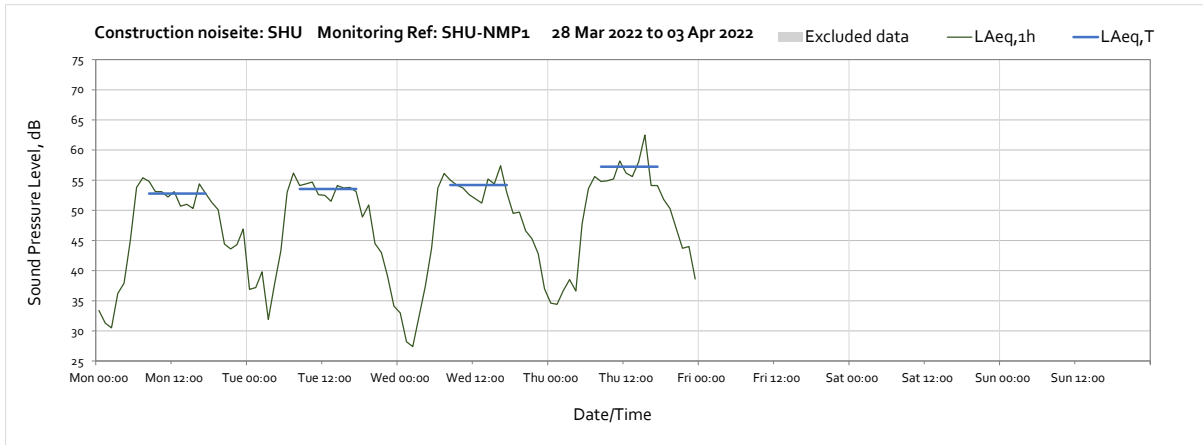


Worksite: SHU – Monitoring Ref: SHU-NMP1

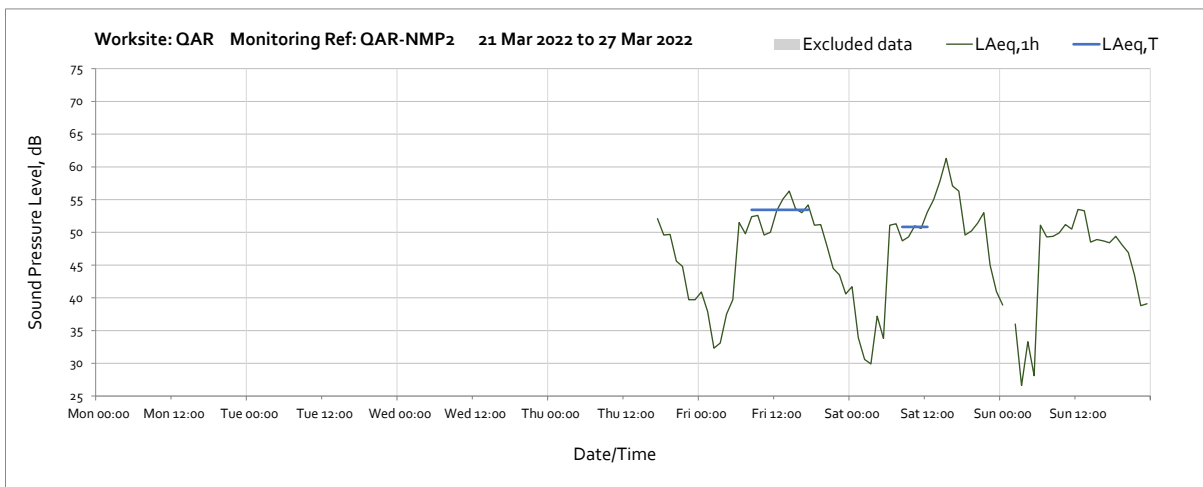




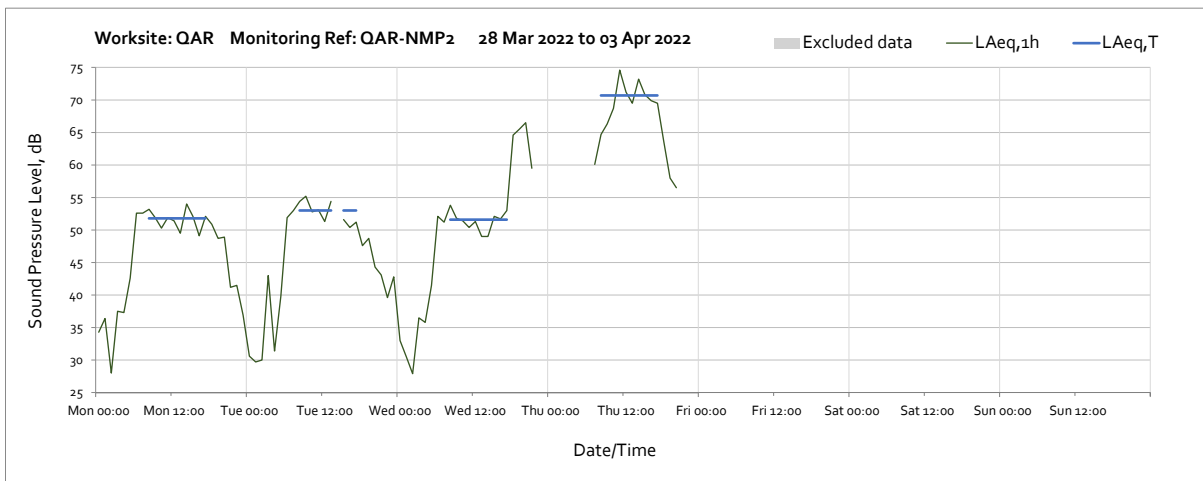
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



Worksite: QAR – Monitoring Ref: QAR-NMP2



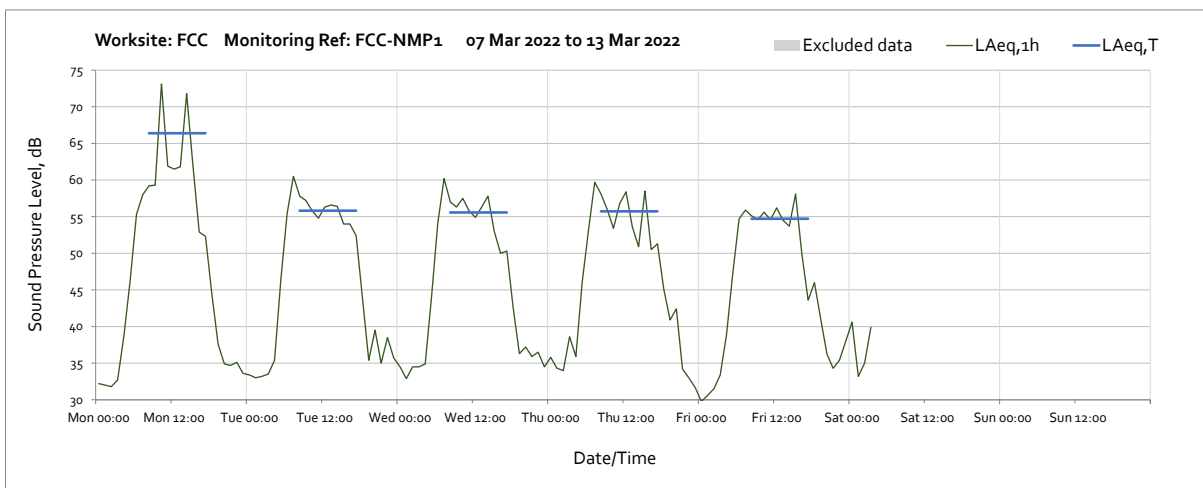
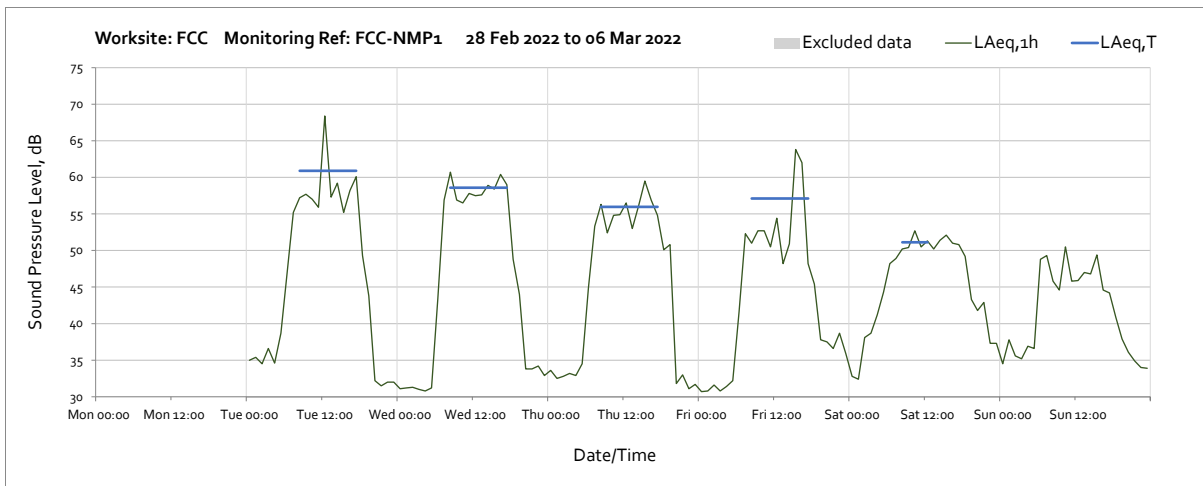
Note: Noise monitor QAR-NMP2 was installed on Thursday 24th March 2022. Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



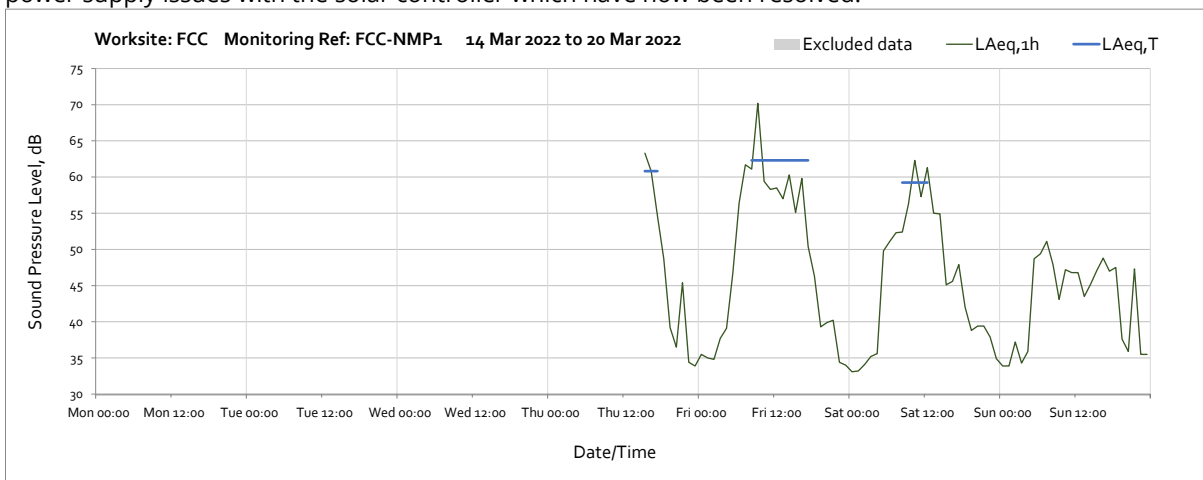
Note: Missing data between 14:00 and 15:00 on Tuesday 29th March, between 22:00 on Wednesday 30th March and 07:00 on Thursday 31st March, and 21:00 on Thursday 31st March and the end of the month was due to power supply issues with insufficient solar power storage. Additional power storage capacity has now been installed to prevent reoccurrences.

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Worksite: FCC – Monitoring Ref: FCC-NMP1

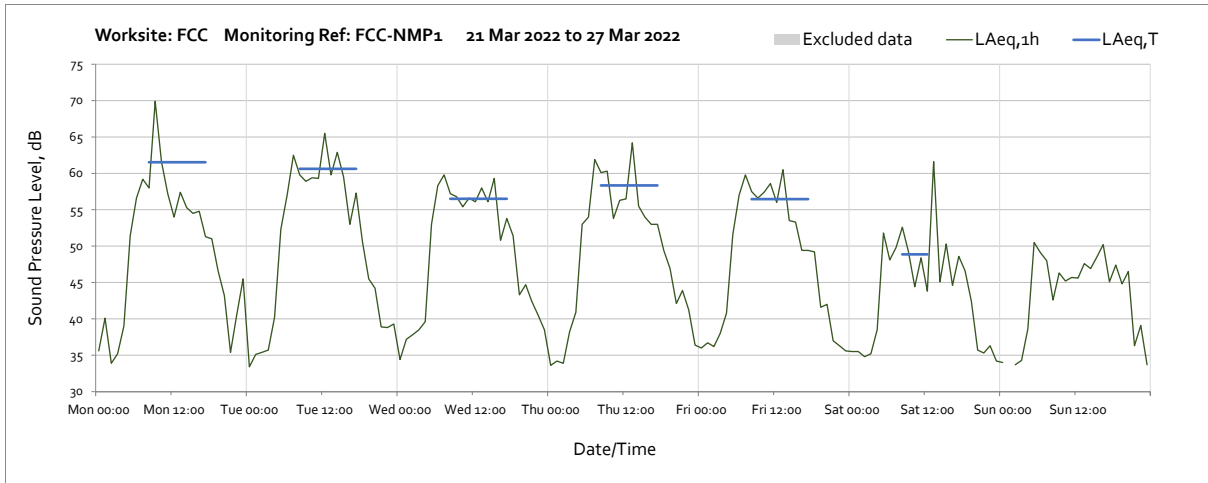


Note: Missing data between Saturday 12th March at 04:00 and Thursday 17th March at 15:00 were due to power supply issues with the solar controller which have now been resolved.

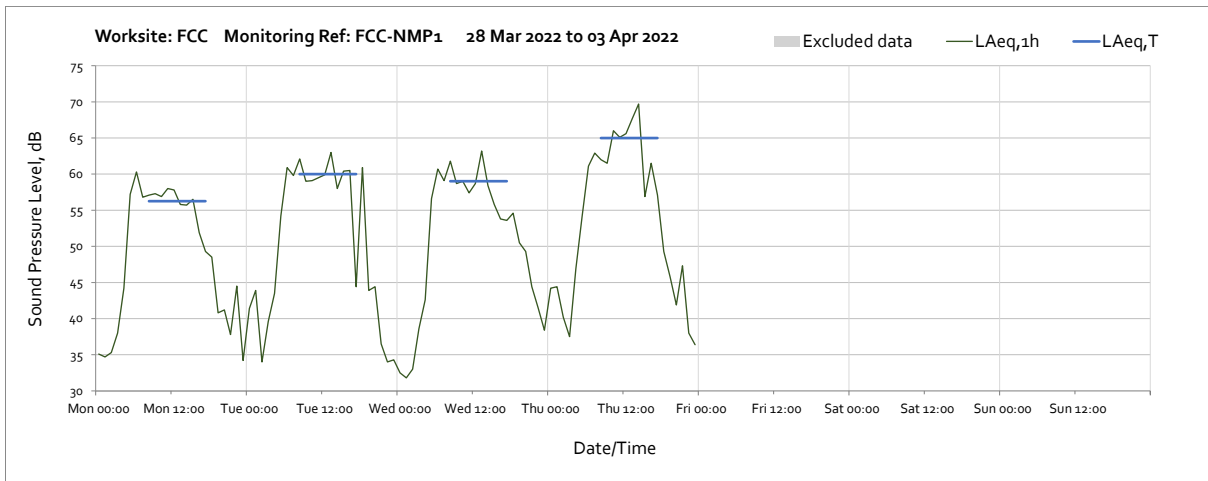


Note: Missing data between Saturday 12th March at 04:00 and Thursday 17th March at 15:00 were due to power supply issues with the solar controller which have now been resolved.

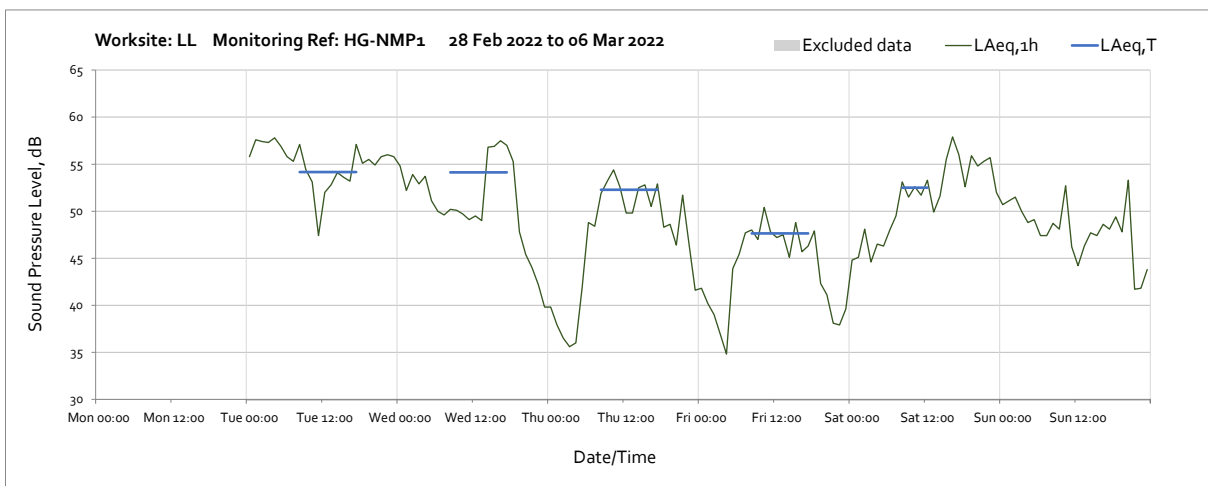
OFFICIAL

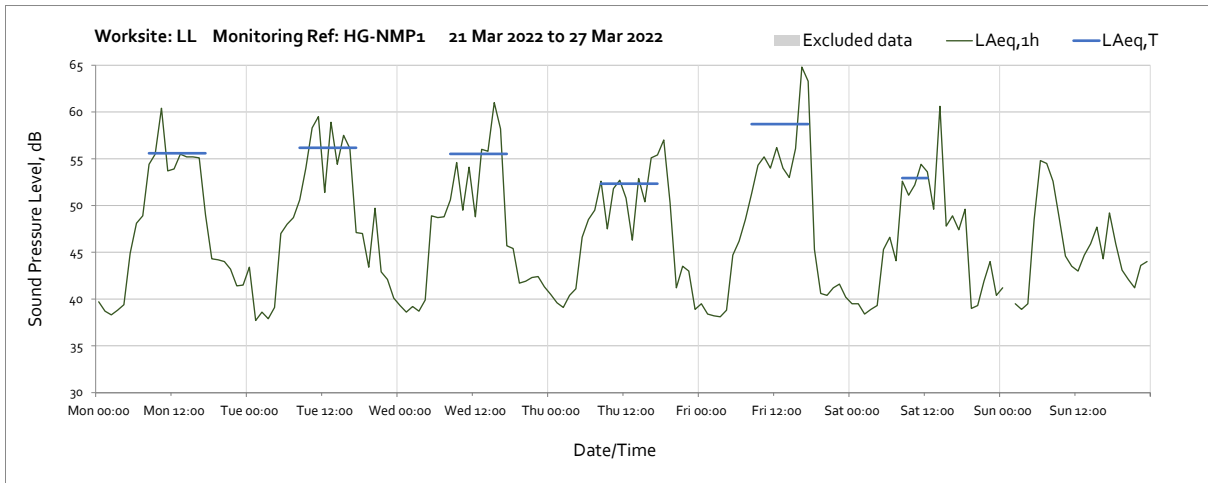
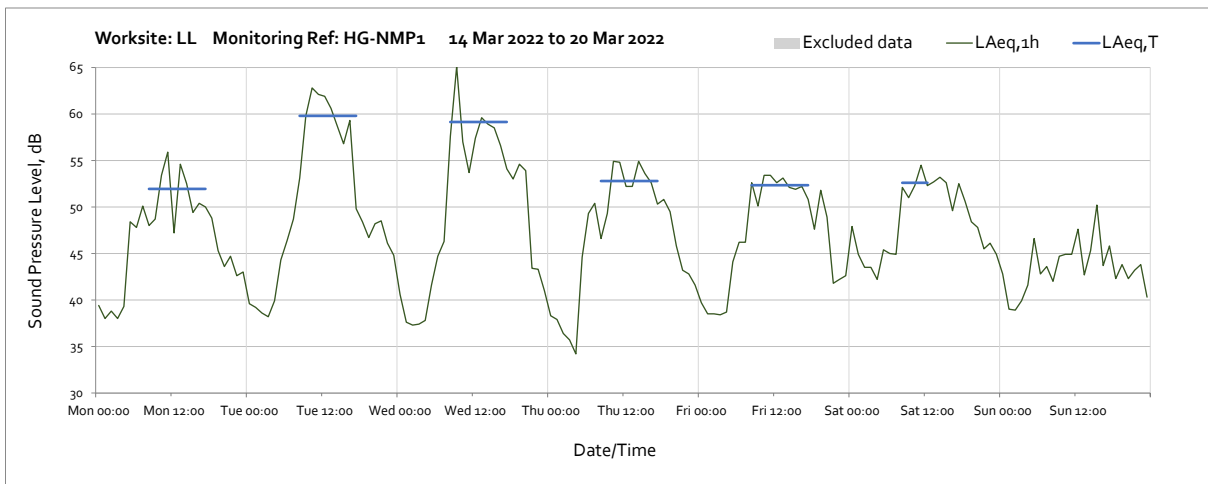
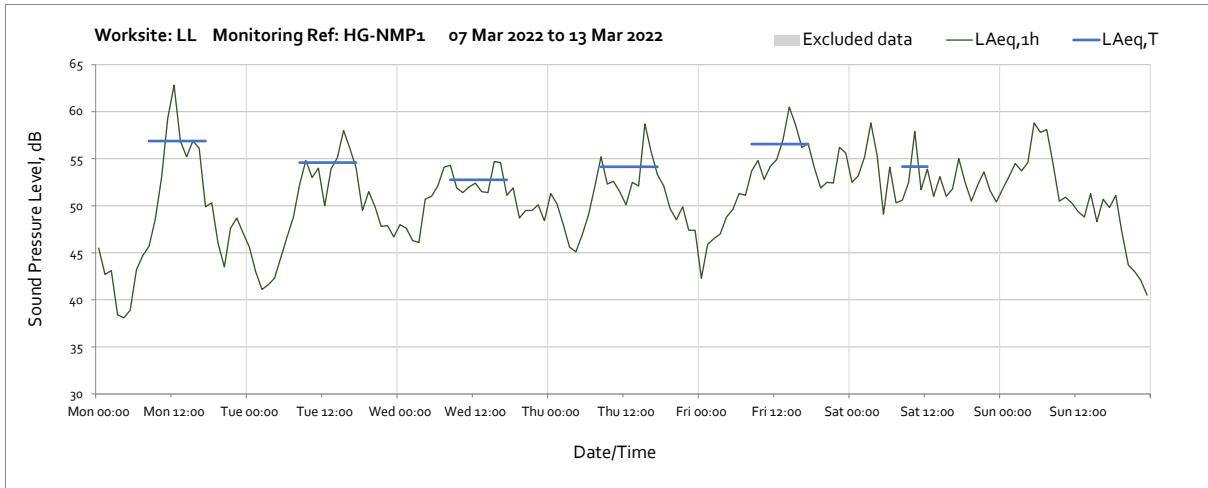


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

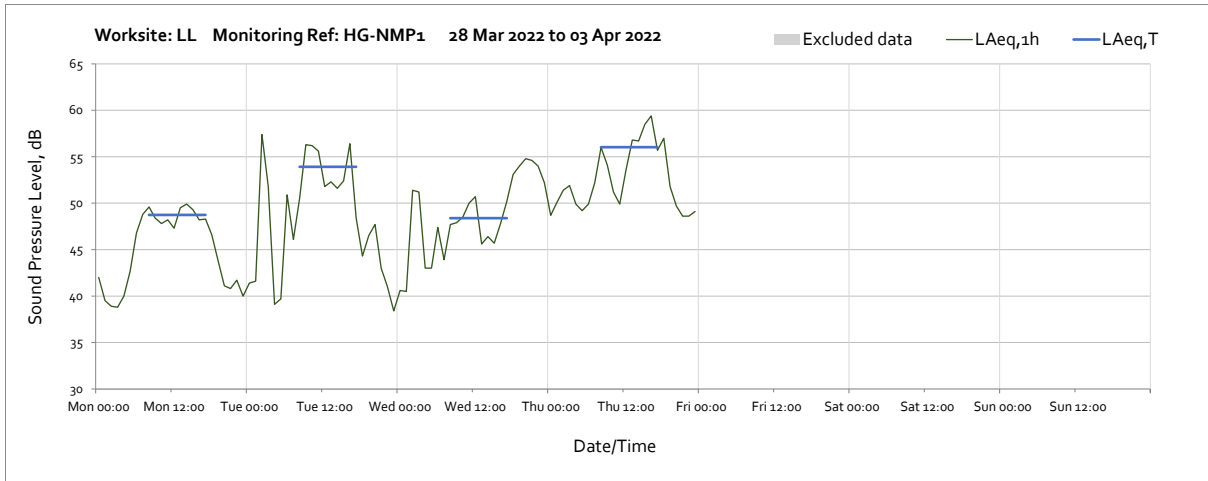


Worksite: LL - Monitoring Ref: HG-NMP1

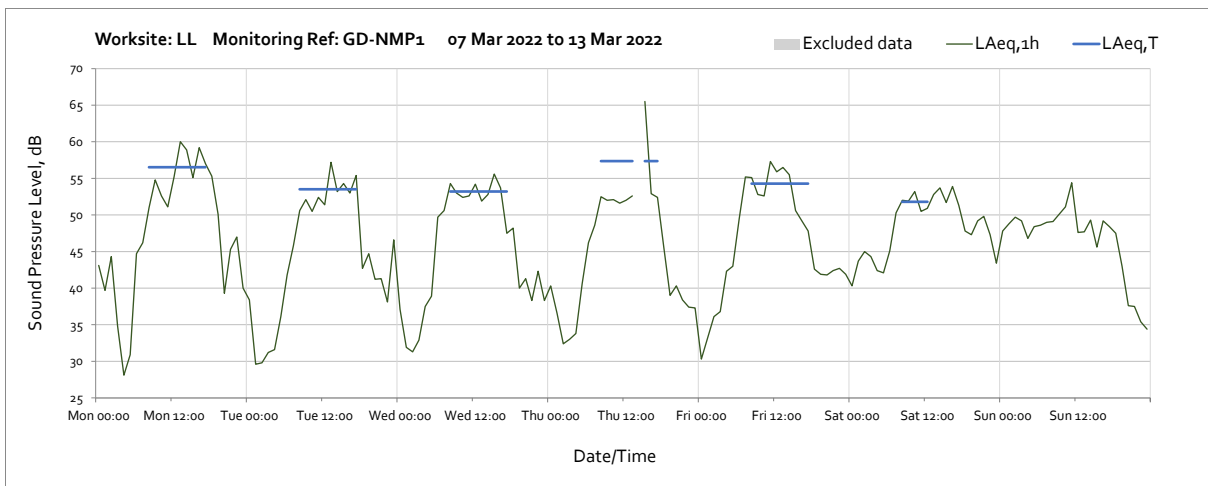
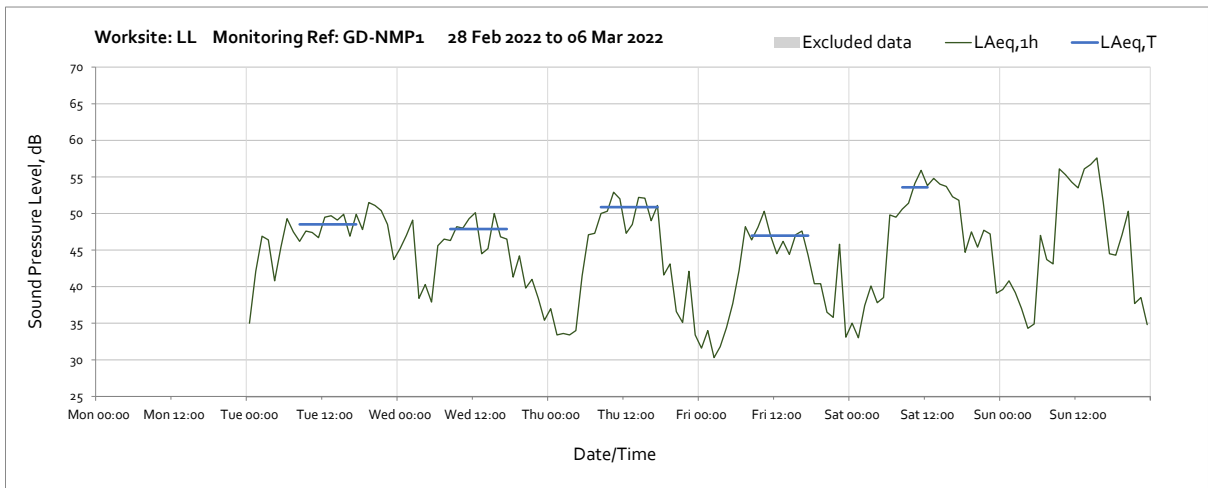




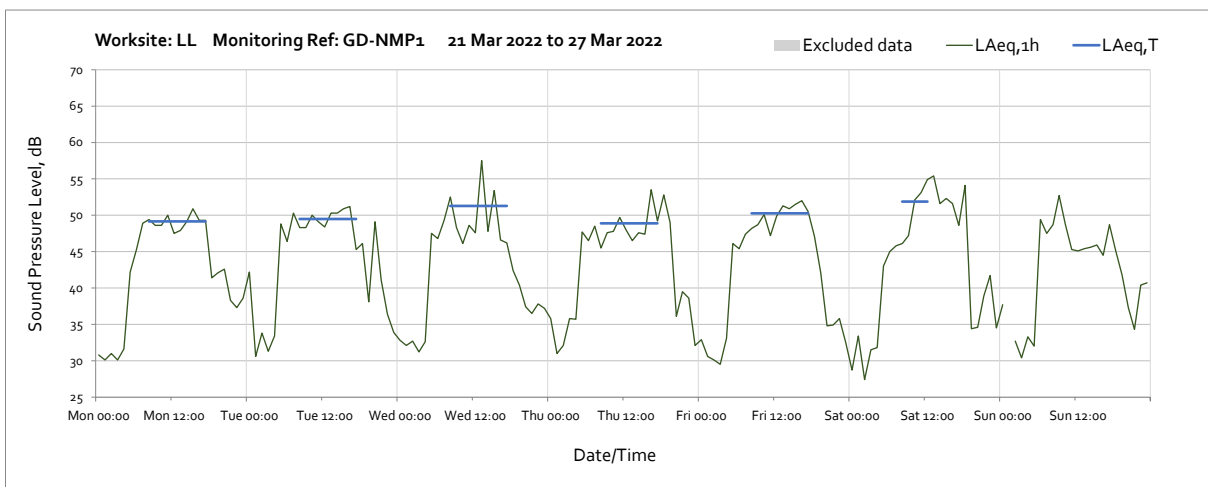
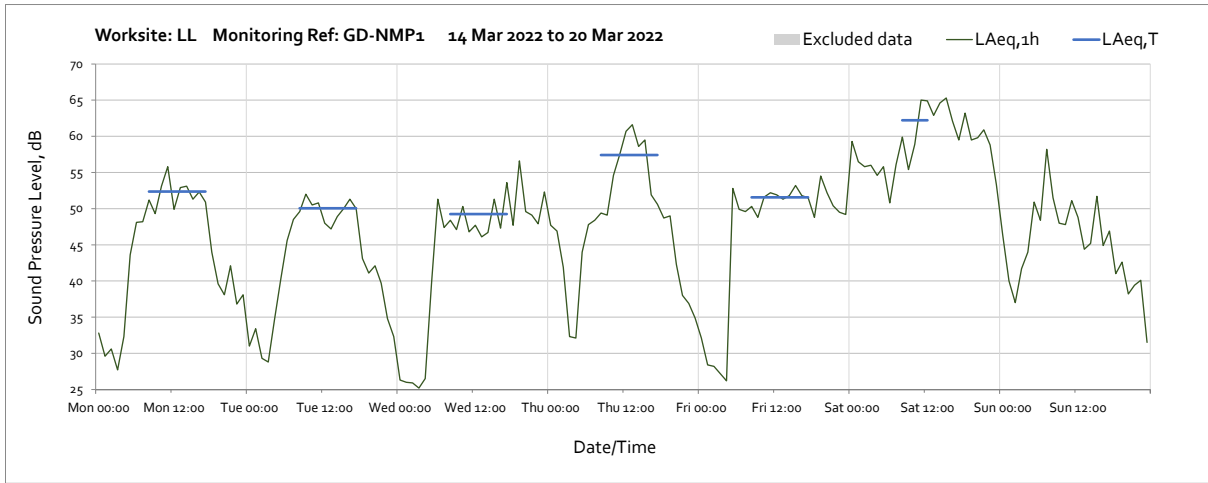
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



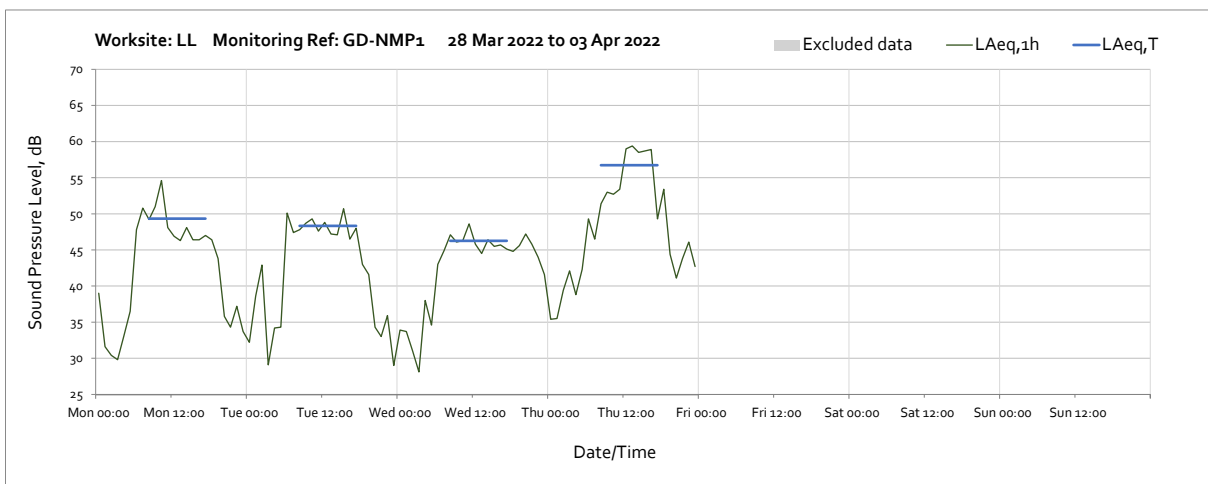
Worksite: LL - Monitoring Ref: GD-NMP1



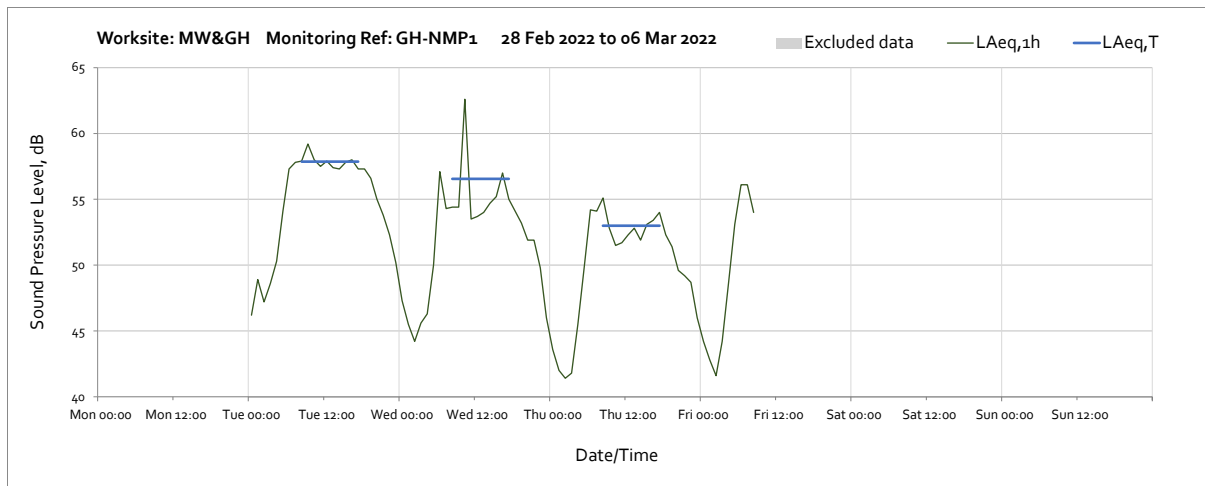
Note: Missing data between 14:00 and 15:00 on Thursday 10th March was due to the monitor being taken offline while field calibration was performed.



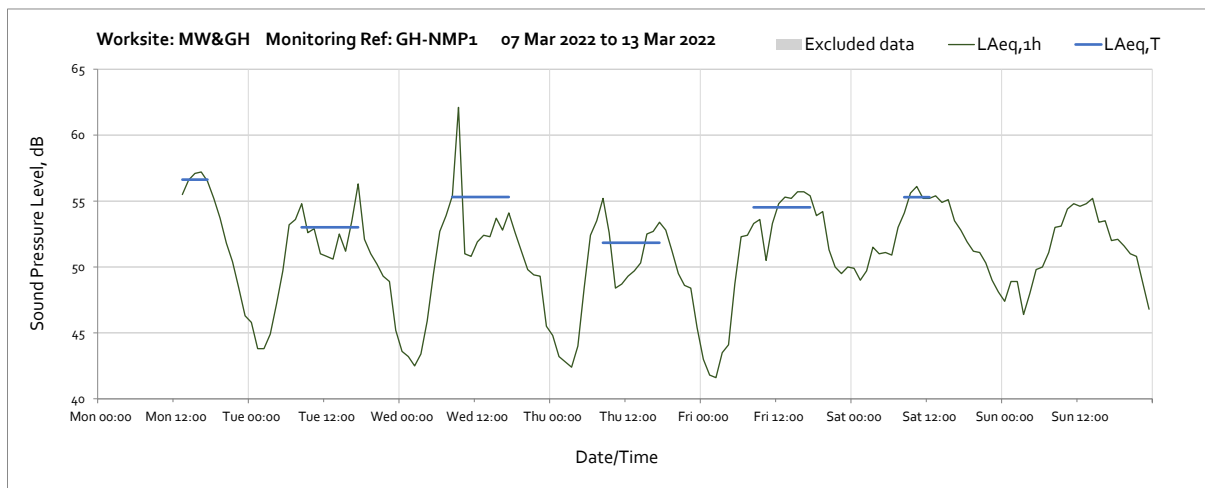
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



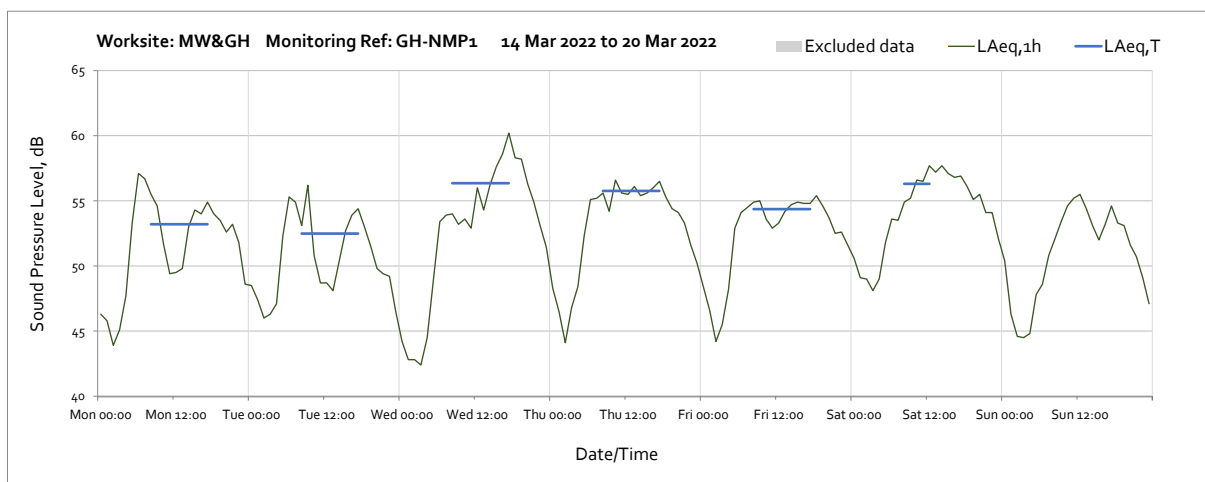
Worksite: MW&GH – Monitoring Ref: GH-NMP1

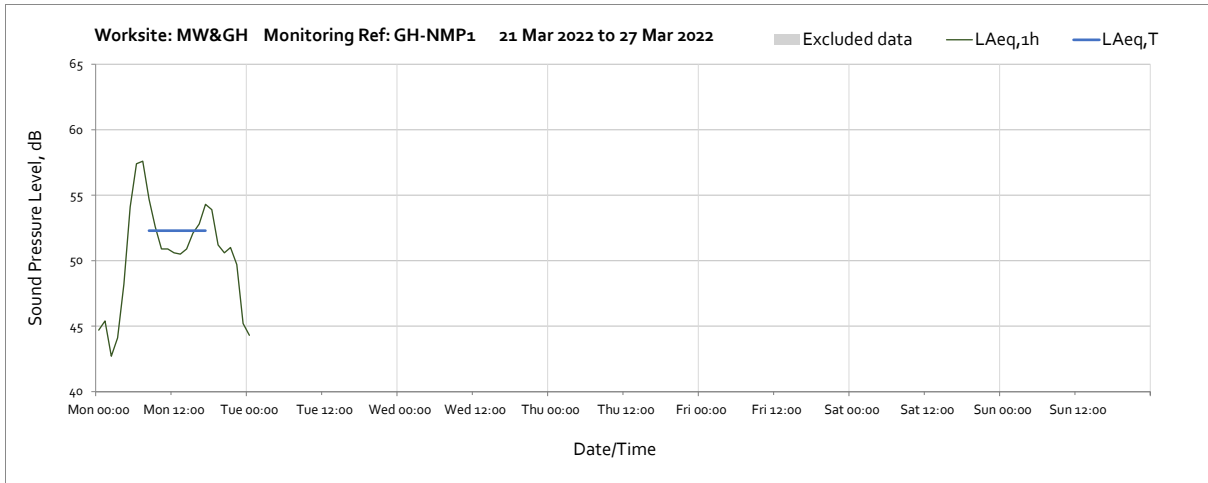


Note: Missing data between 09:00 on Friday 4th March and 12:00 on Monday 7th March were due to loss of continuous power at the monitoring station.

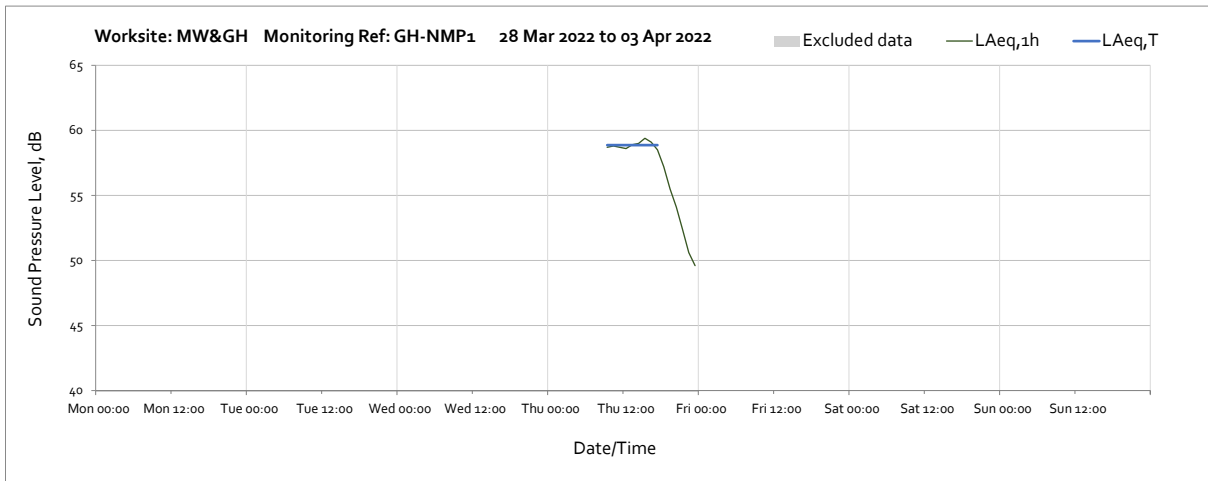


Note: Missing data between 09:00 on Friday 4th March and 12:00 on Monday 7th March were due to loss of continuous power at the monitoring station.



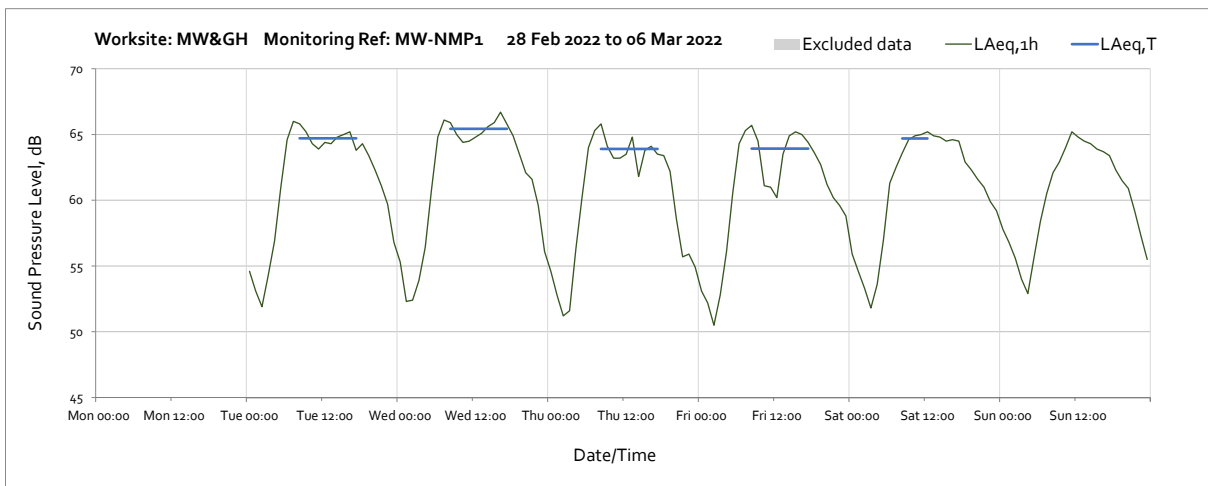


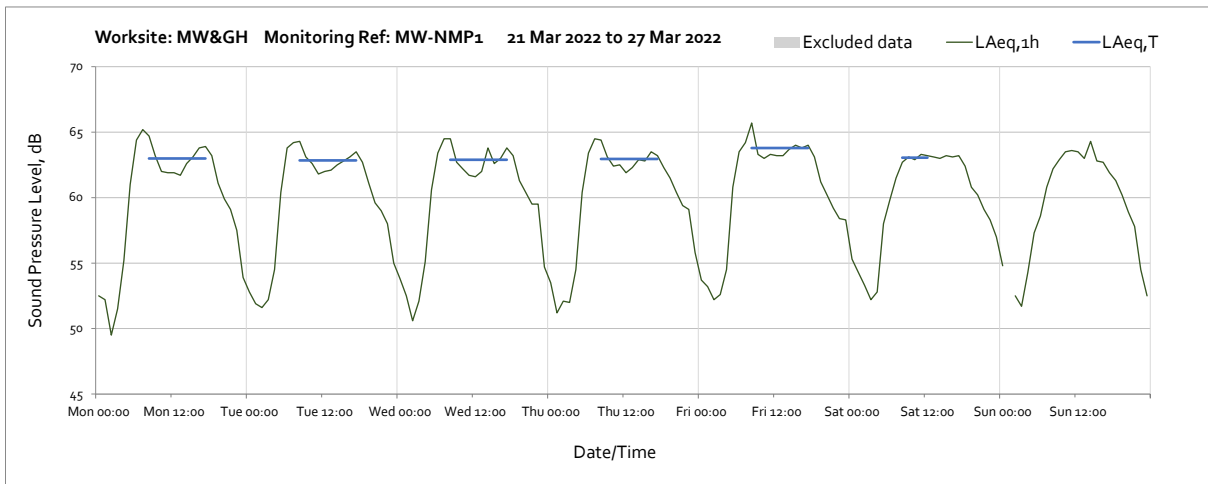
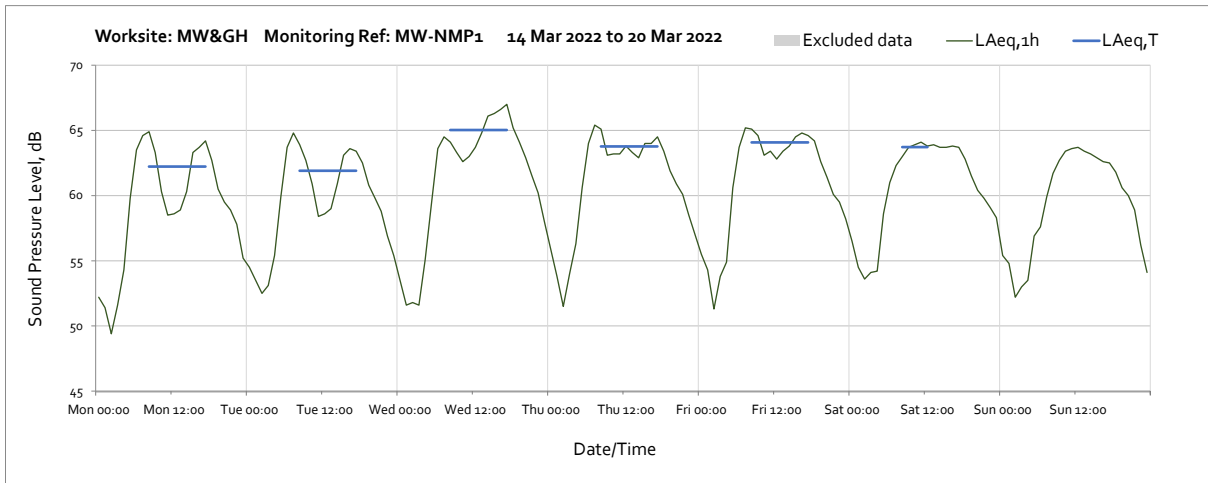
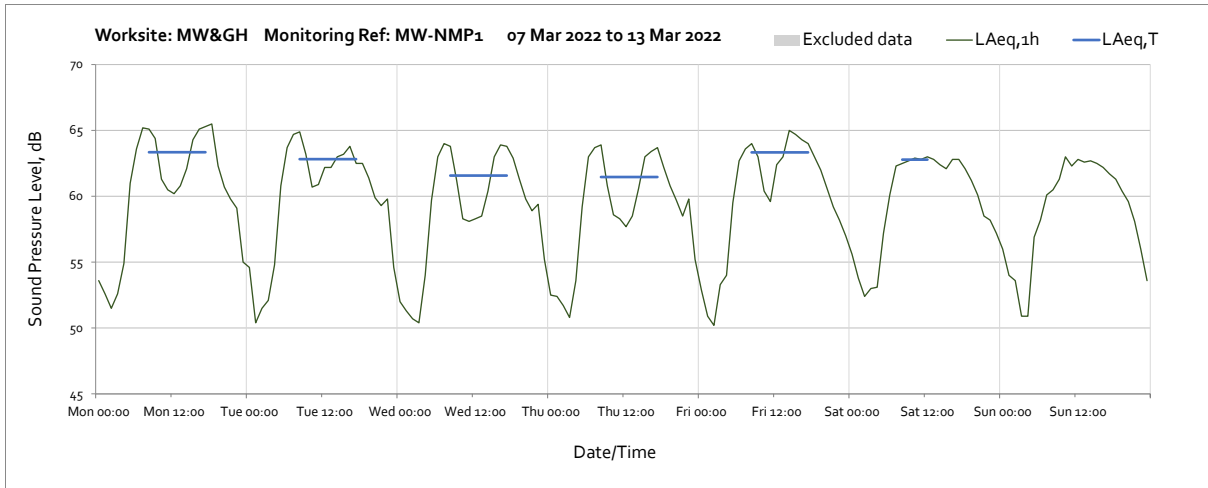
Note: Missing data between 01:00 on Tuesday 22nd March and 08:00 on Thursday 31st March were due to loss of continuous power at the monitoring station.



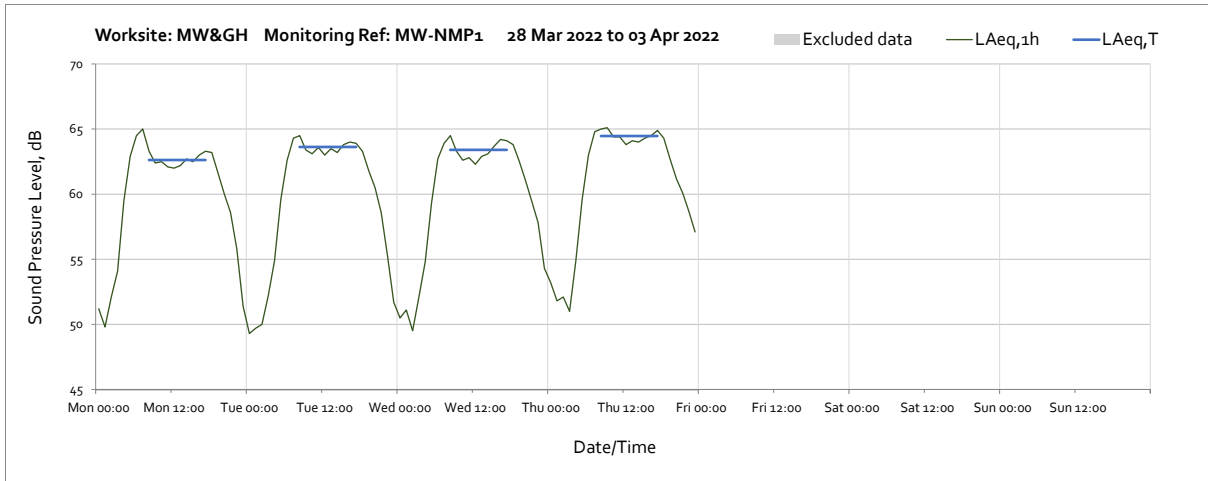
Note: Missing data between 01:00 on Tuesday 22nd March and 08:00 on Thursday 31st March were due to loss of continuous power at the monitoring station.

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

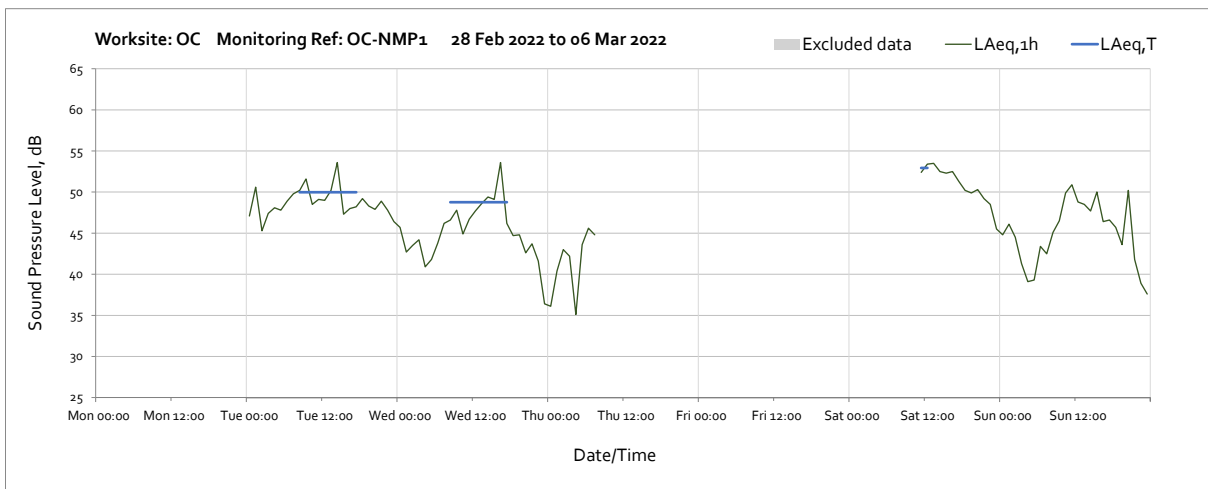




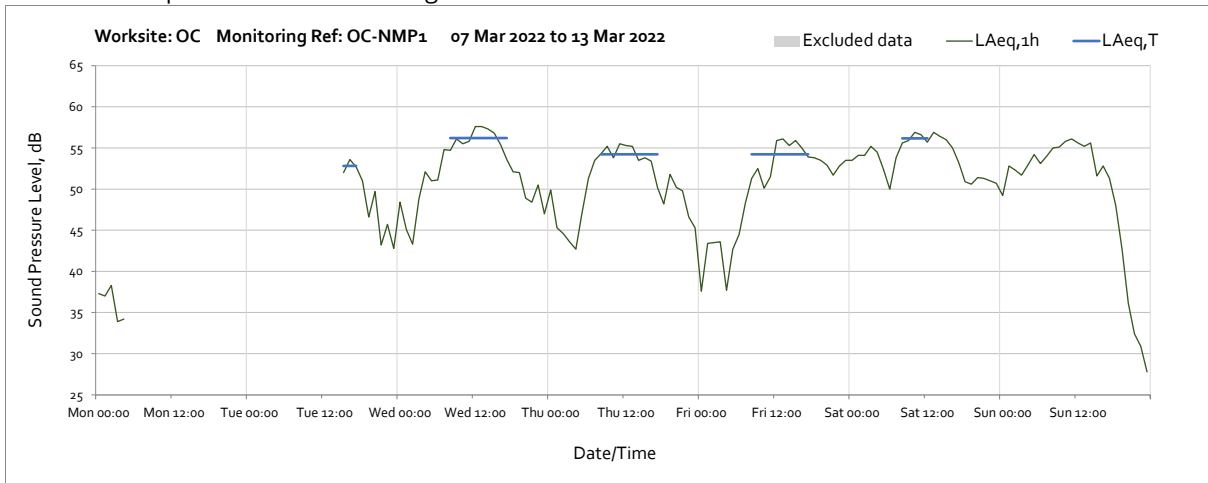
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



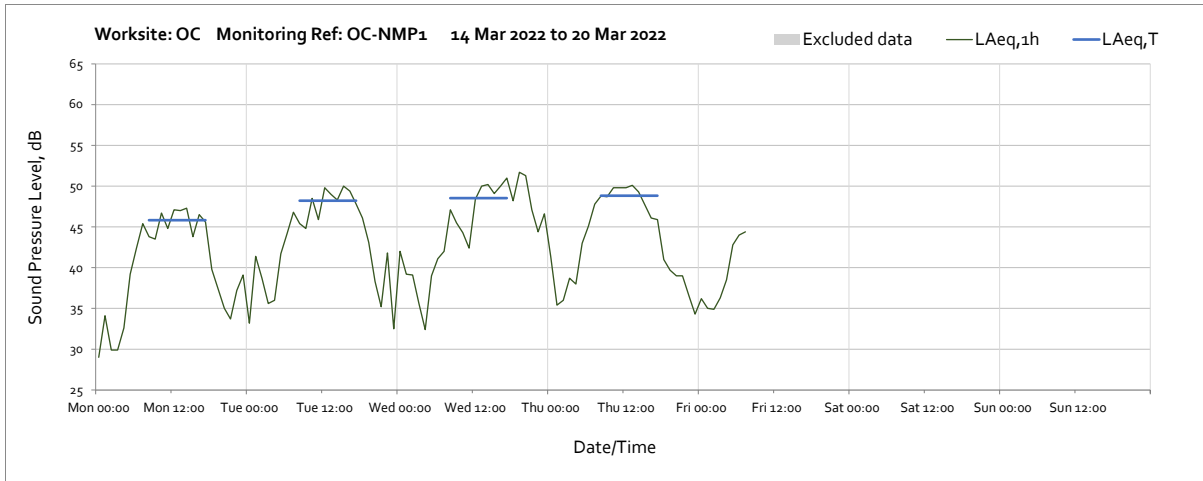
Worksite: OC - Monitoring Ref: OC-NMP1



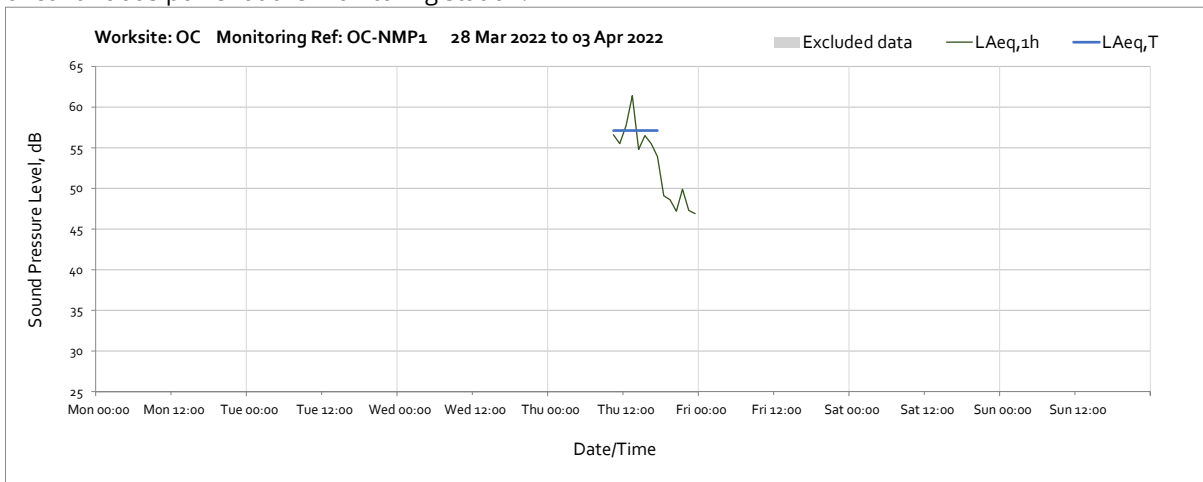
Note: Missing data between 08:00 on Thursday 3rd March and 10:00 on Saturday 5th March were due to loss of continuous power at the monitoring station.



Note: Missing data between 05:00 on Monday 7th March and 14:00 on Tuesday 8th March were due to loss of continuous power at the monitoring station.

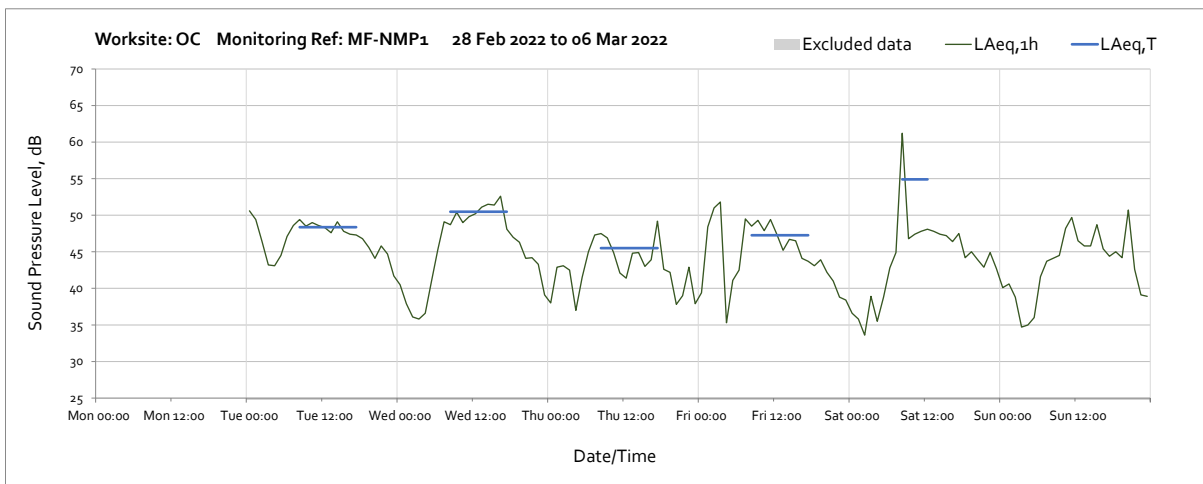


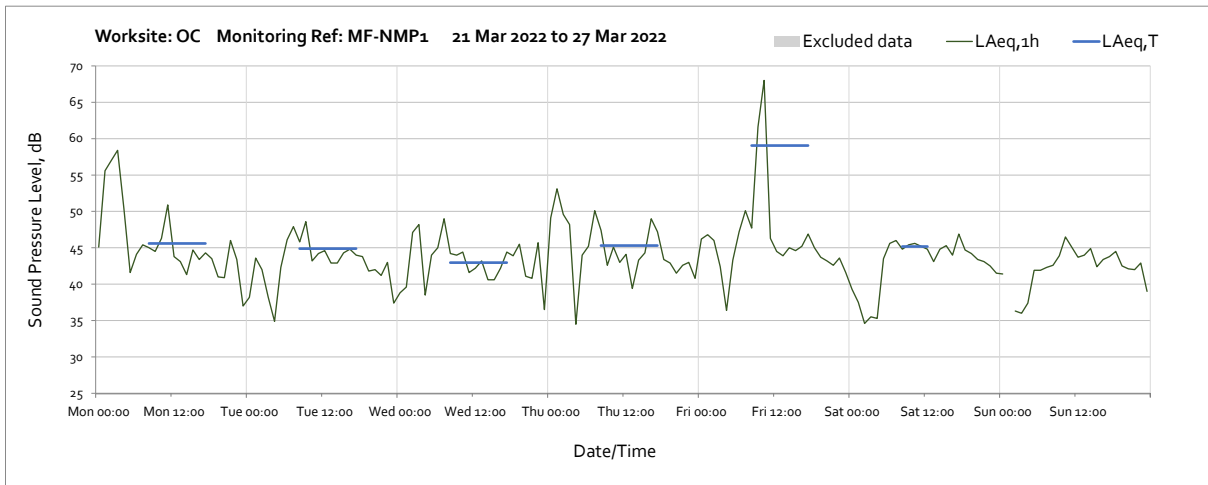
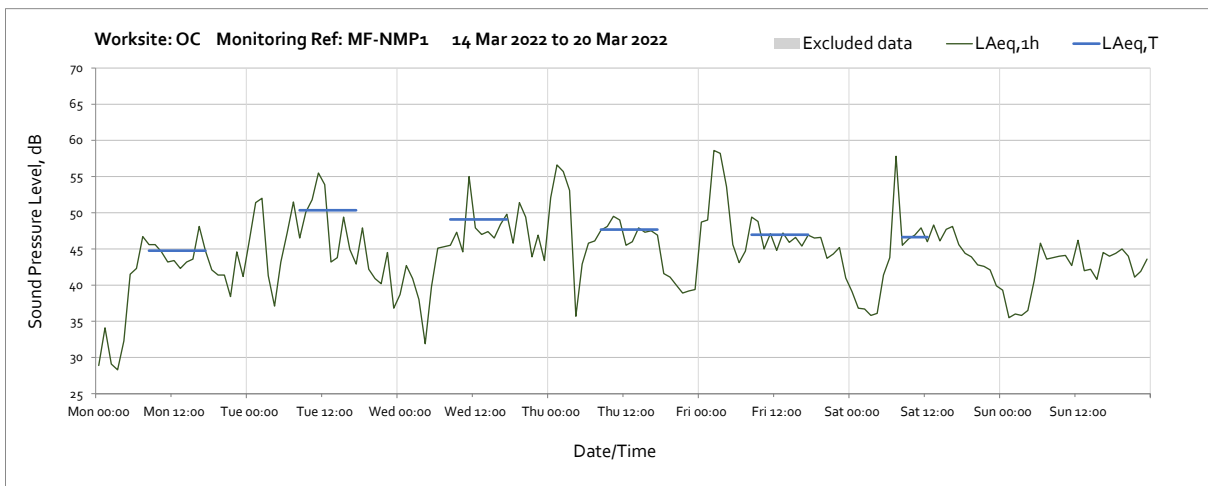
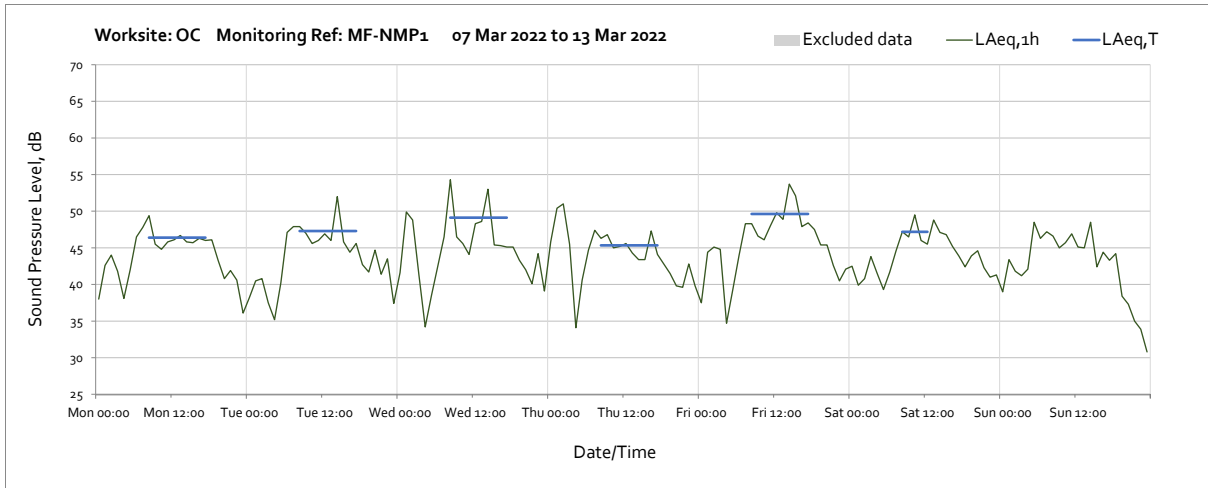
Note: Missing data between 08:00 on Friday 18th March and 09:00 on Thursday 31st March were due to loss of continuous power at the monitoring station.



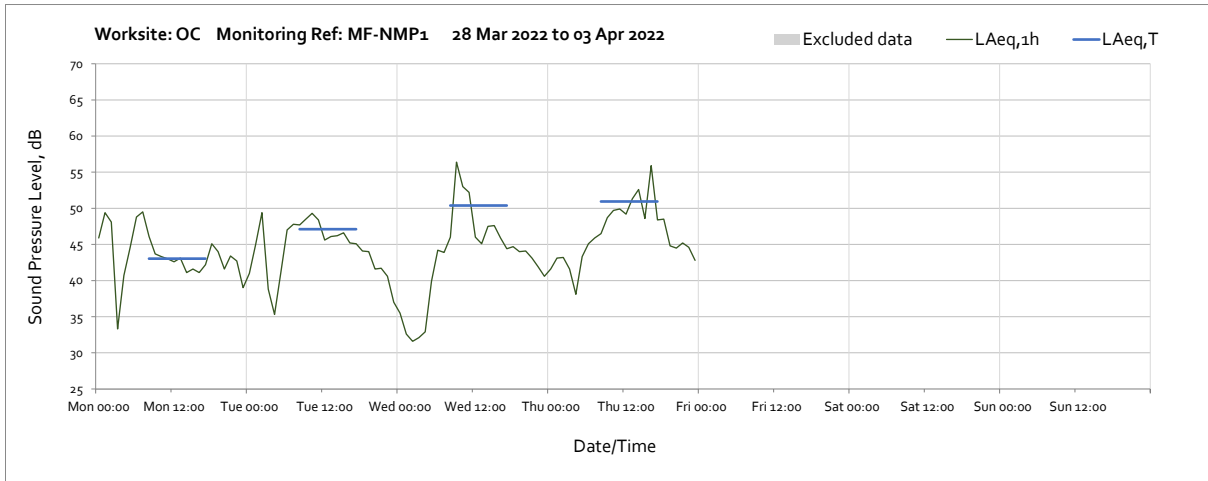
Note: Missing data between 08:00 on Friday 18th March and 09:00 on Thursday 31st March were due to loss of continuous power at the monitoring station.

Worksite: OC - Monitoring Ref: MF-NMP1

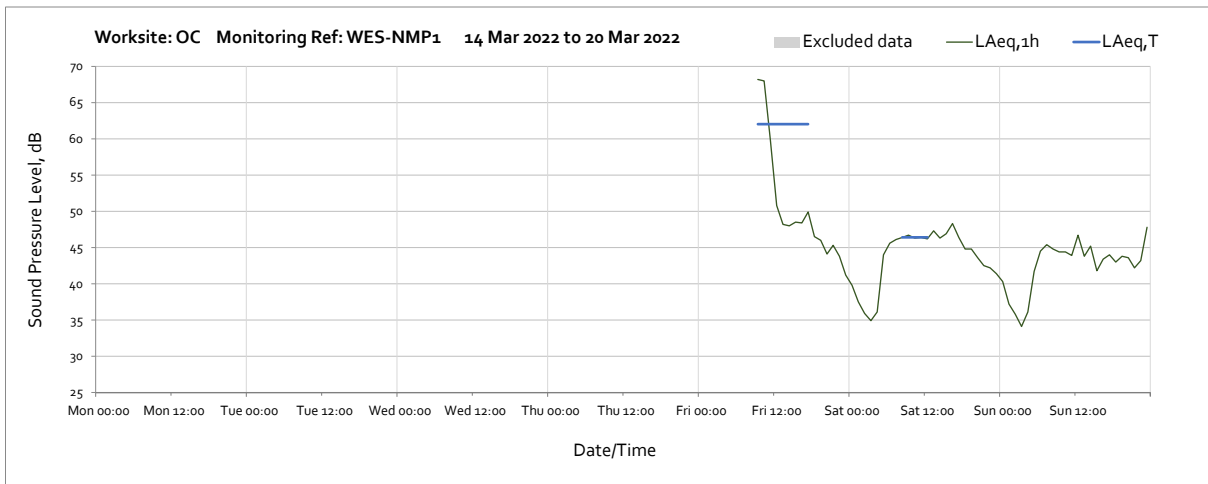




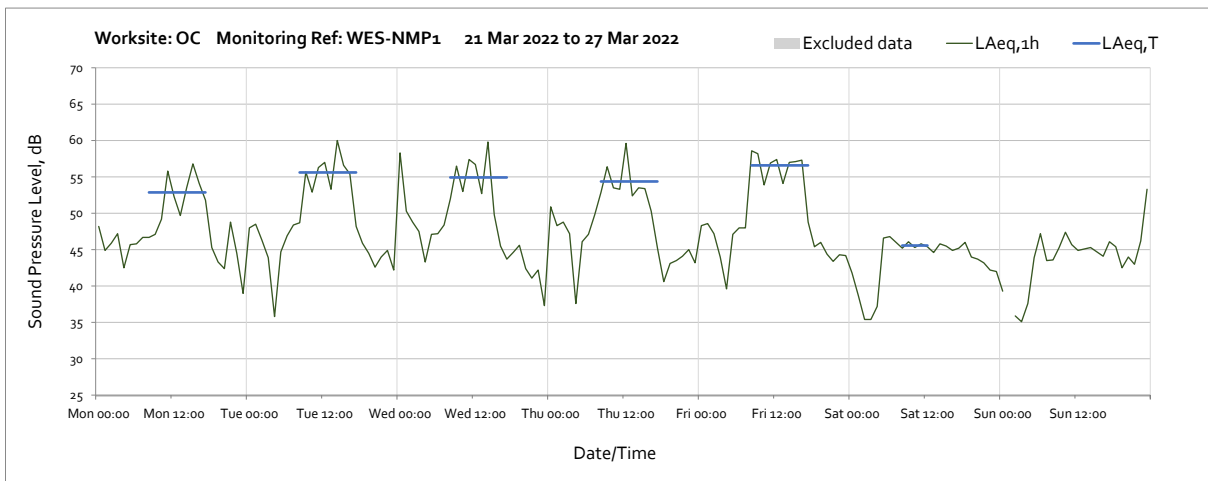
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



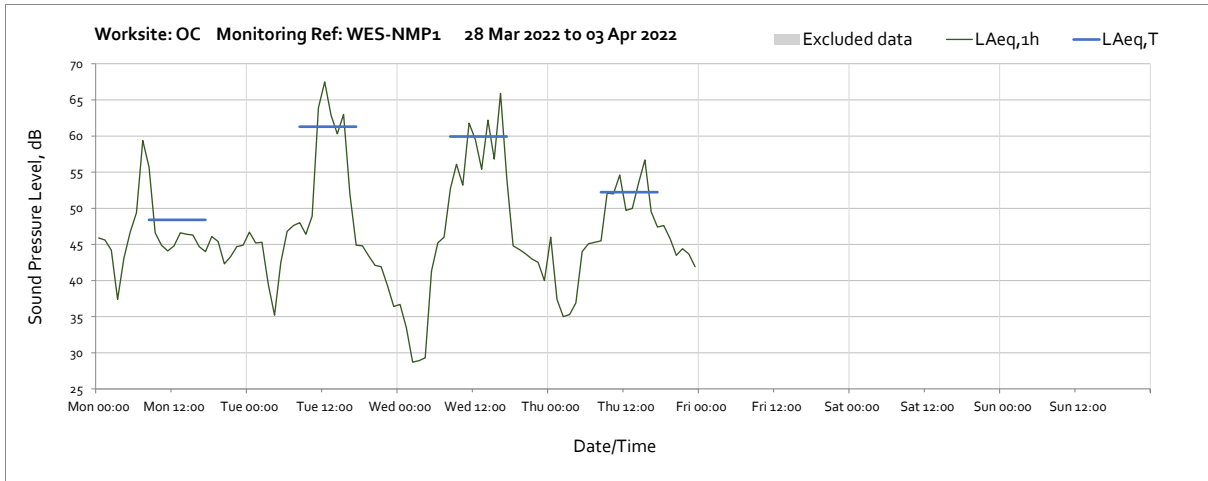
Worksite: OC - Monitoring Ref: WES-NMP1



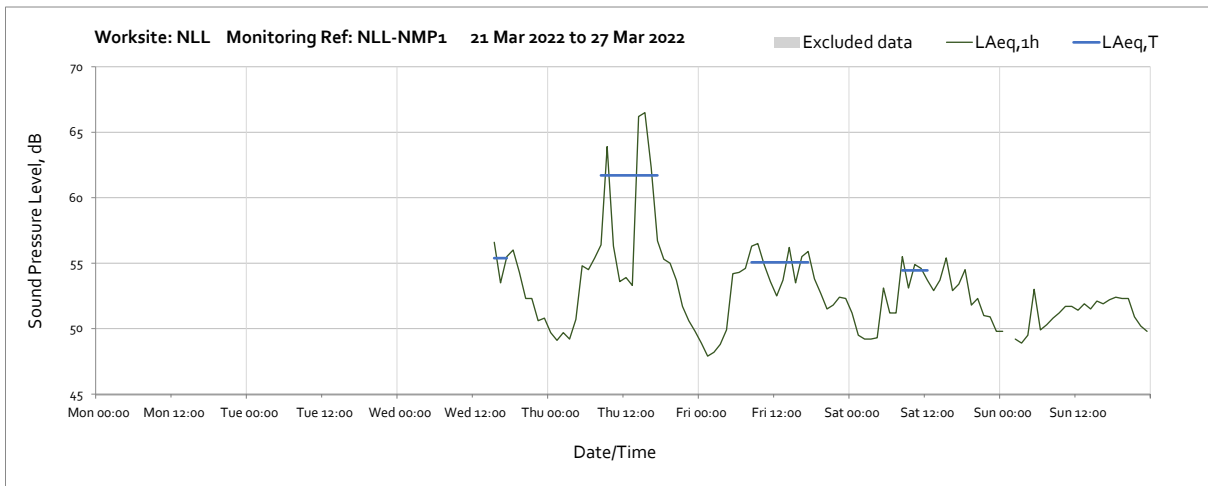
Note: Missing data from the beginning of the month to the 18th of March 2022 at 09:00 were due to loss of continuous power at the monitoring station caused by damage to the battery unit.



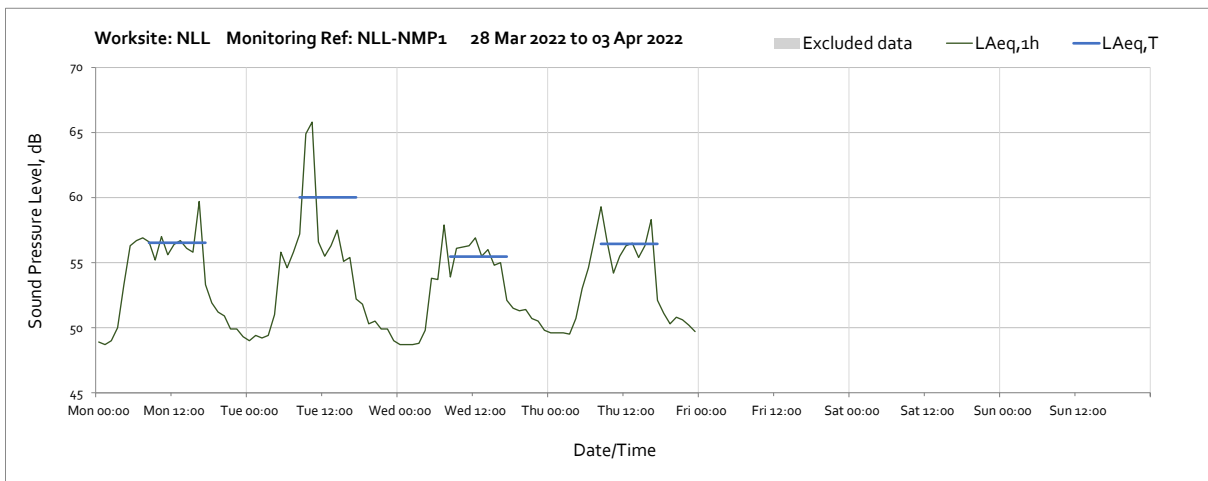
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



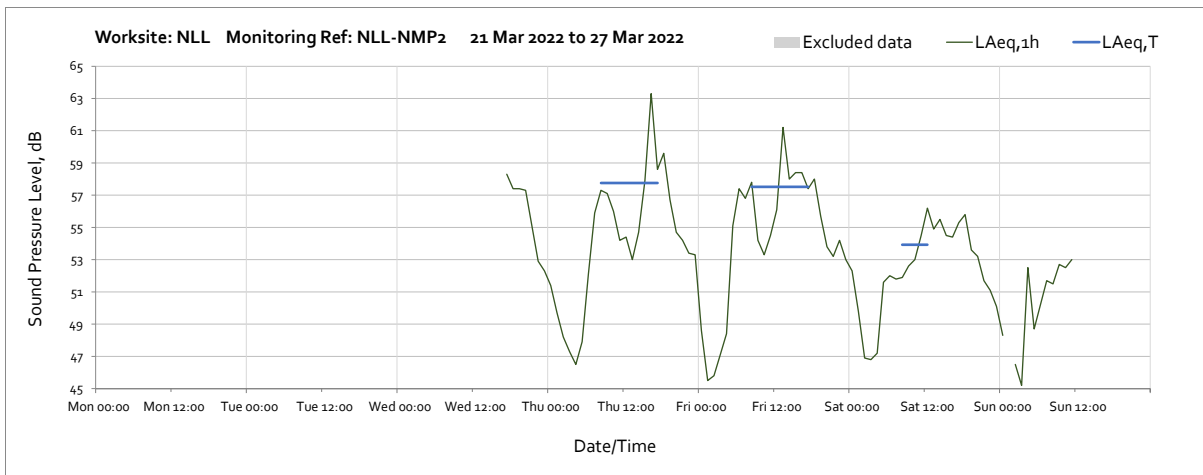
Worksite: NLL - Monitoring Ref: NLL-NMP1



Note: Noise monitor NLL-NMP1 was installed on the 23rd March 2022.

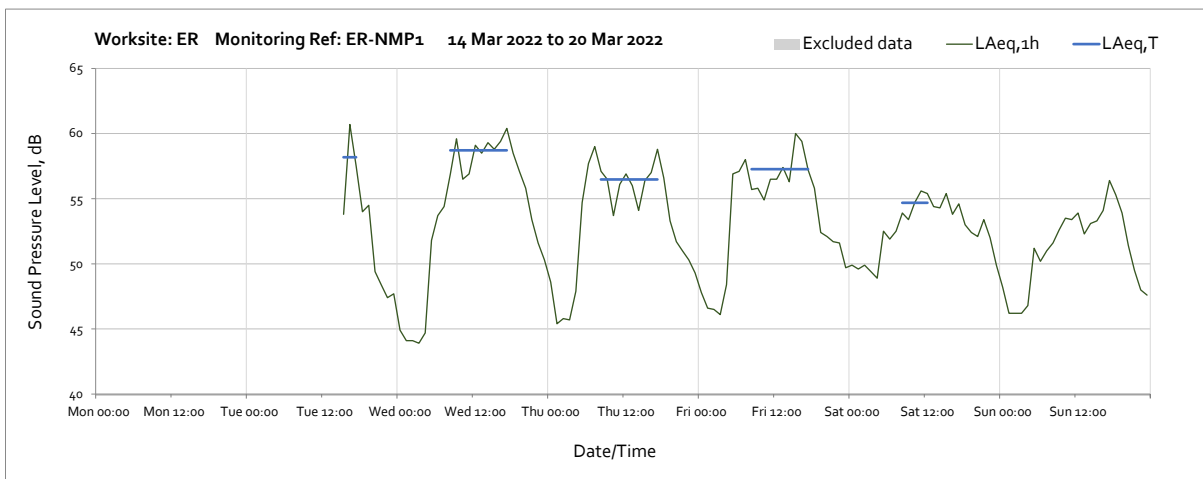


Worksite: NLL – Monitoring Ref: NLL-NMP2

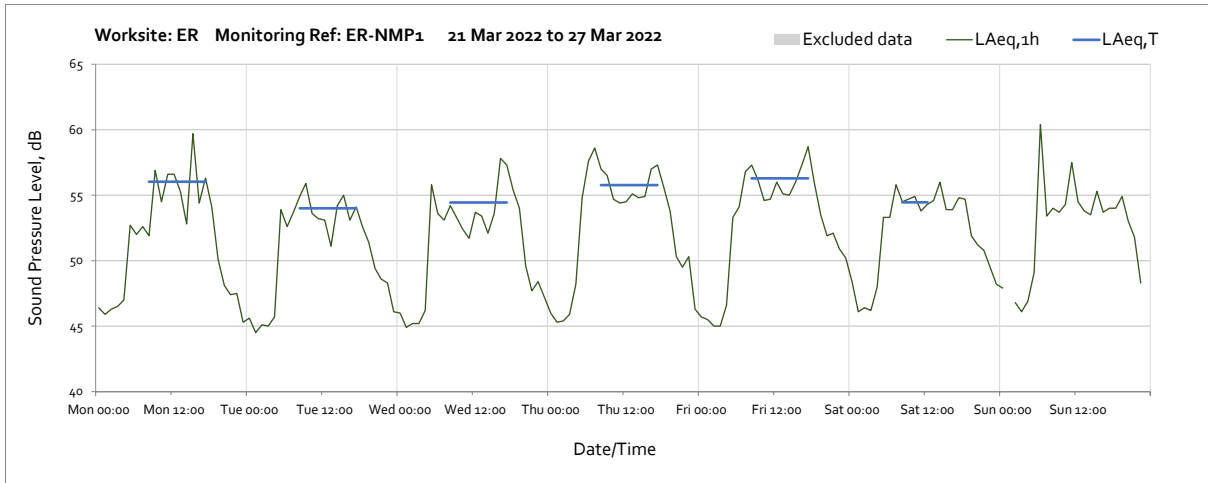


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time. Missing data between Sunday 27th March at 12:00 and the end of the month were due to a monitor error that has been raised for investigation by the manufacturer.

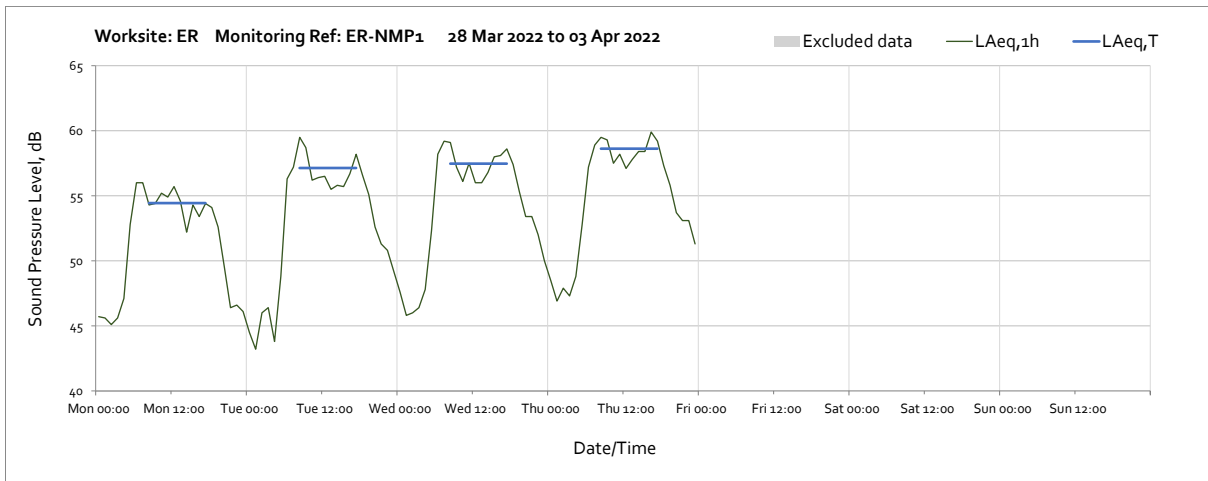
Worksite: ER – Monitoring Ref: ER-NMP1



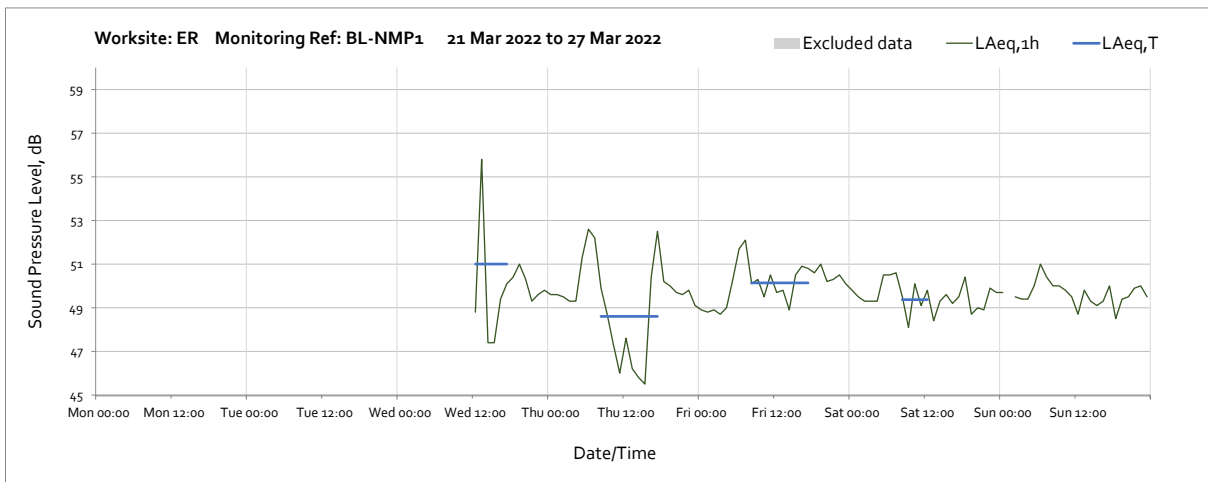
Note: Monitor ER-NMP1 was installed on the 15th of March 2022.



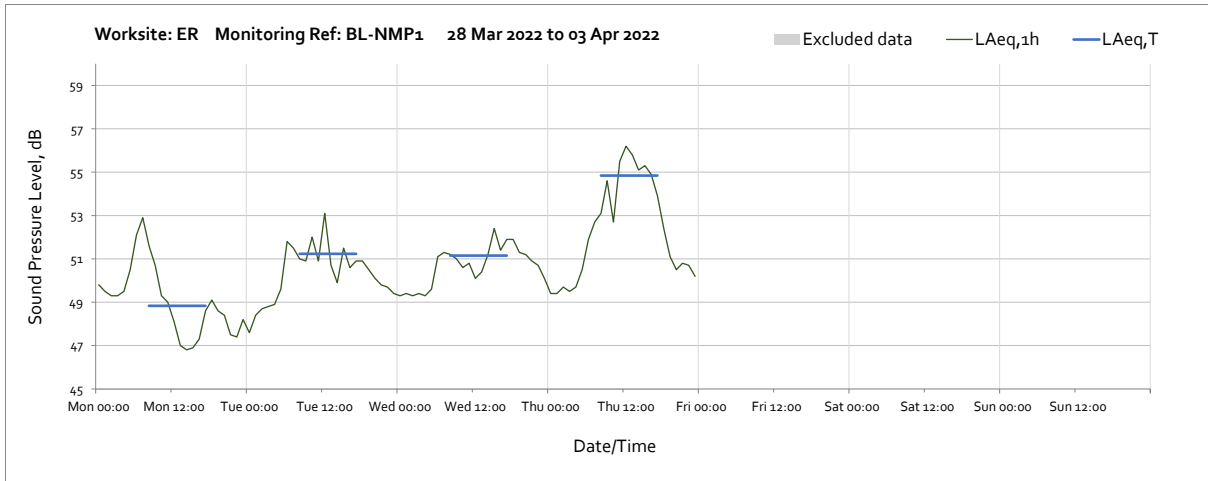
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



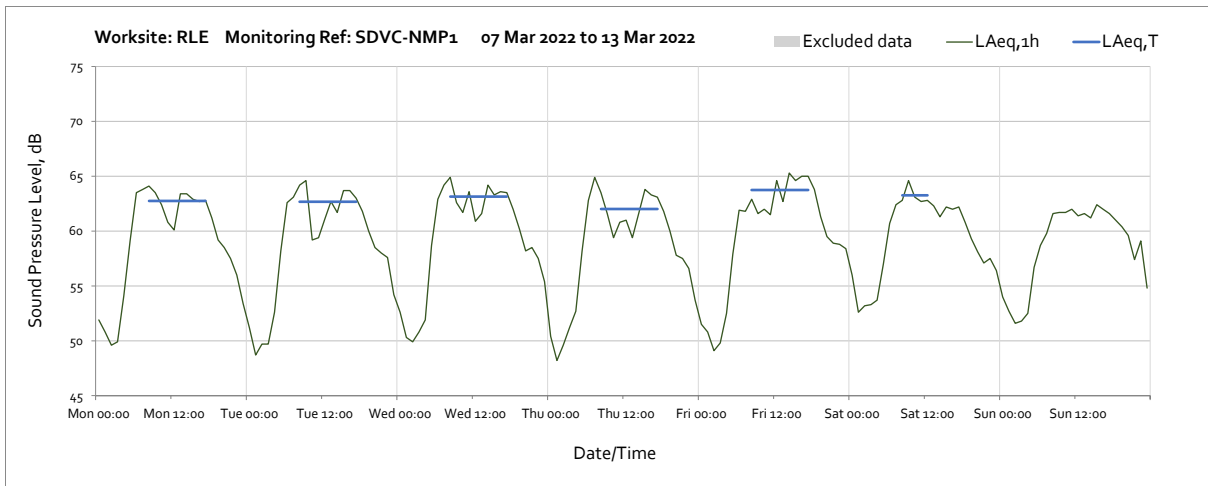
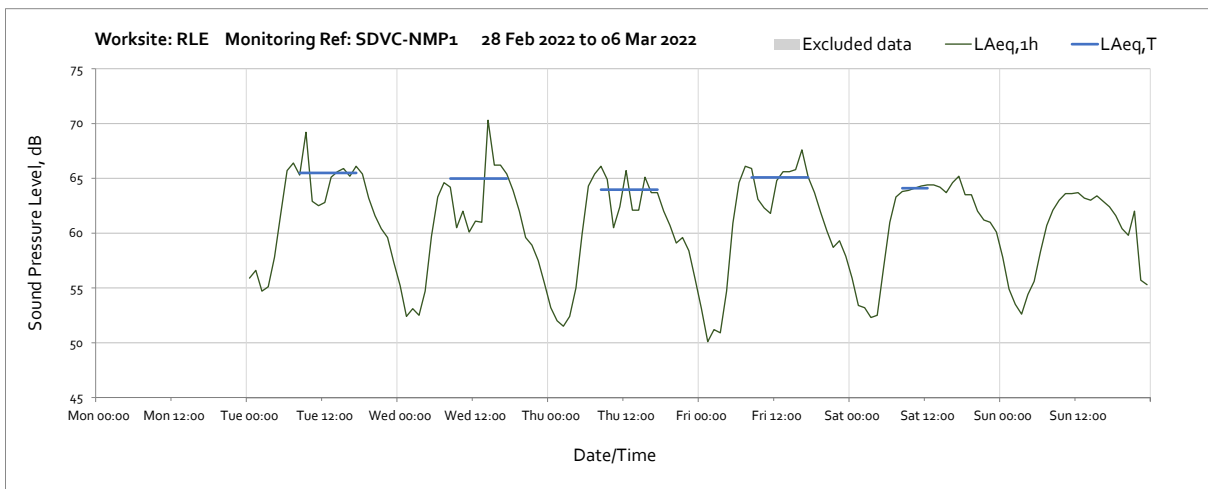
Worksite: ER – Monitoring Ref: BL-NMP1

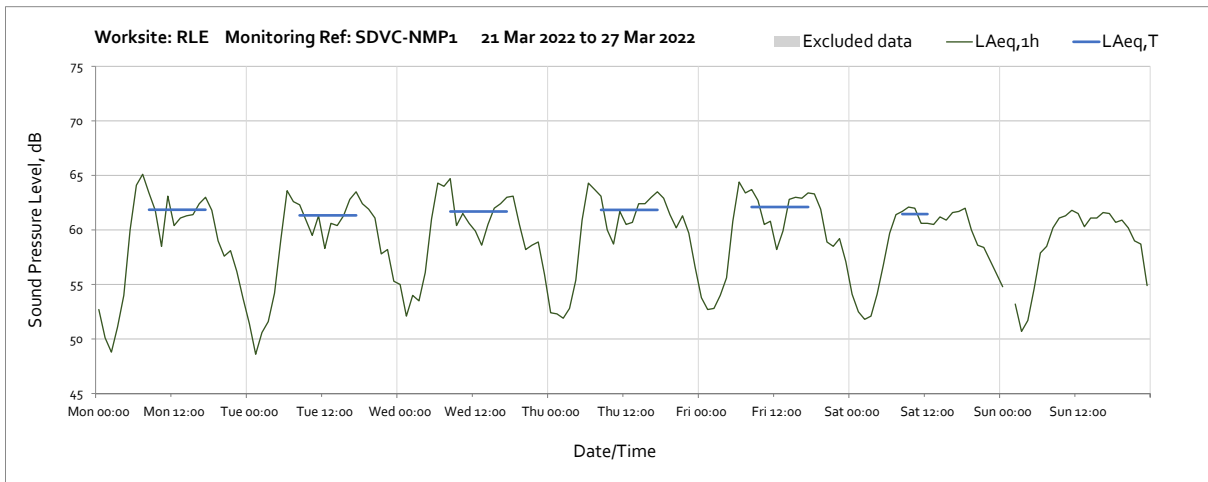
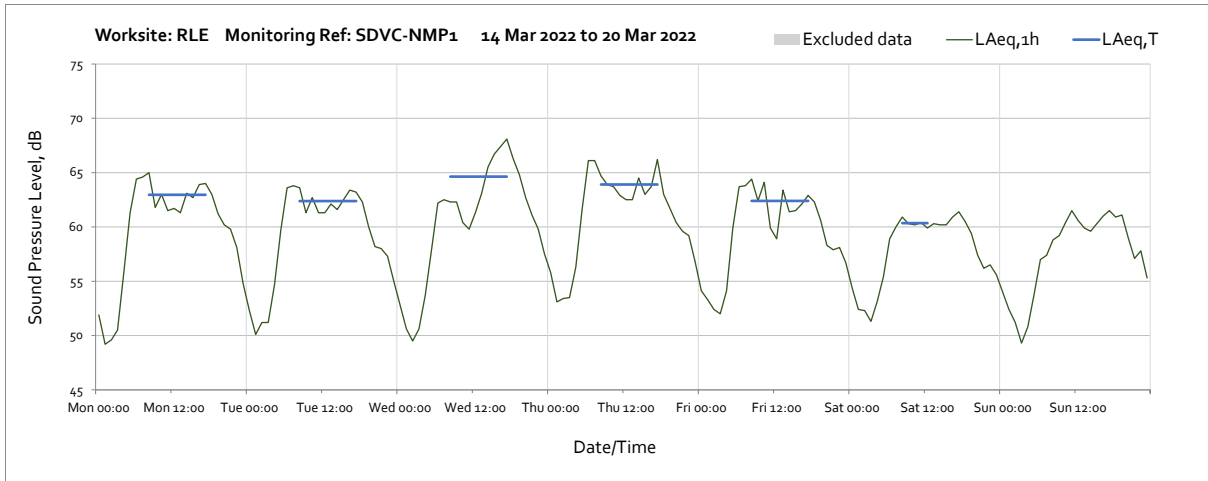


Note: Noise monitor BL-NMP1 was installed on the 23rd March 2022.

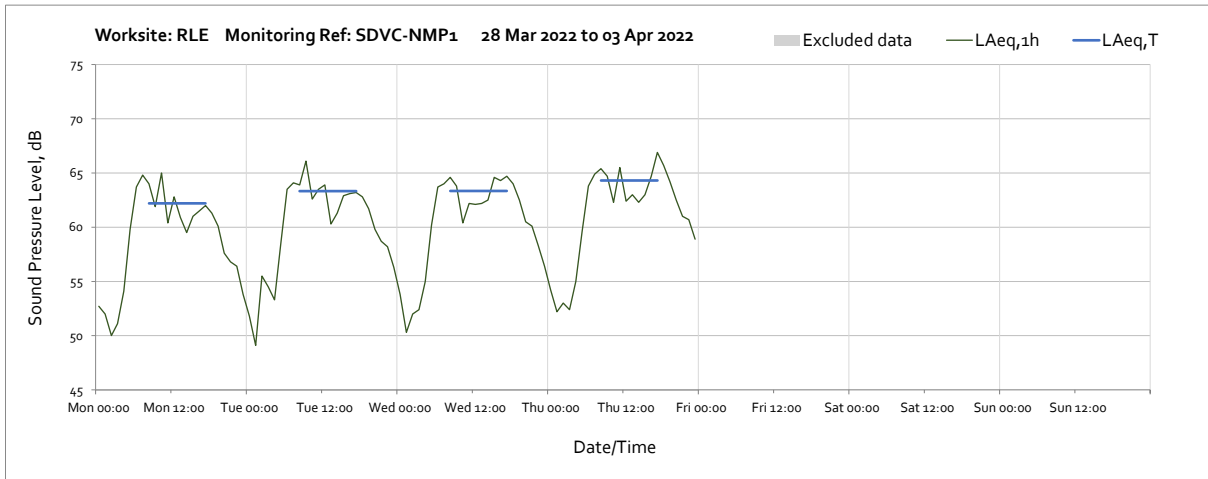


Worksite: RLE - Monitoring Ref: SDVC-NMP1

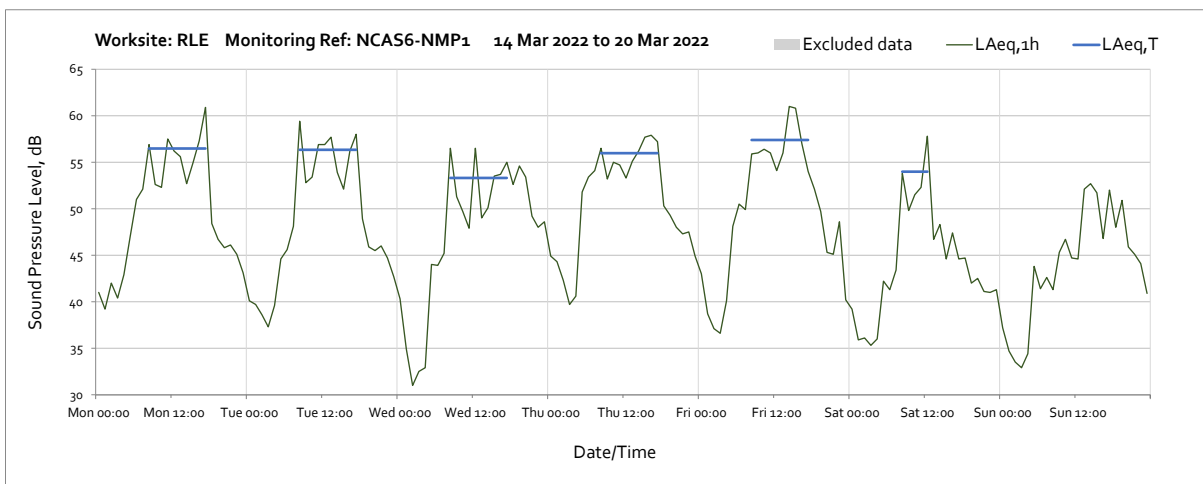
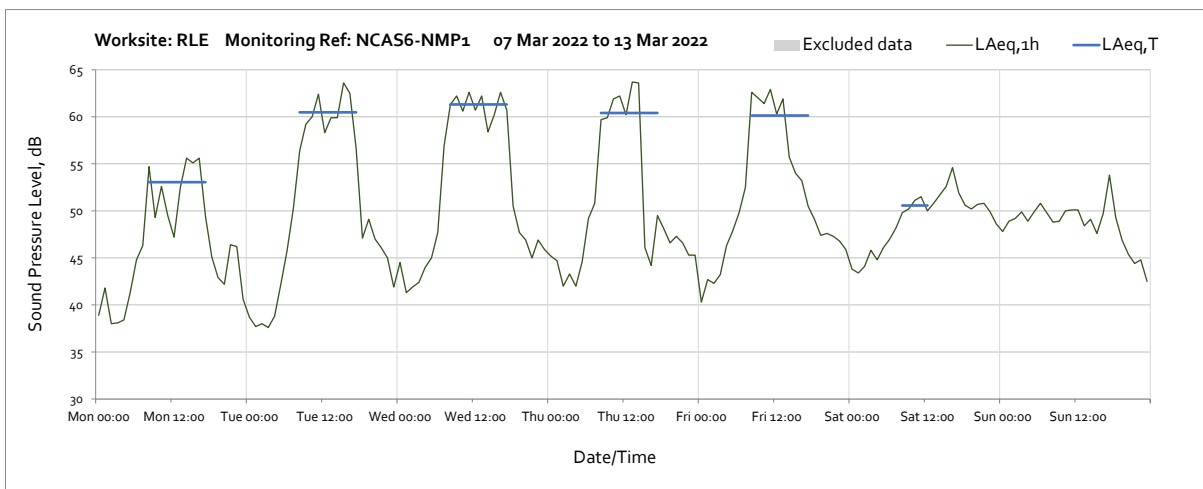
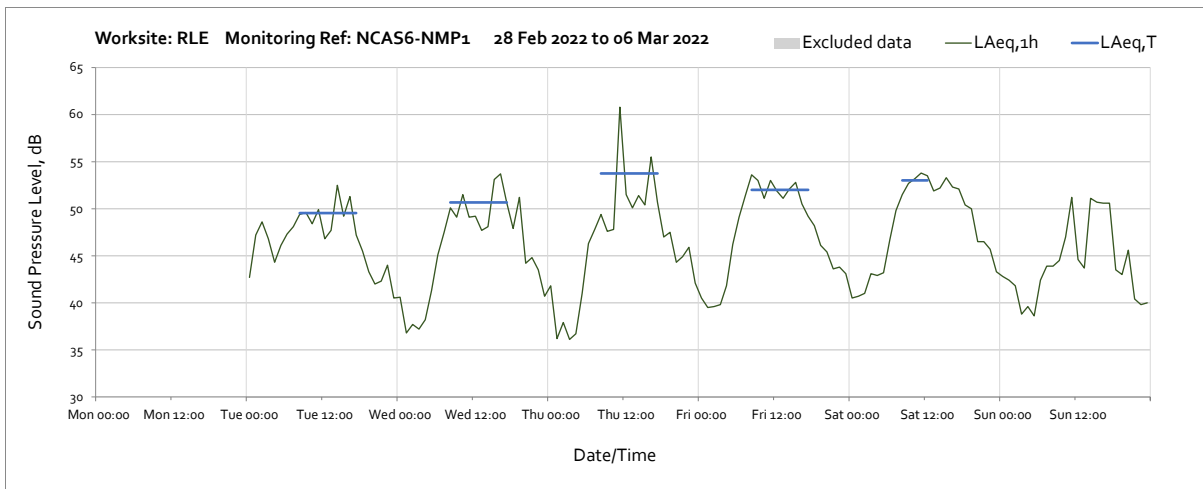


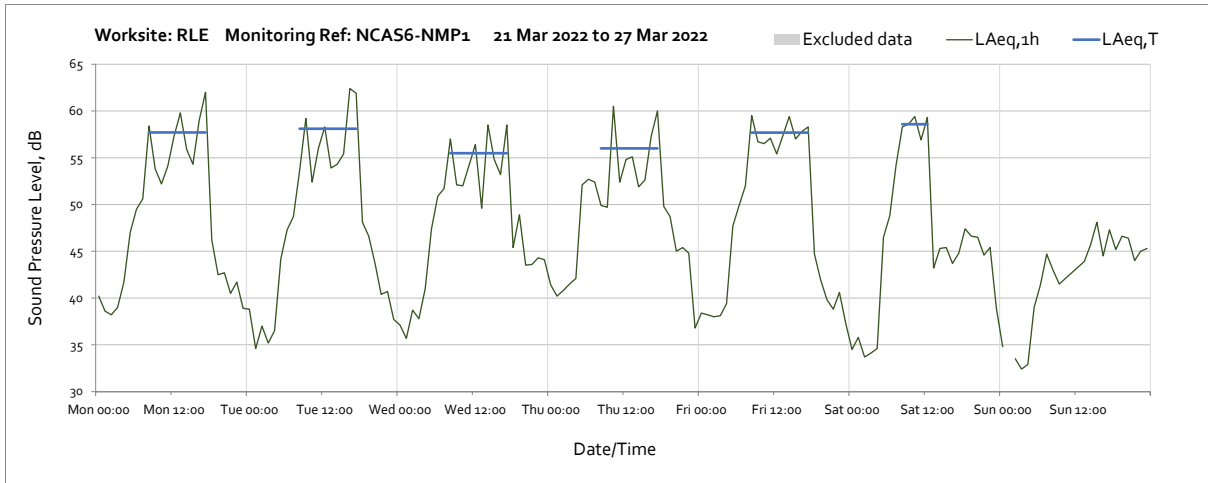


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

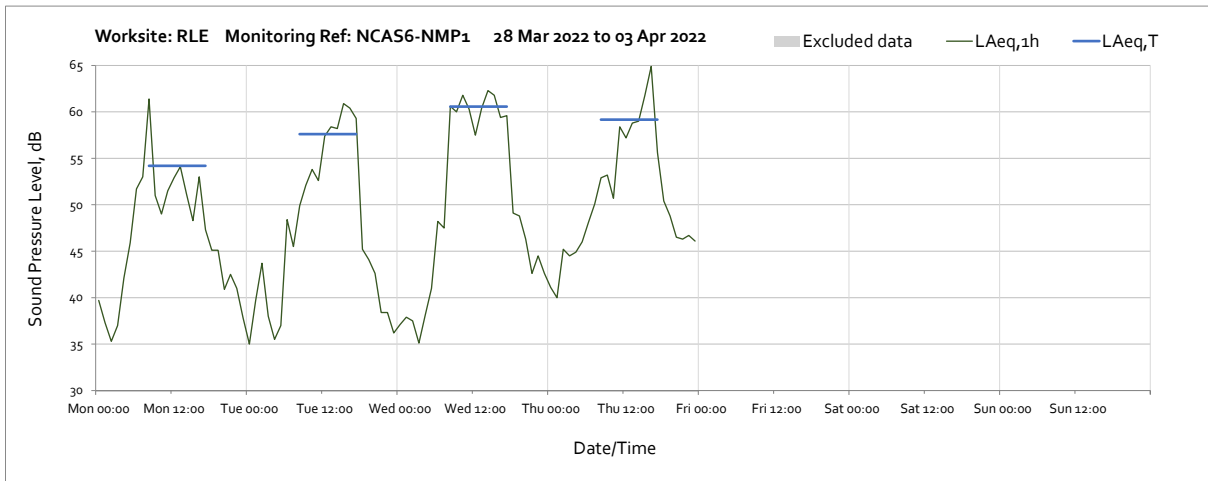


Worksite: RLE – Monitoring Ref: NCAS6-NMP1

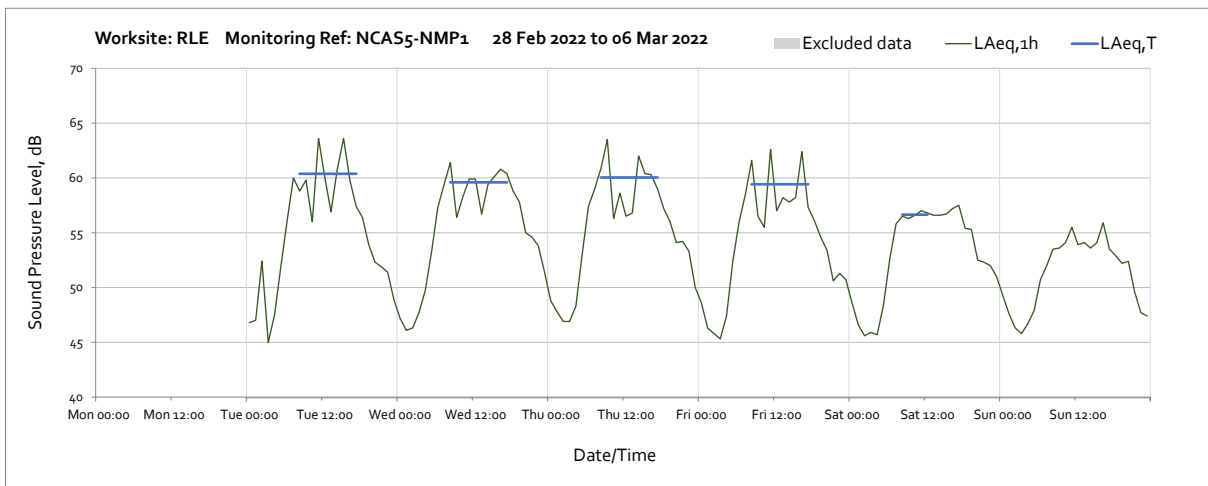


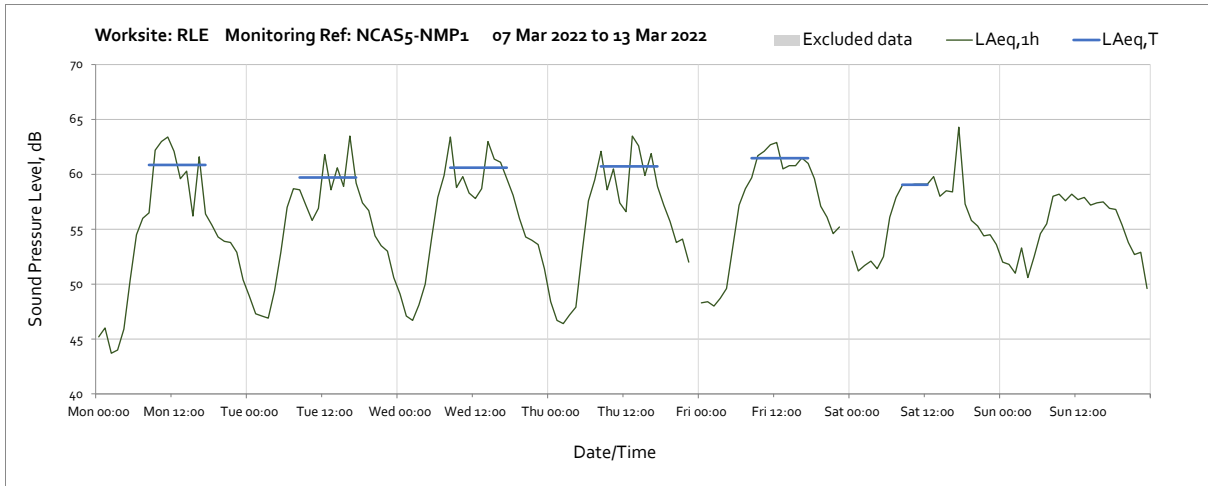


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

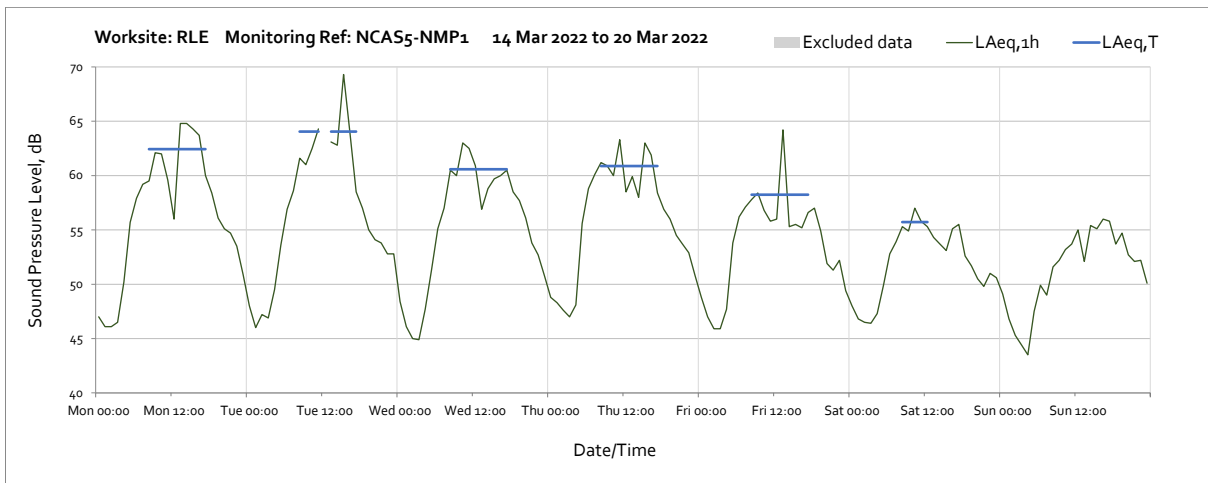


Worksite: RLE – Monitoring Ref: NCAS5-NMP1

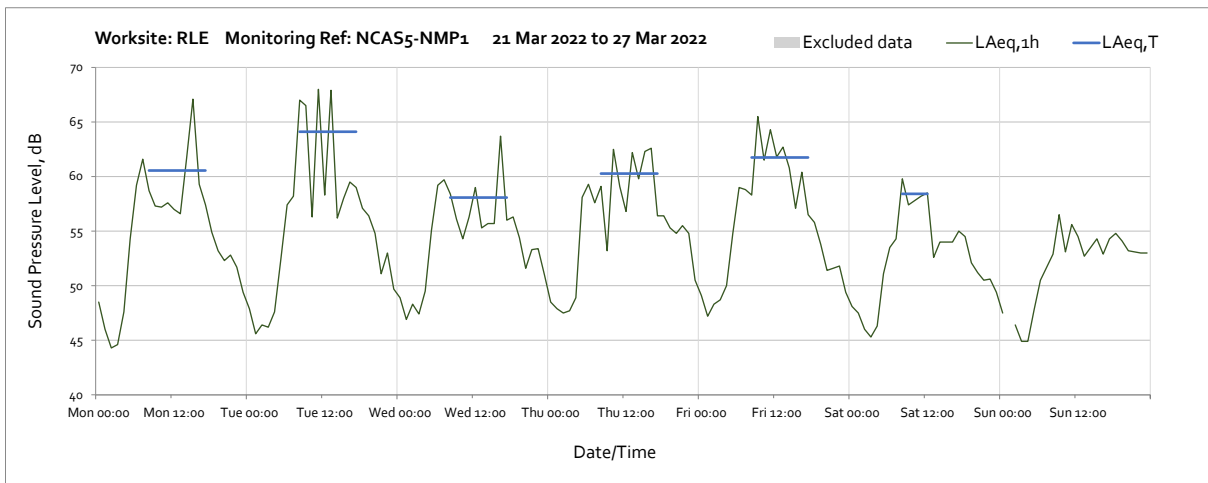




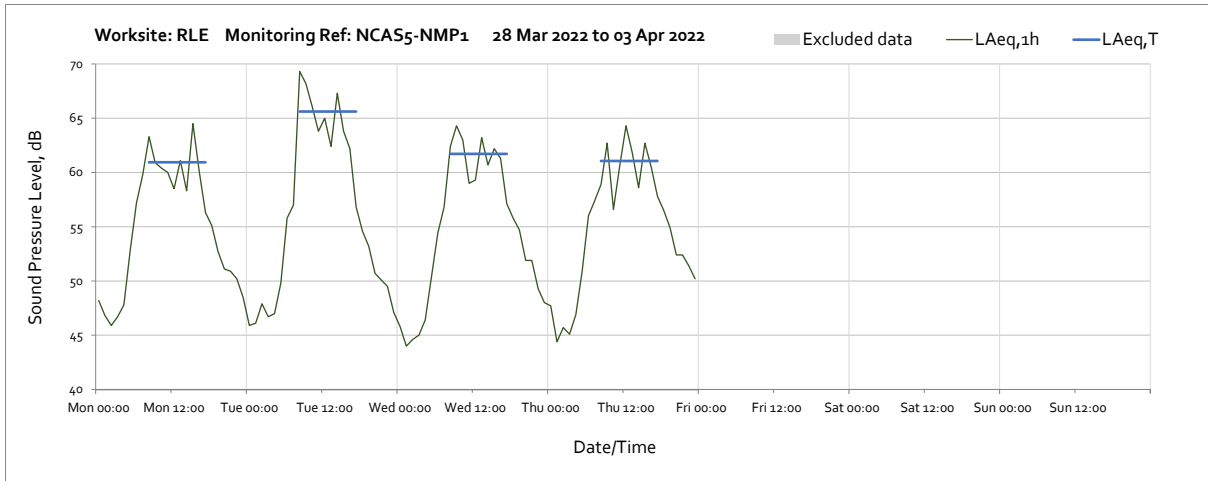
Note: Missing data between 23:00 and 00:00 on Thursday 10th and Friday 11th March is currently under investigation.



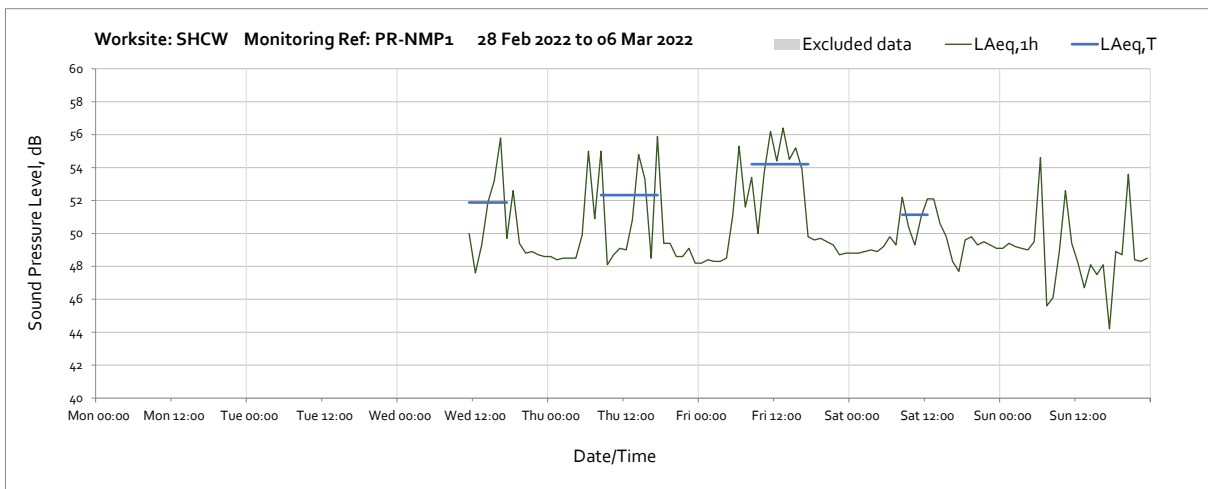
Note: Missing data between 12:00 and 13:00 on Tuesday 15th March is currently under investigation.



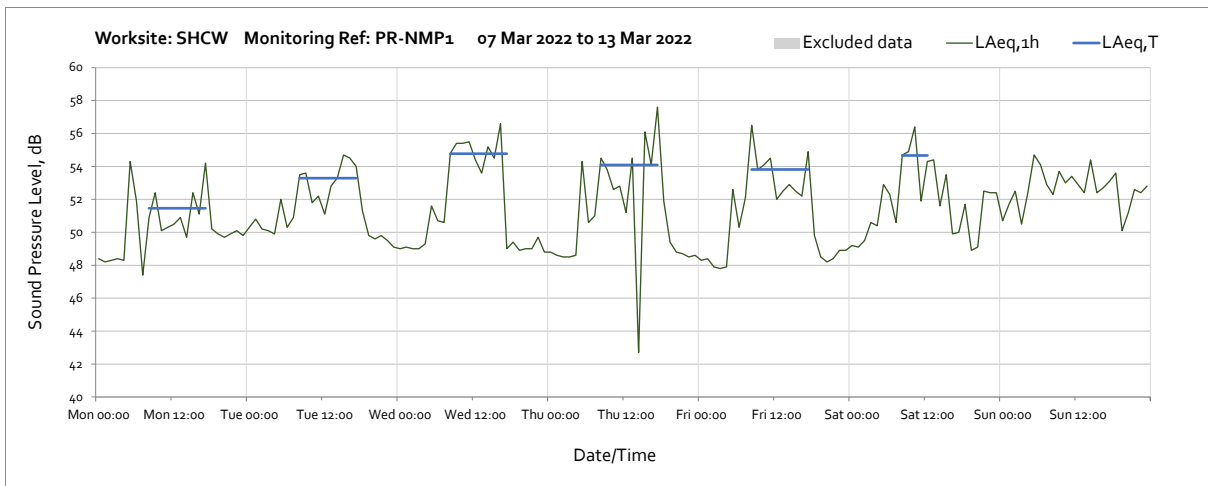
Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

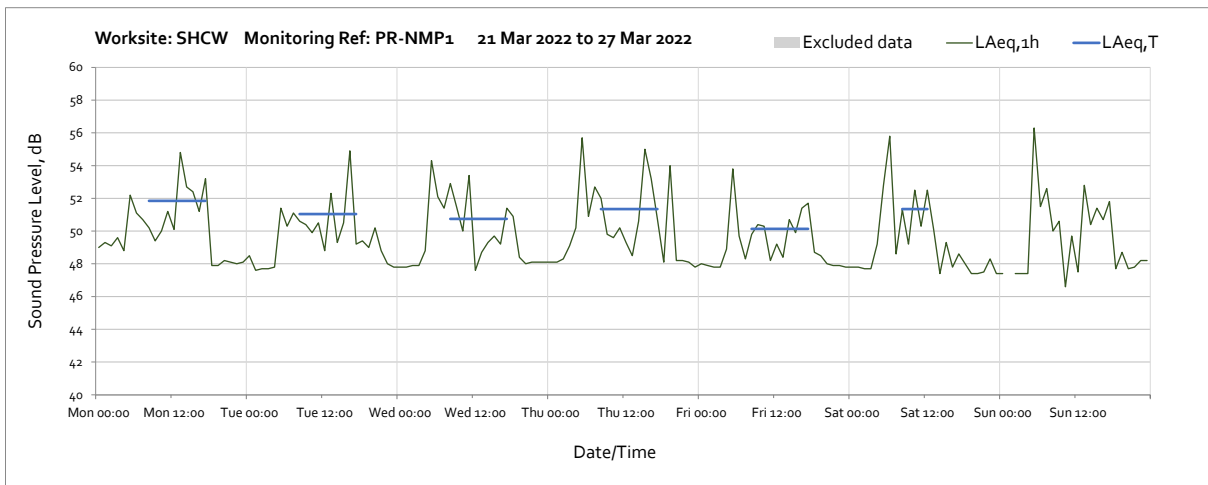
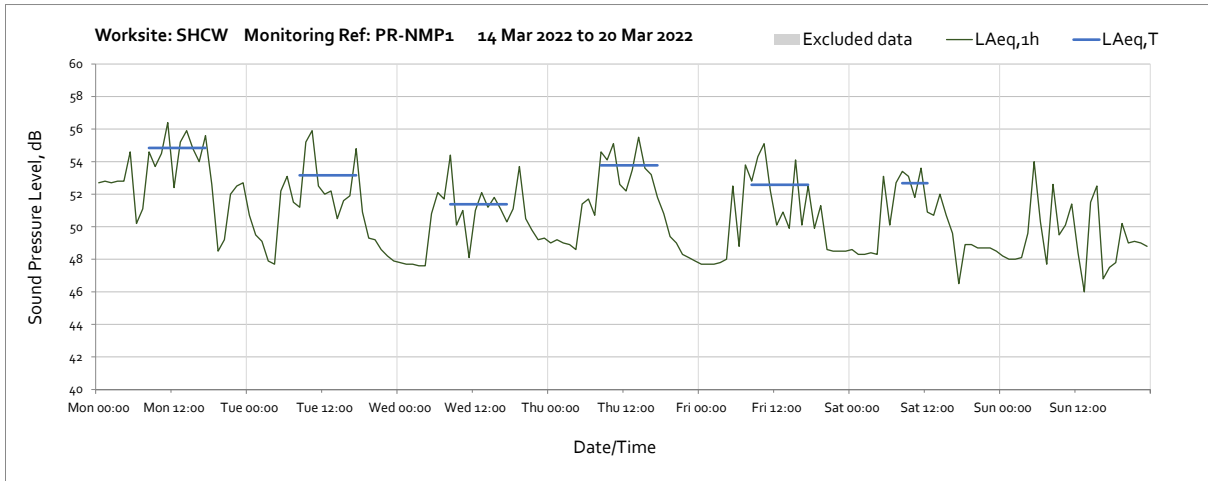


Worksite: SHCW – Monitoring Ref: PR-NMP1

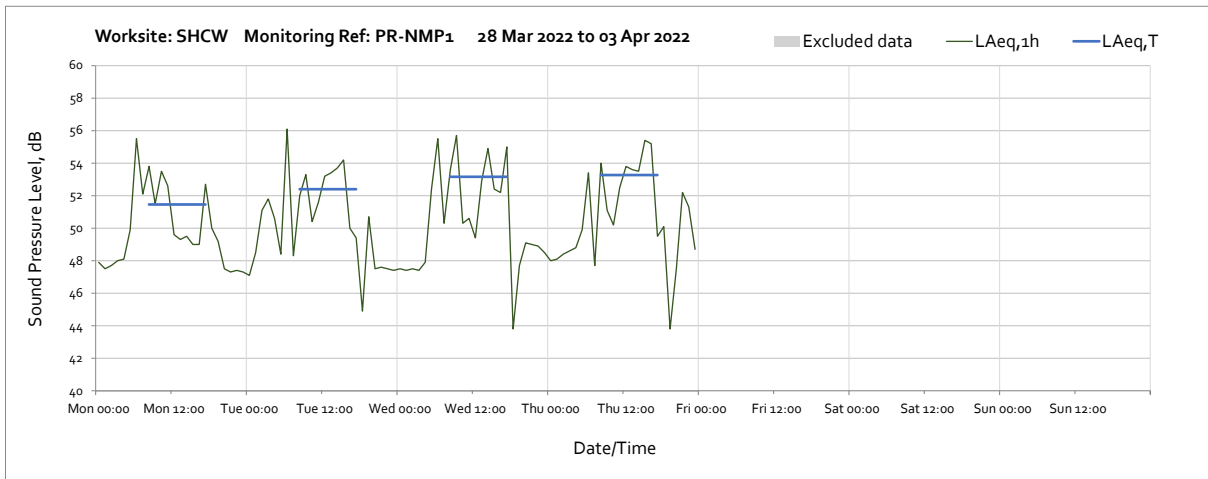


Note: Missing date from the beginning of the month until 11:00 on Wednesday 2nd March 2022 was due to a power outage at the monitor.

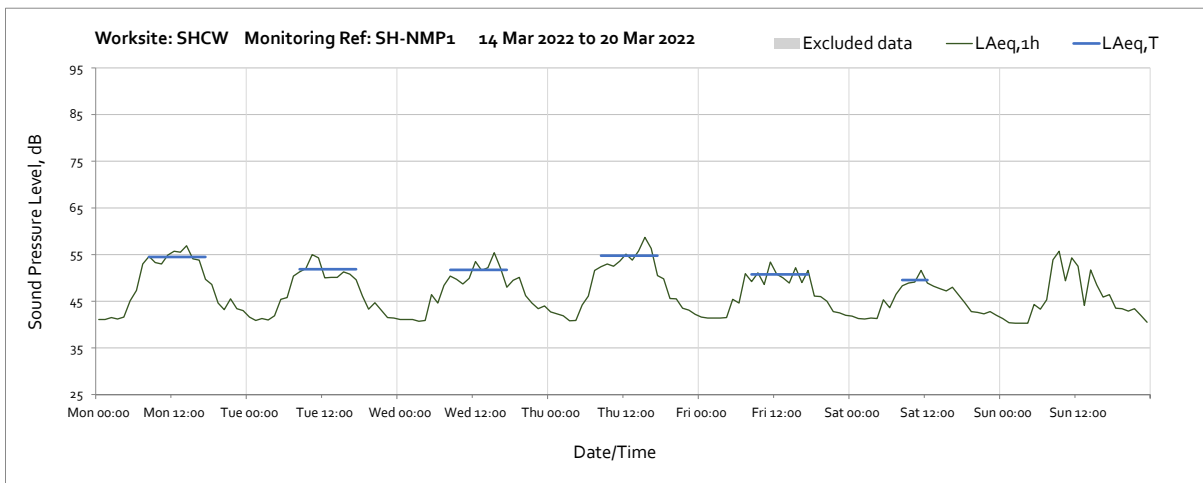
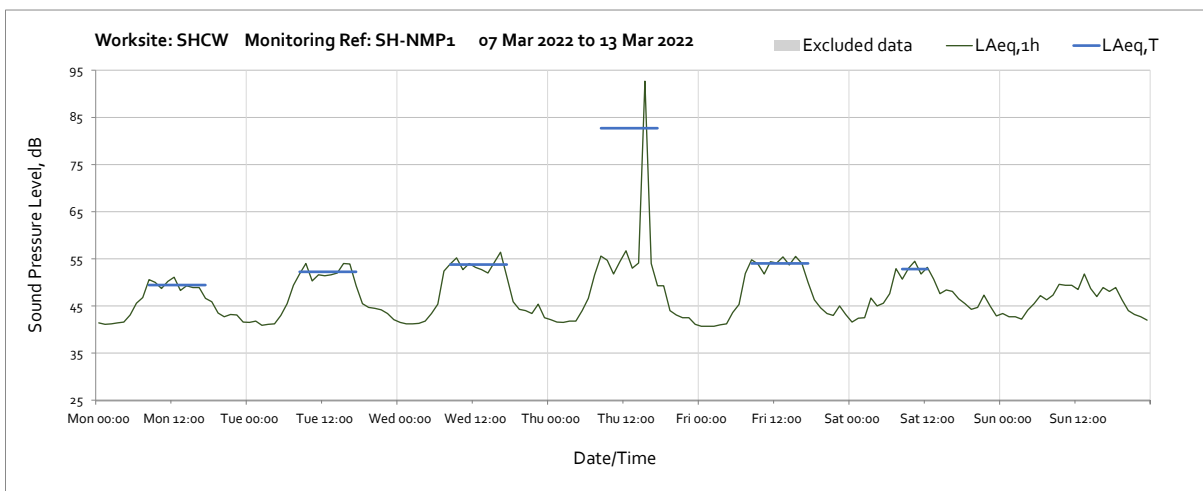
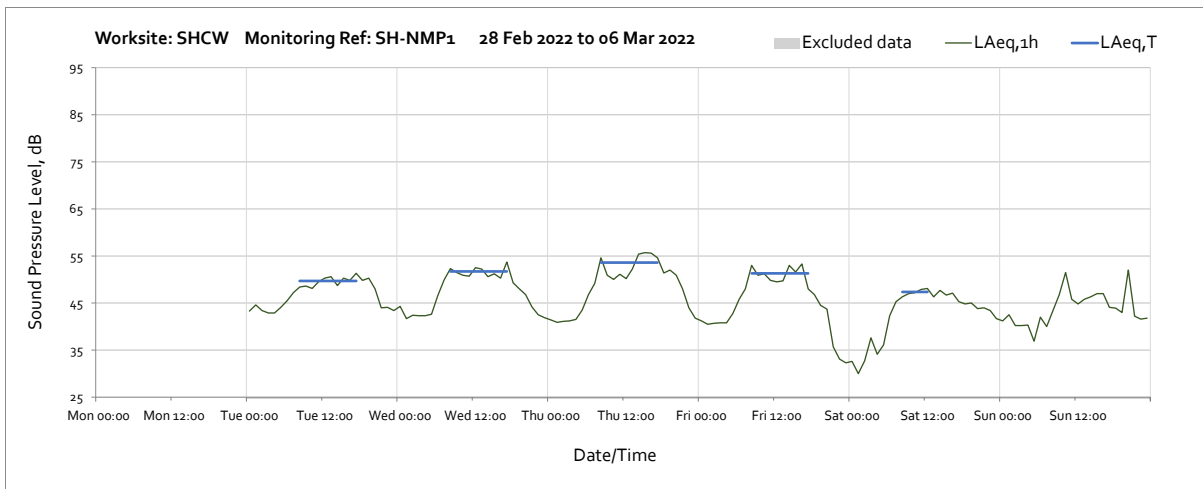


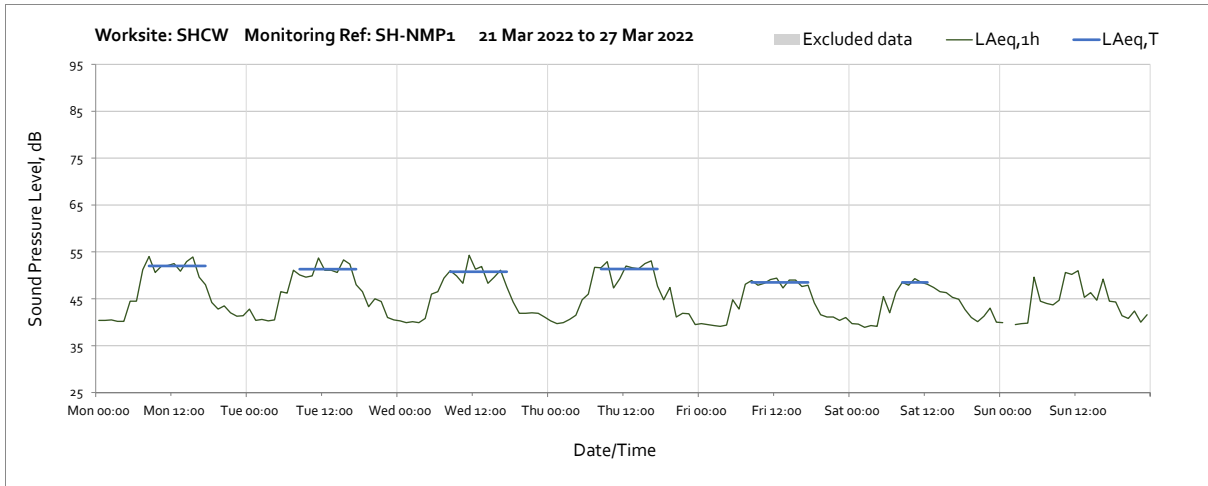


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

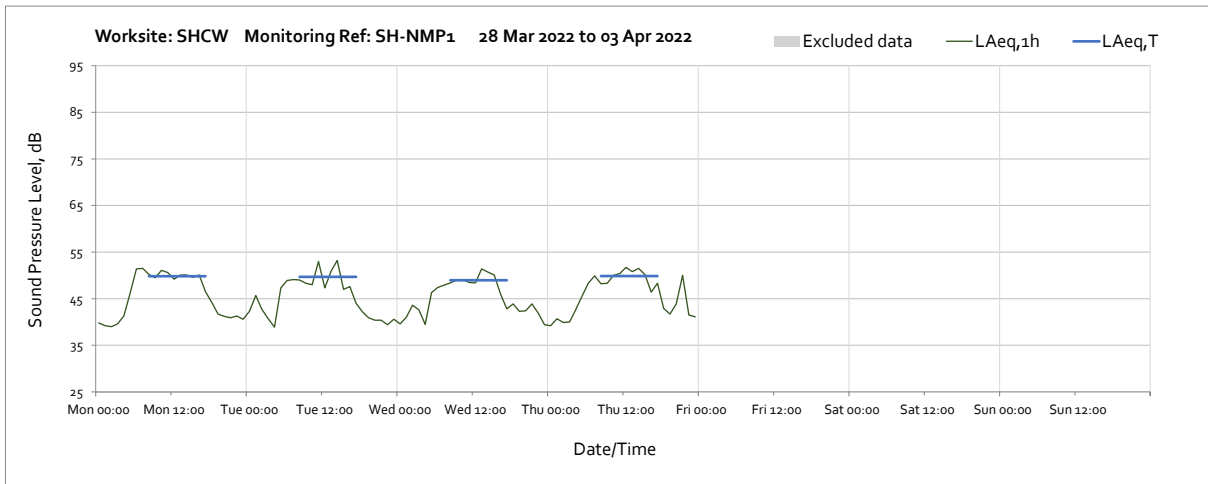


Worksite: SHCW – Monitoring Ref: SH-NMP1

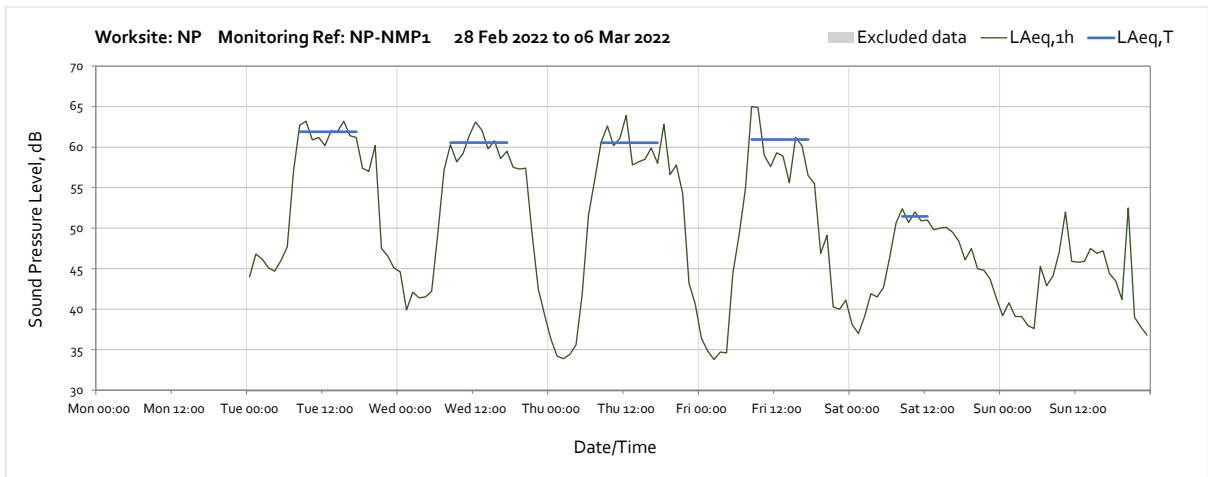


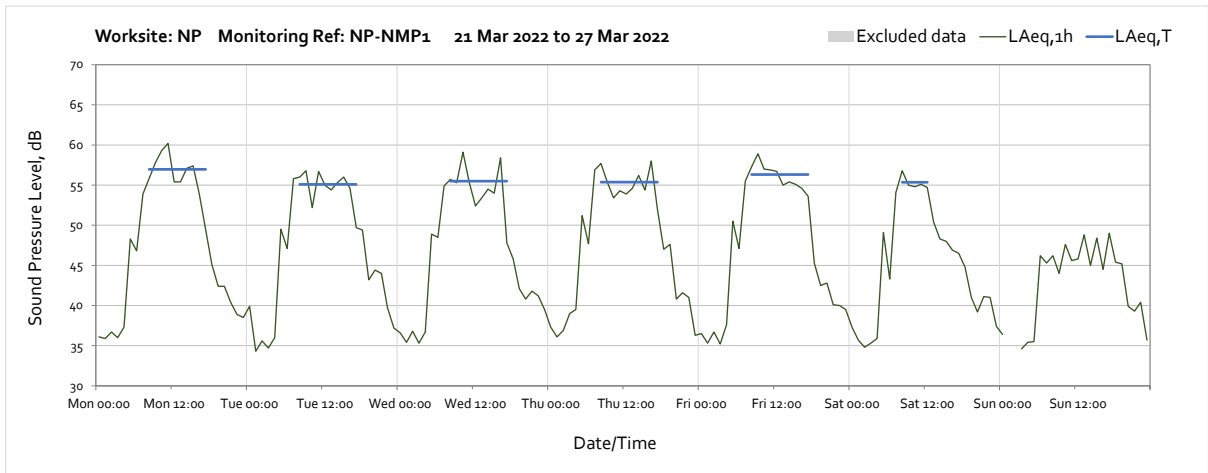
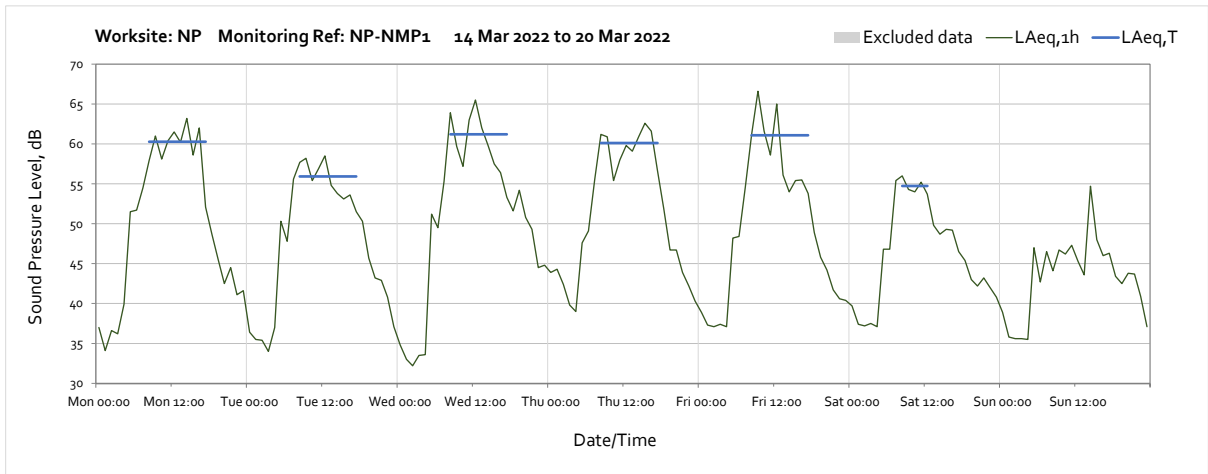
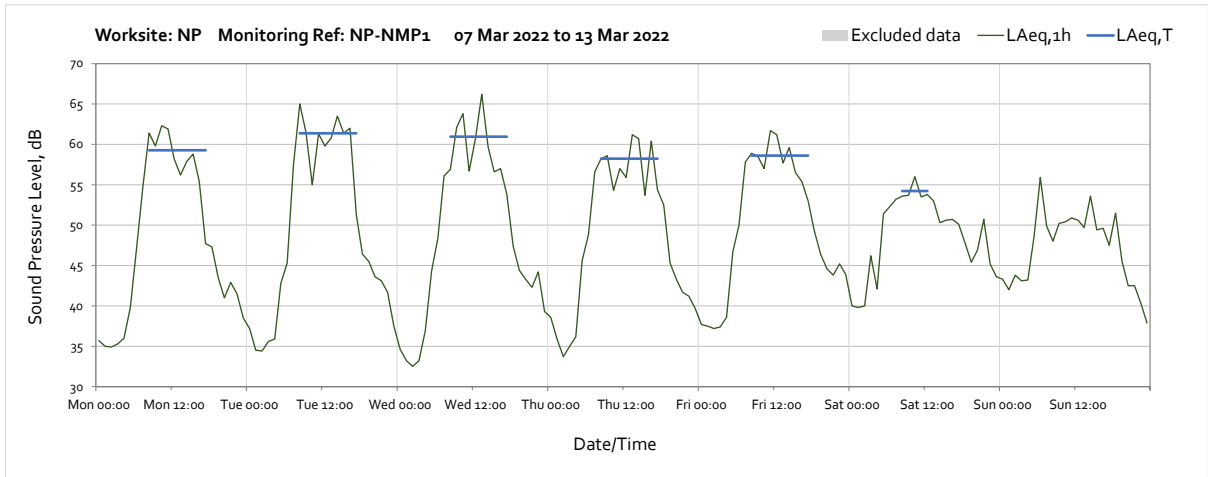


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

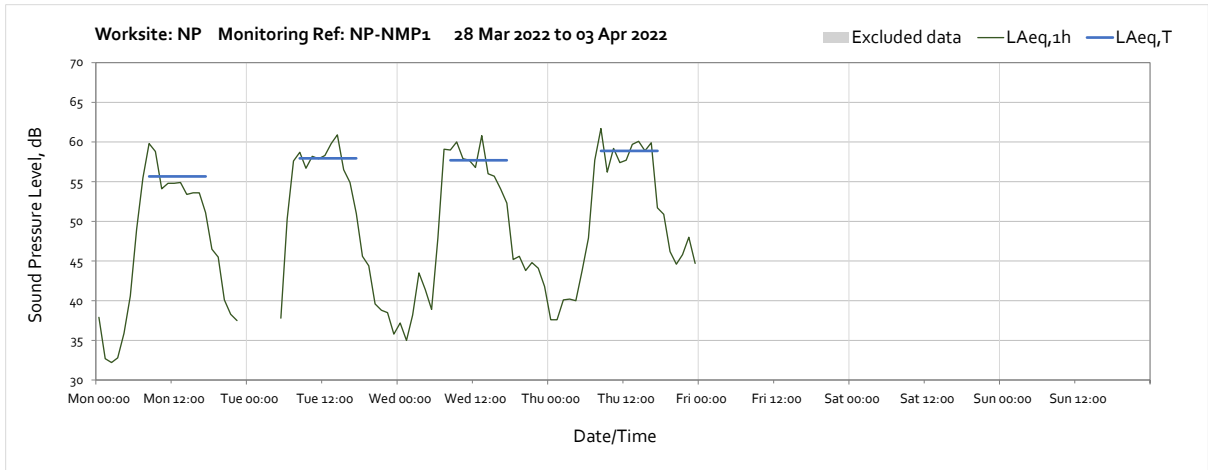


Worksite: NP - Monitoring Ref: NP-NMP1

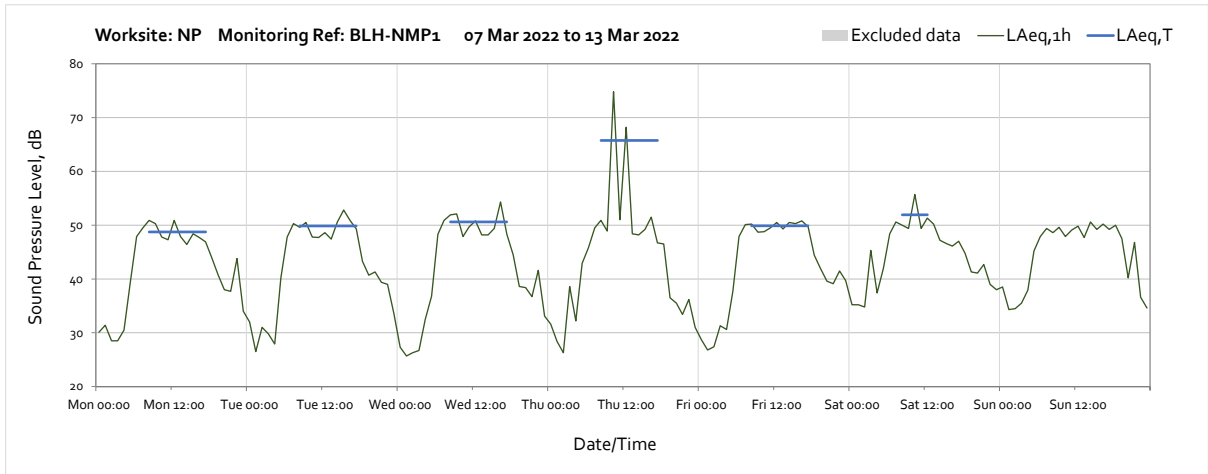
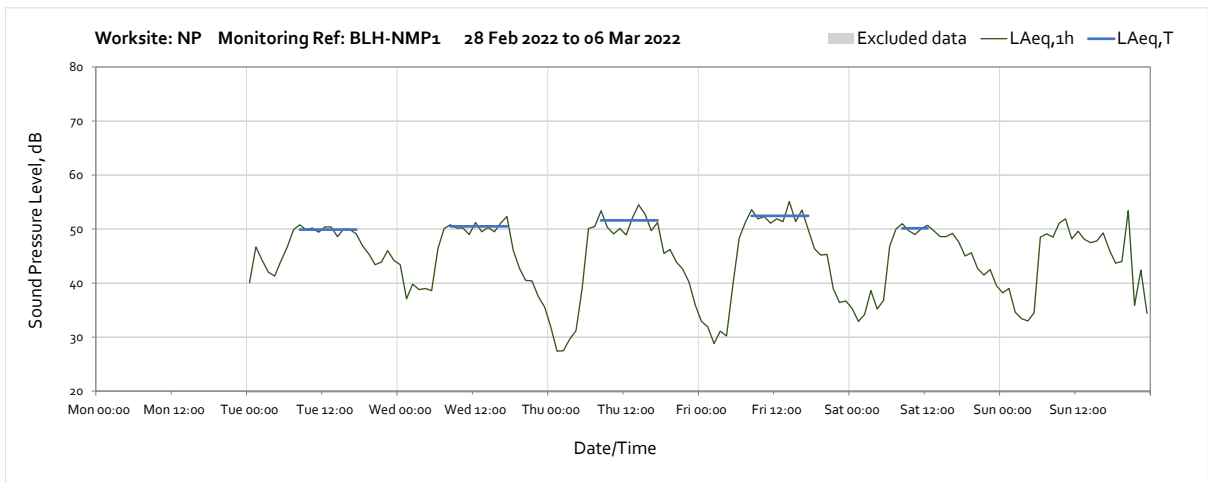


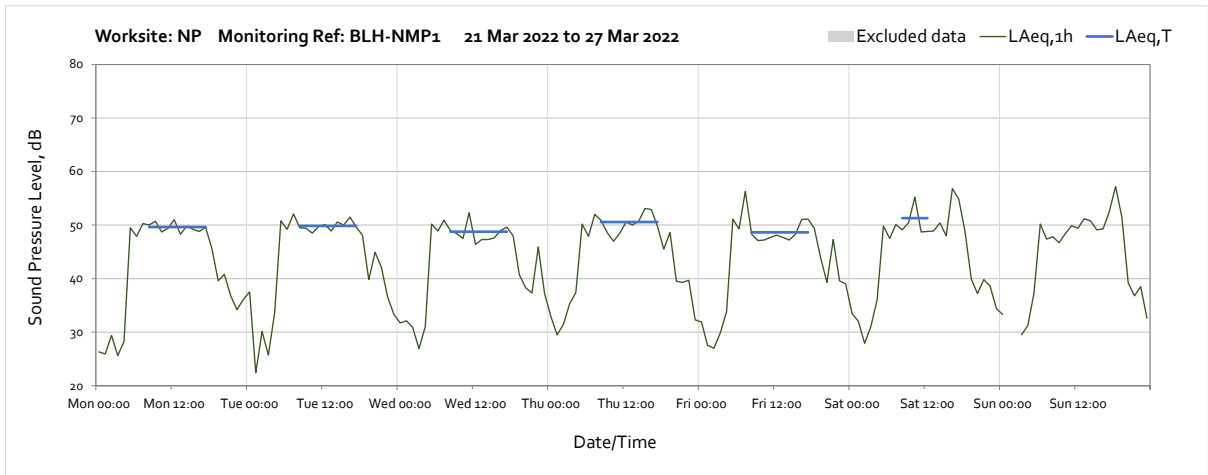
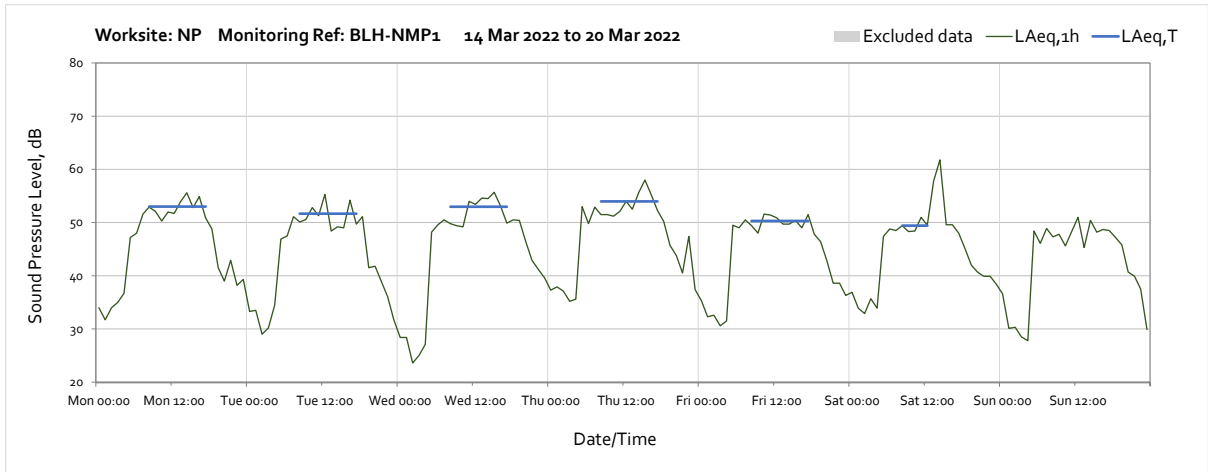


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

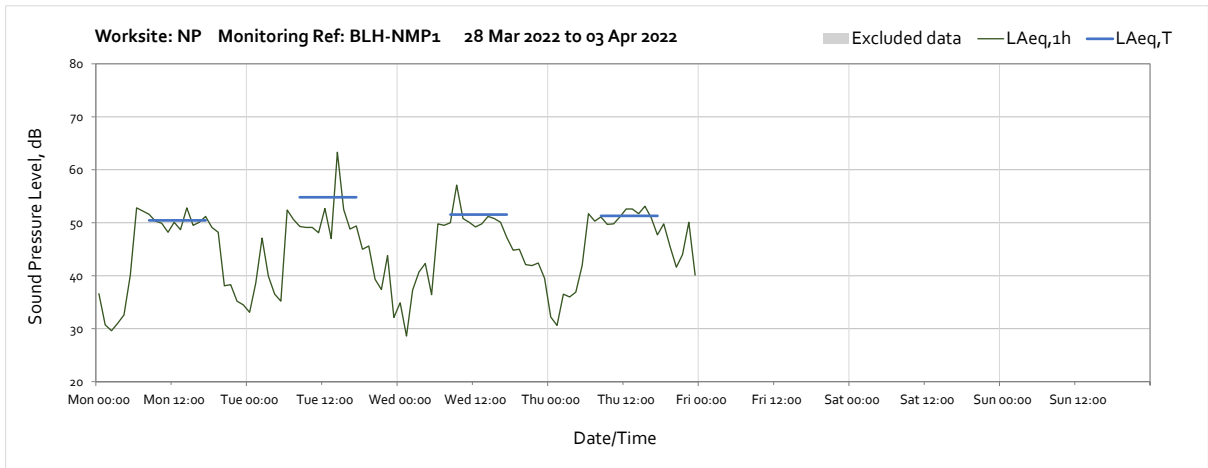


Worksite: NP - Monitoring Ref: BLH-NMP1

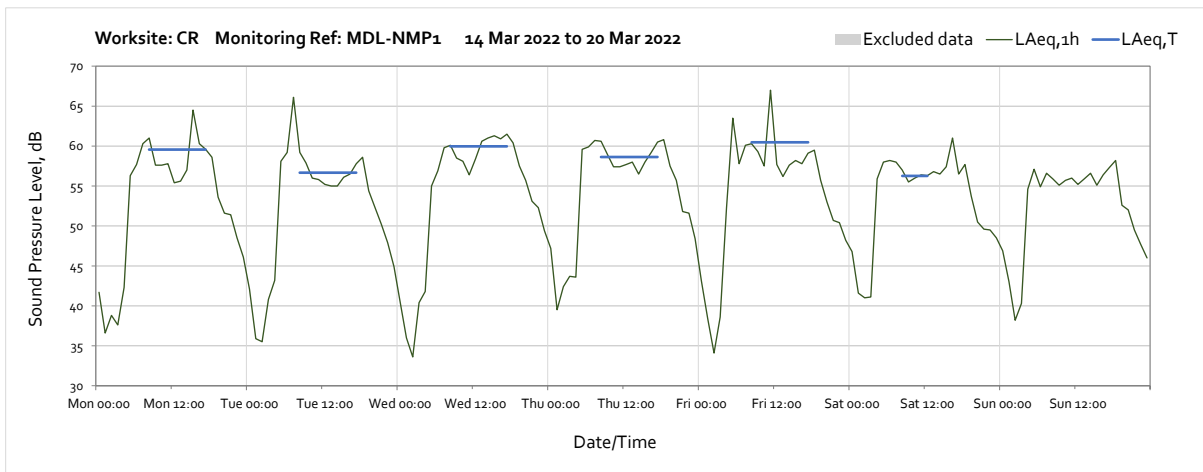
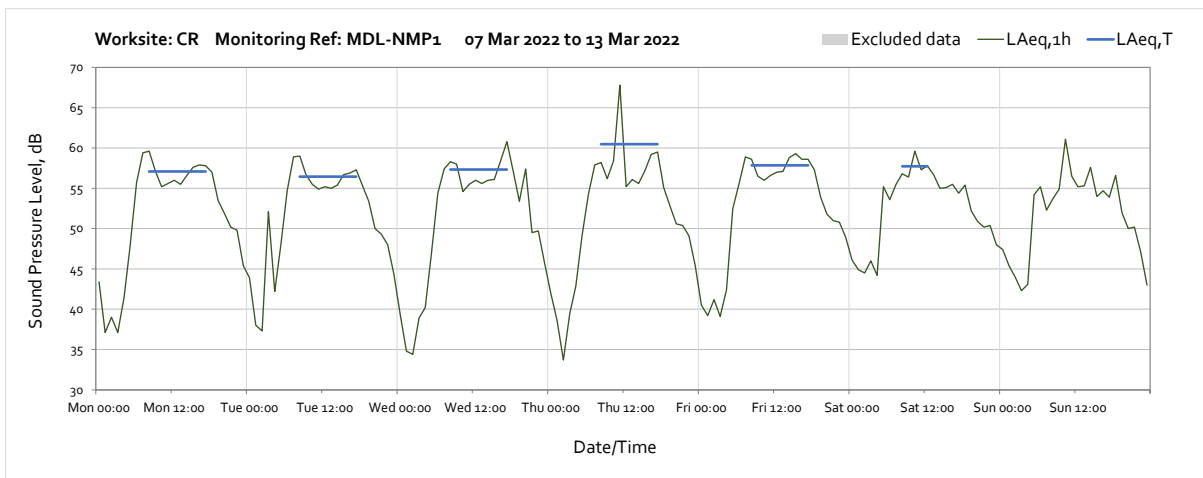
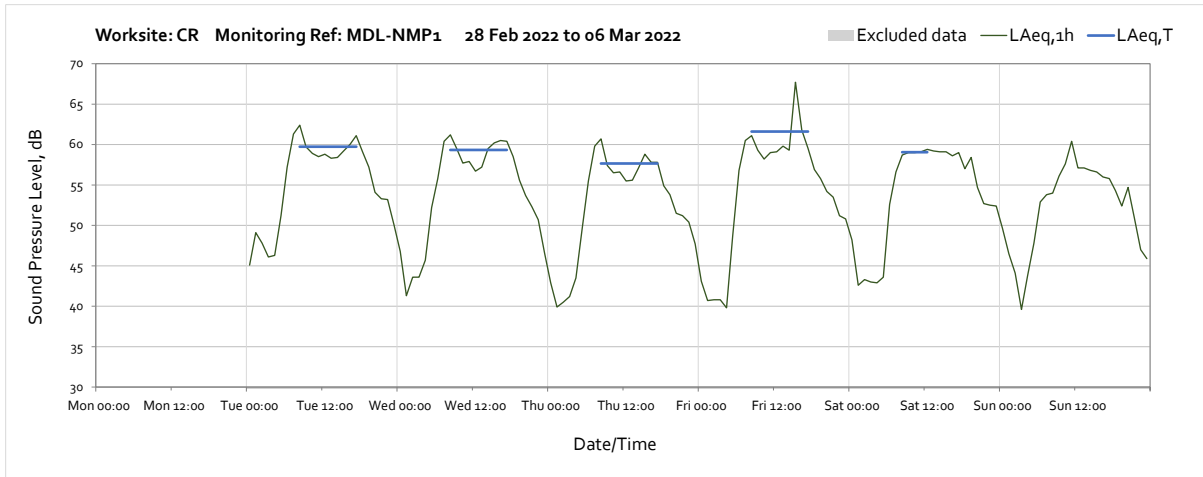


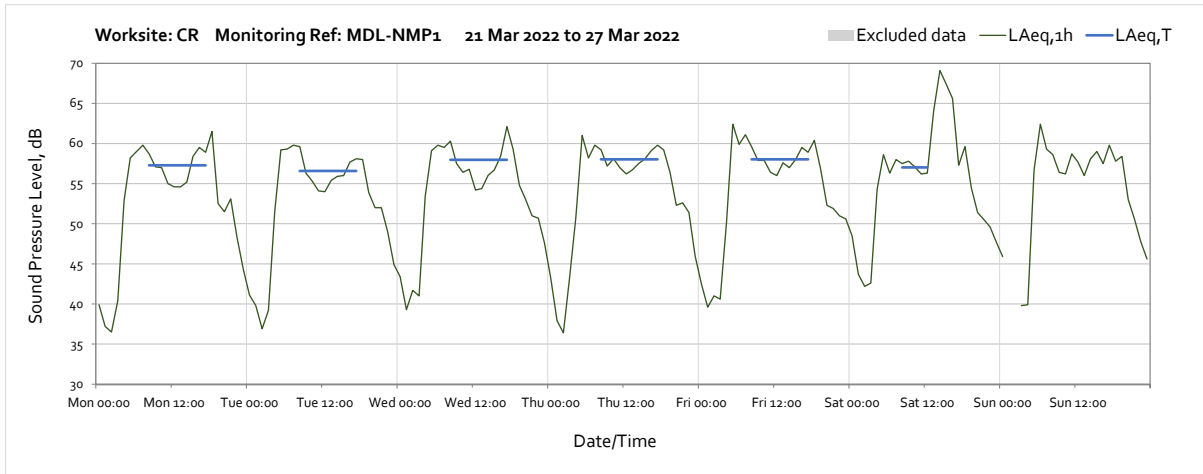


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

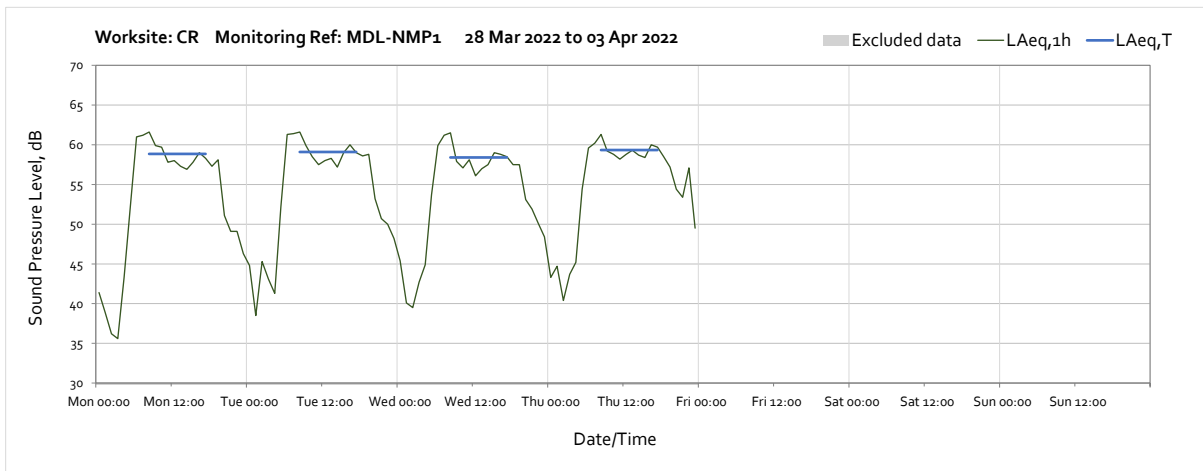


Worksite: CR – Monitoring Ref: MDL-NMP1

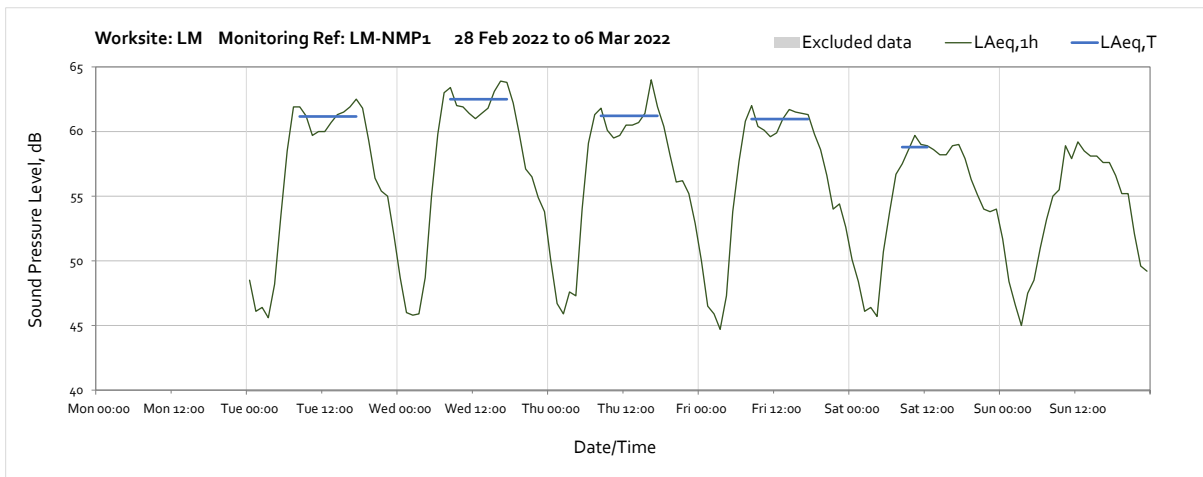


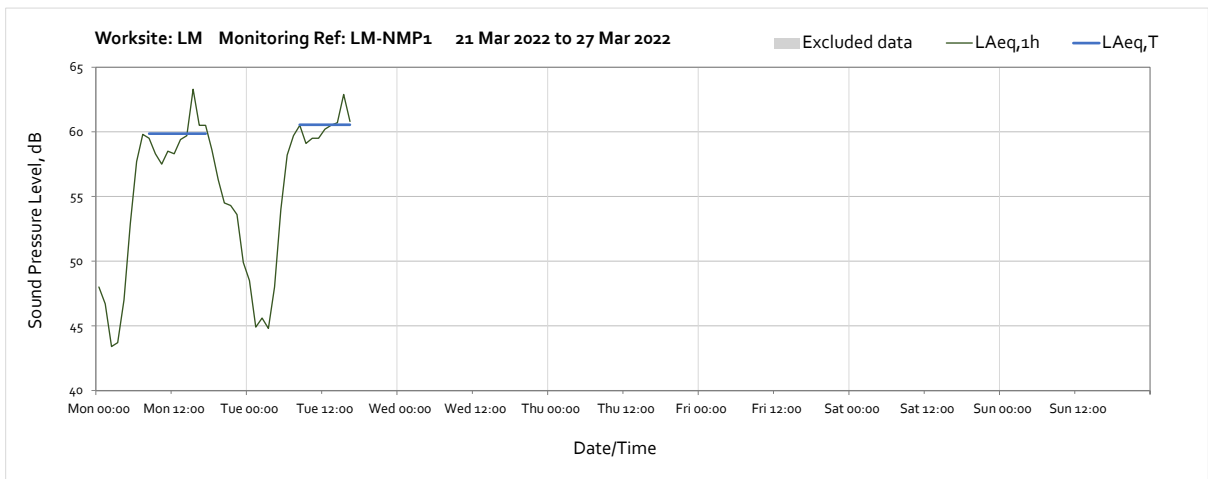
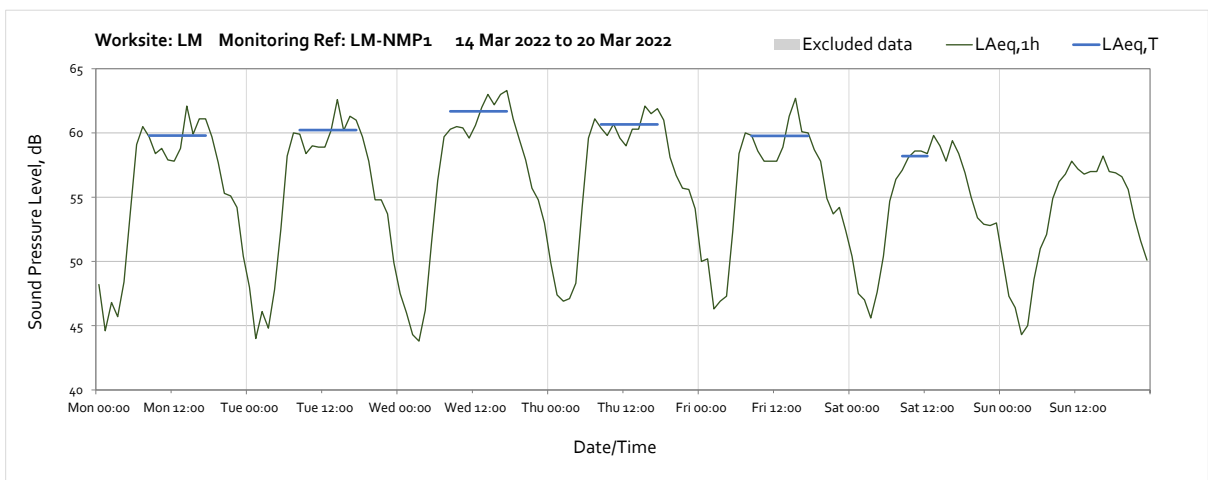
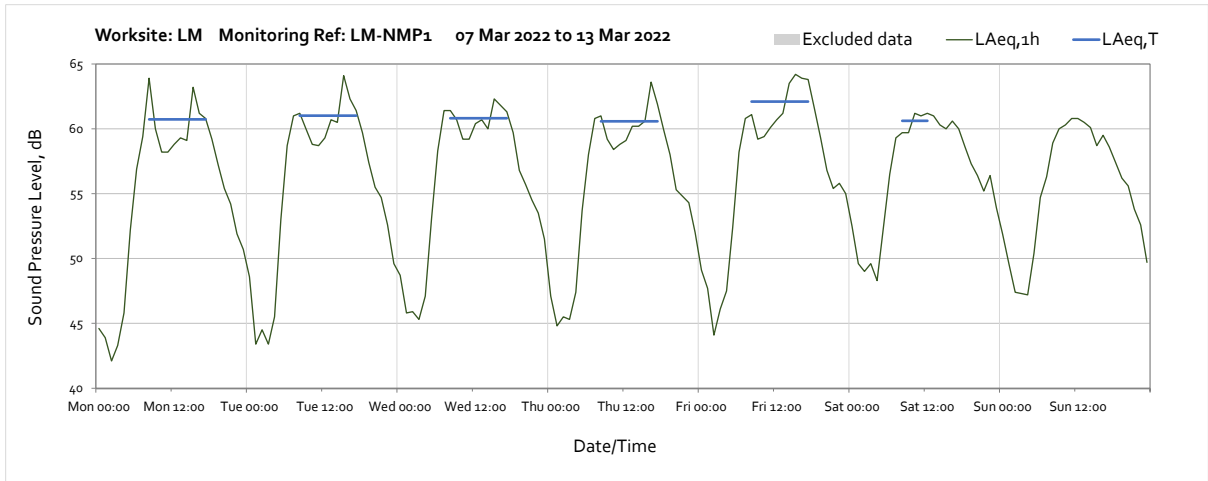


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

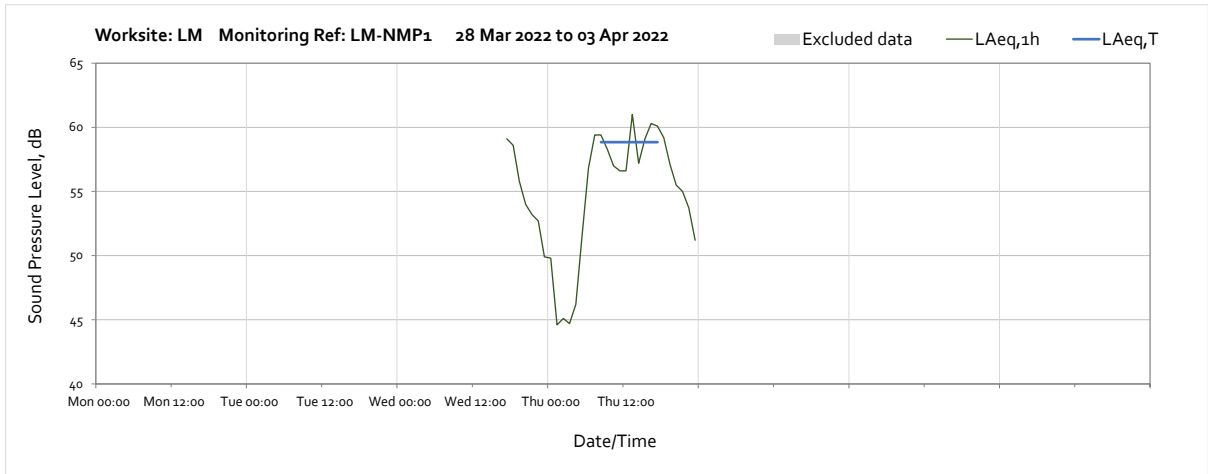


Worksite: LM – Monitoring Ref: LM-NMP1



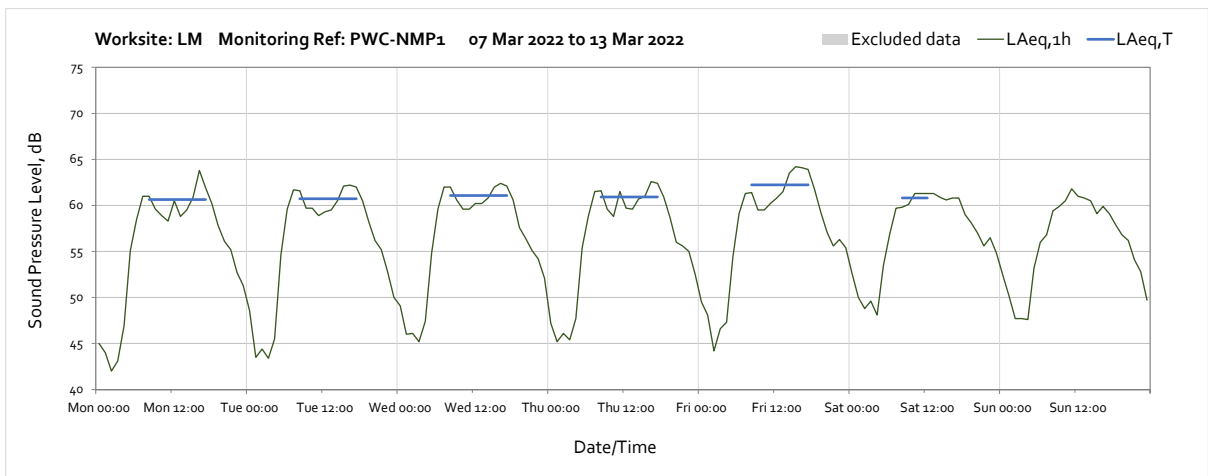
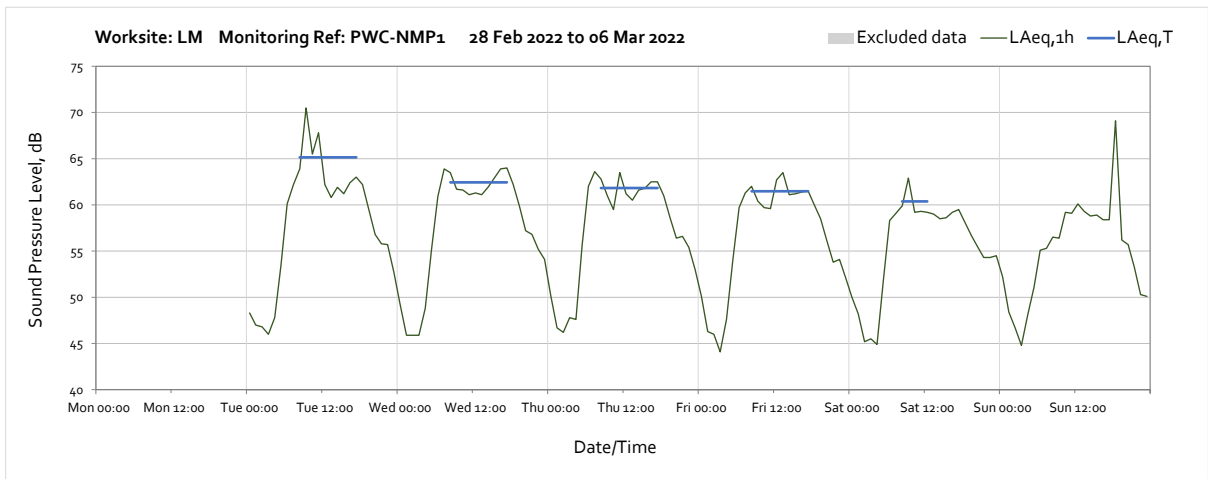


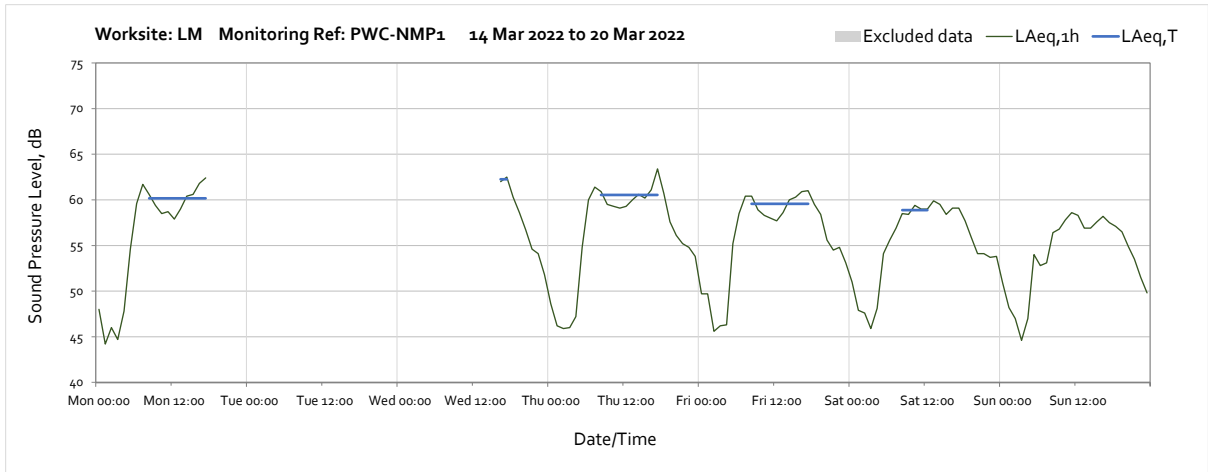
Note: Missing data between 17:00 on Tuesday 22nd March and 16:00 on Wednesday 30th March were due to monitor's system glitch and it is currently under investigation.



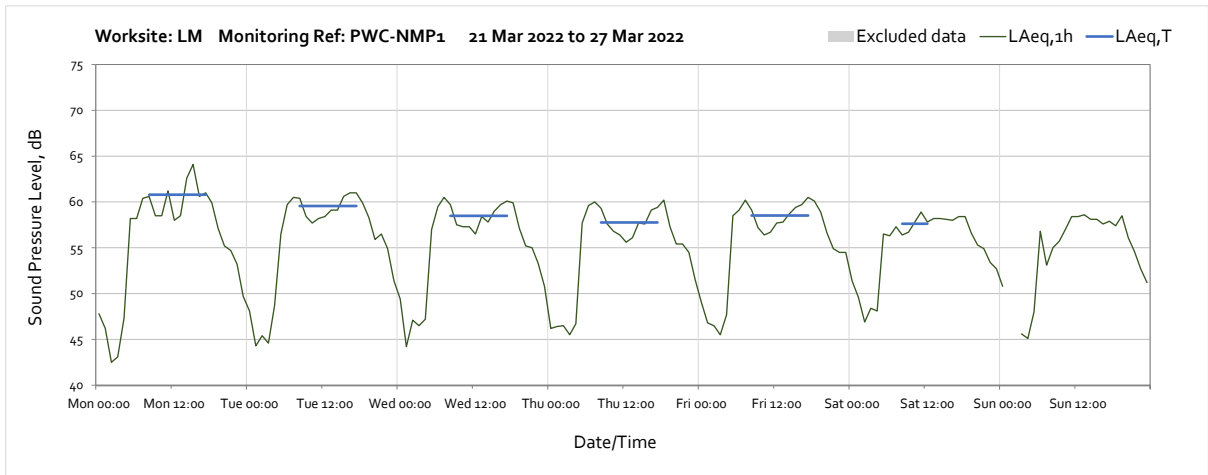
Note: Missing data between 17:00 on Tuesday 22nd March and 16:00 on Wednesday 30th March were due to monitor's system glitch and it is currently under investigation.

Worksite: LM – Monitoring Ref: PWC-NMP1

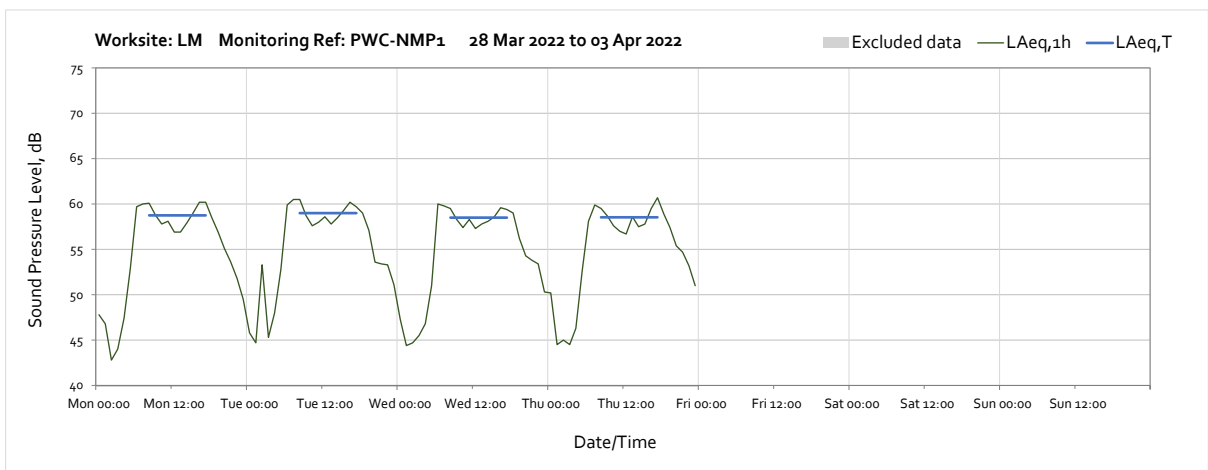




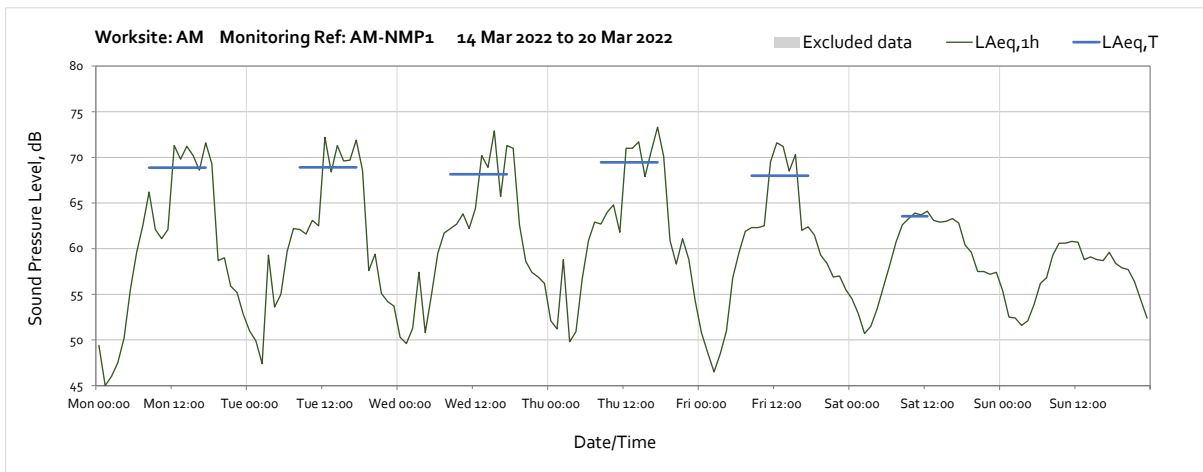
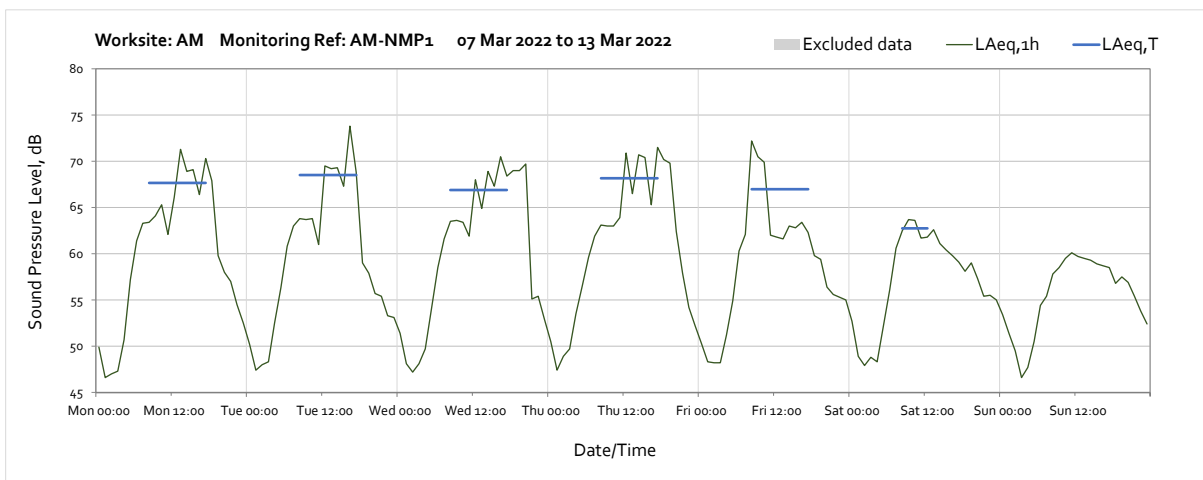
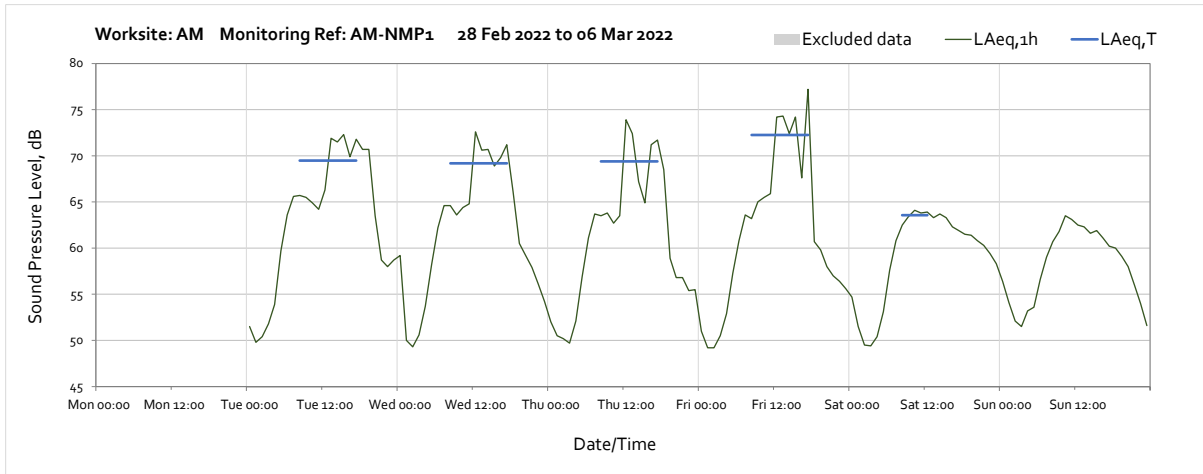
Note: Missing data between 18:00 on Monday 14th March and 16:00 on Wednesday 16th March were due to loss of continuous power at the monitoring station.

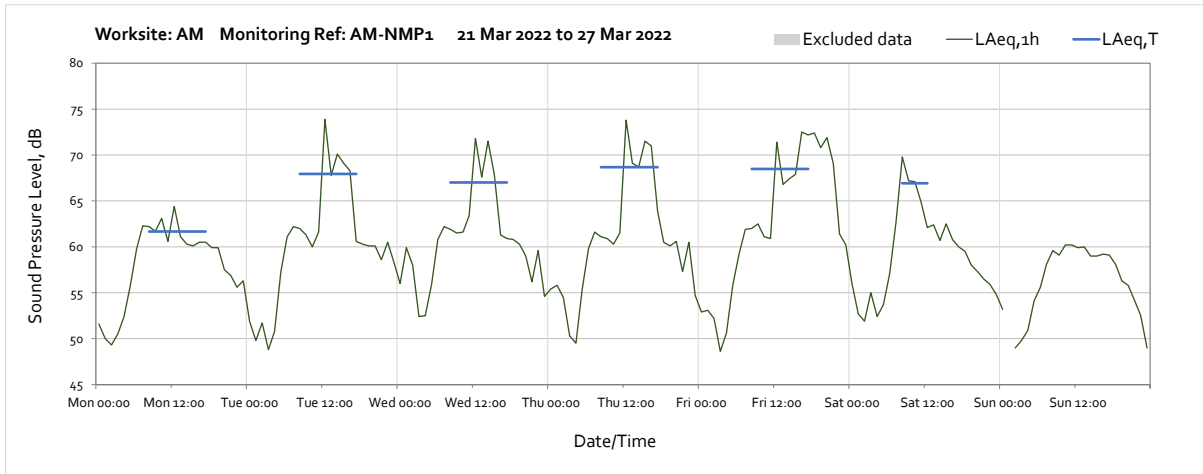


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

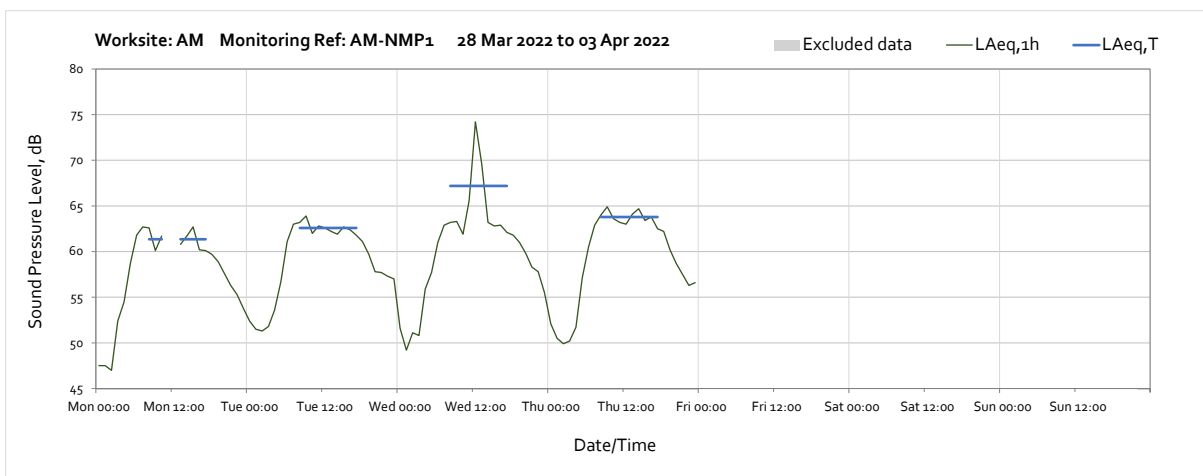


Worksite: AM – Monitoring Ref: AM-NMP1



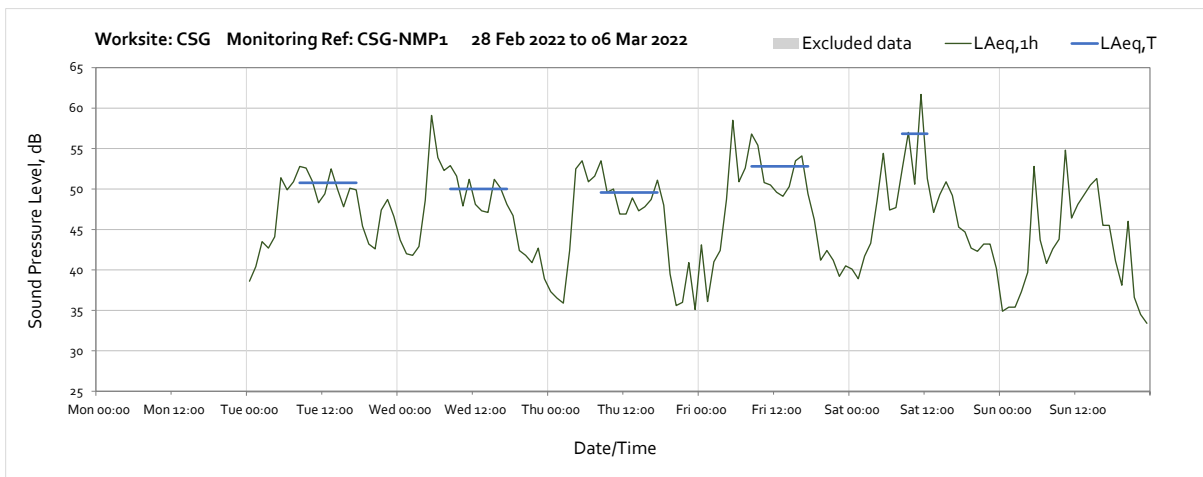


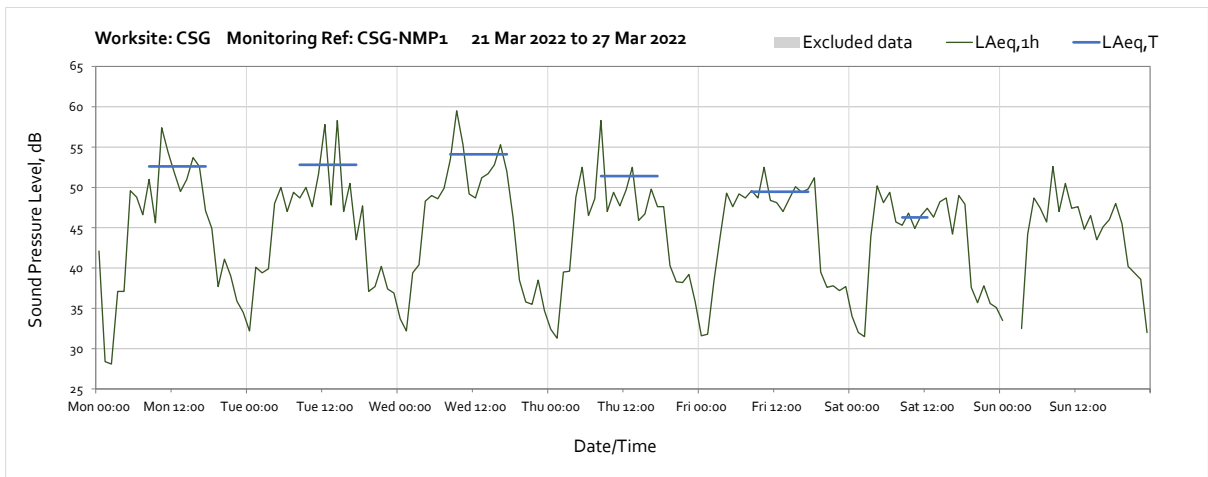
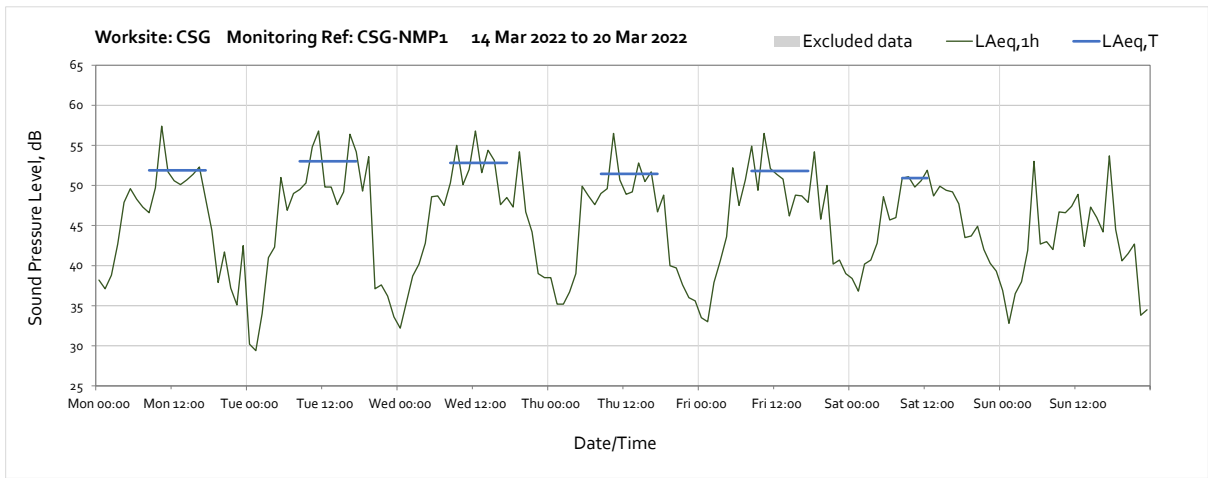
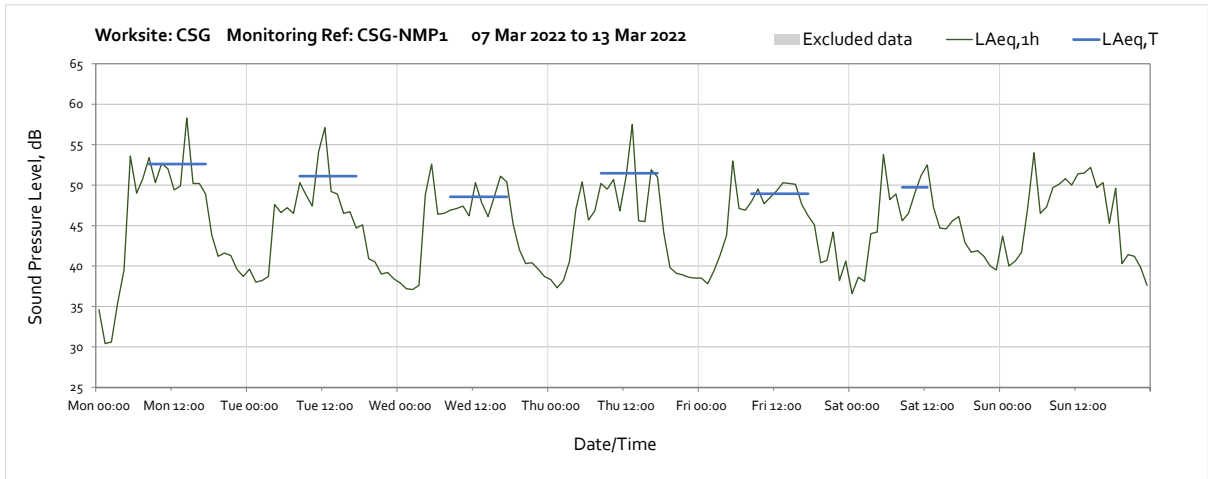
Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



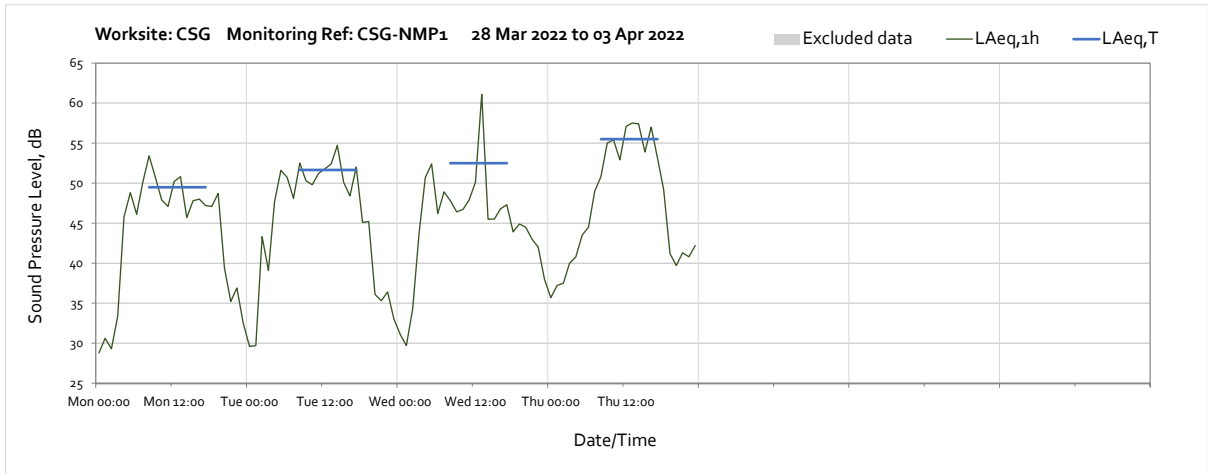
Note: Missing data between 11:00 and 12:00 on Monday 28th March was due to monitor maintenance.

Worksite: CSG – Monitoring Ref: CSG-NMP1

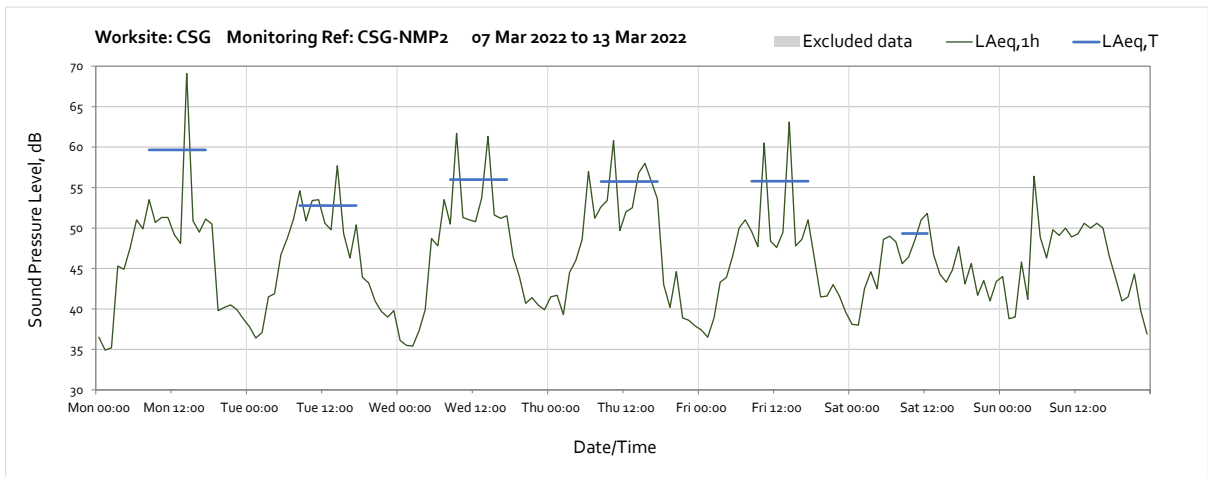
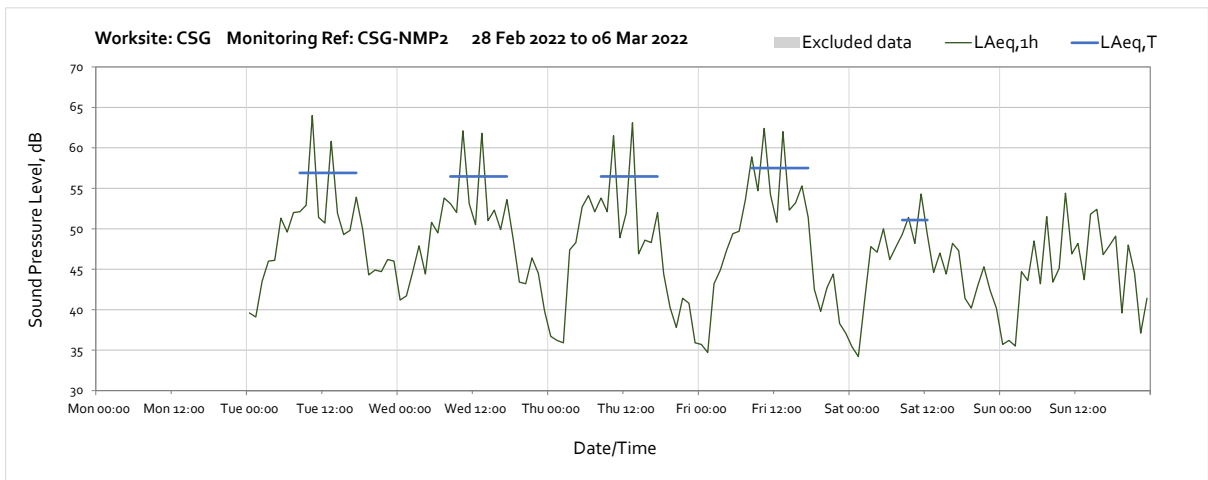


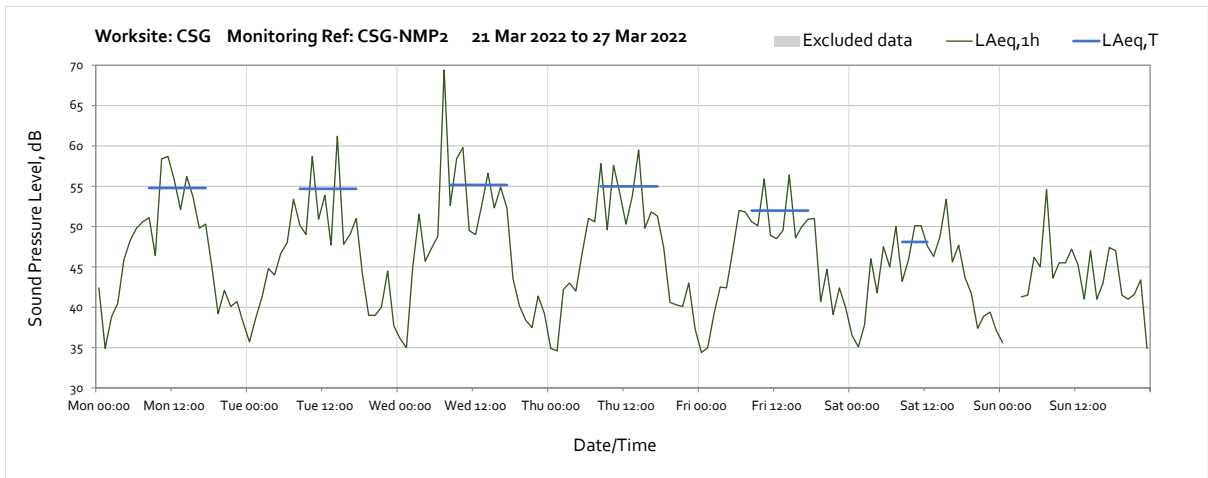
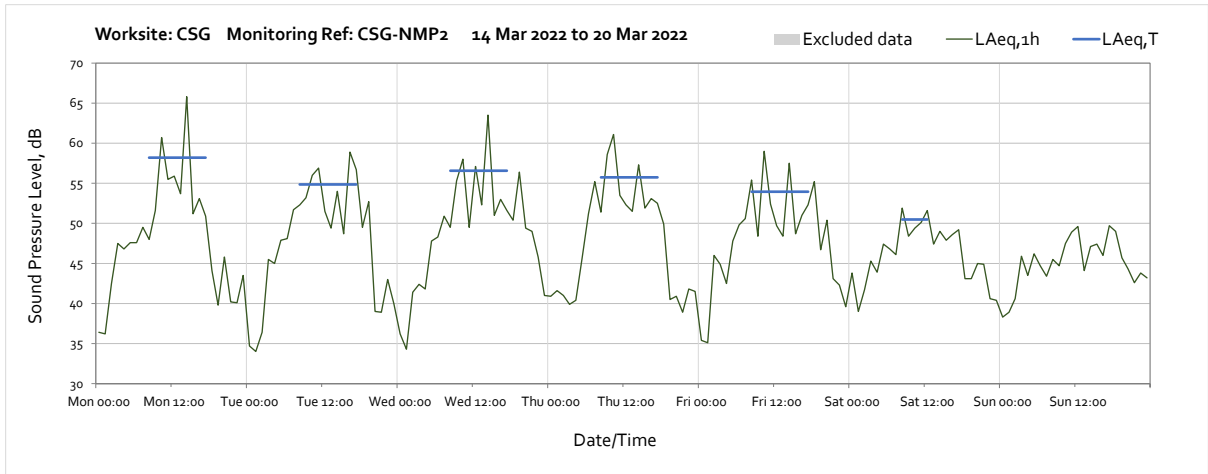


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time

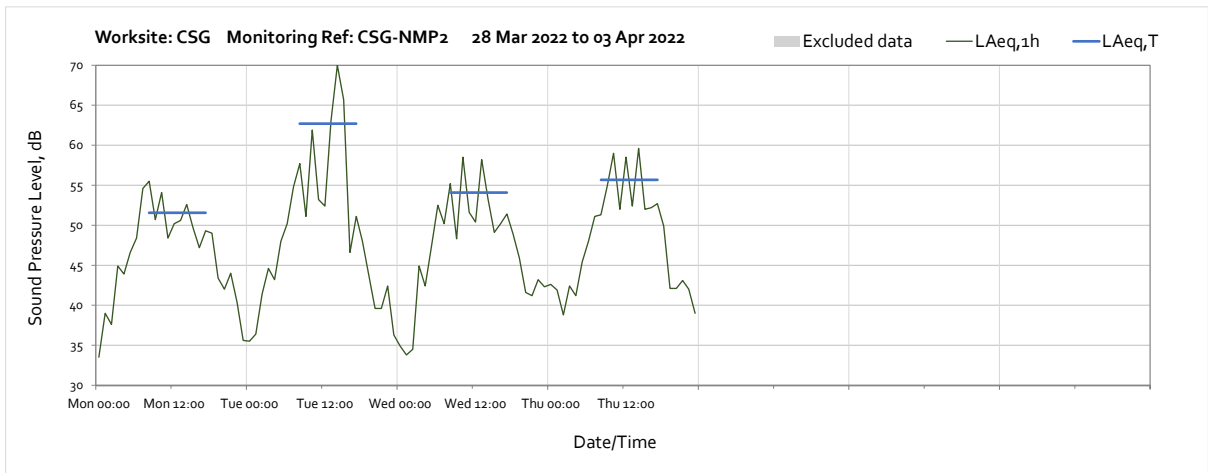


Worksite: CSG - Monitoring Ref: CSG-NMP2

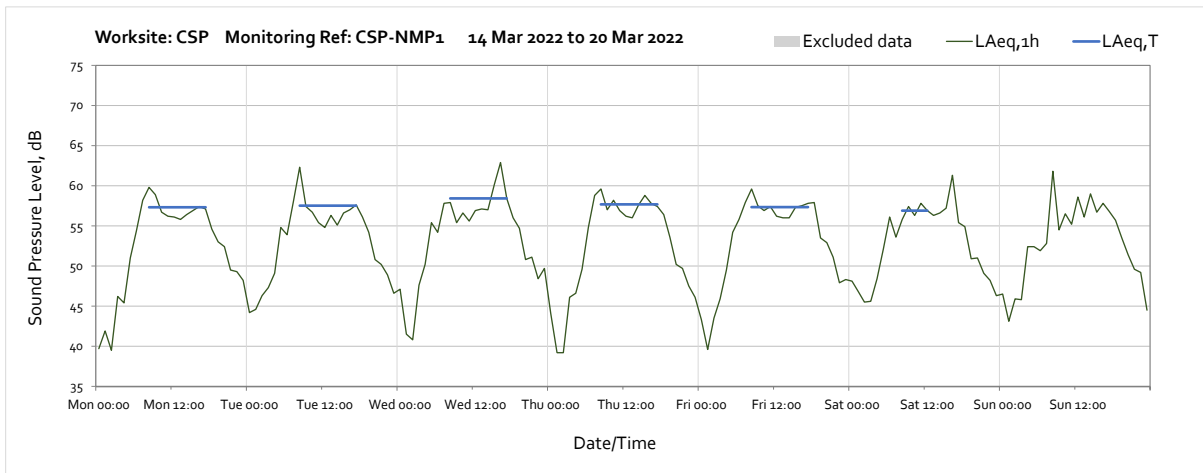
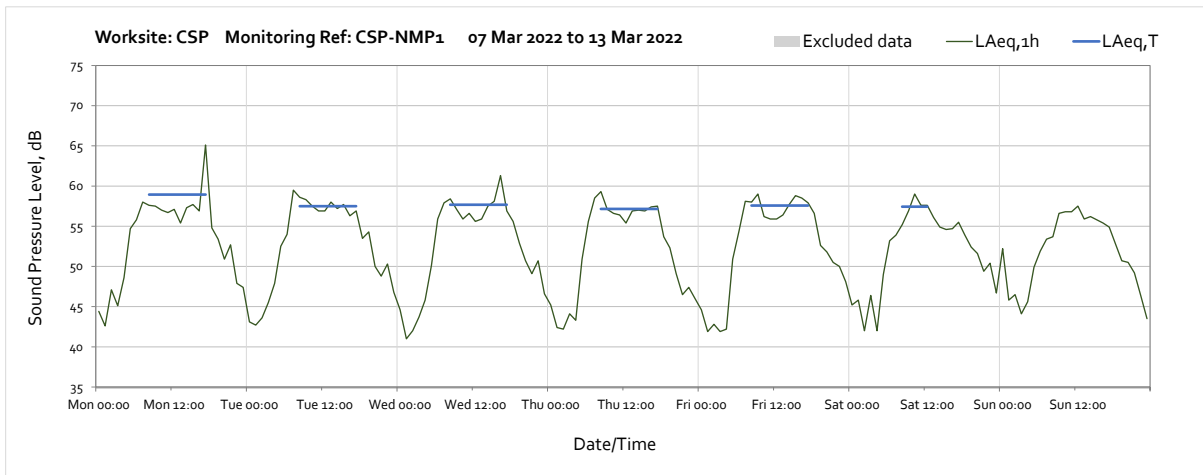
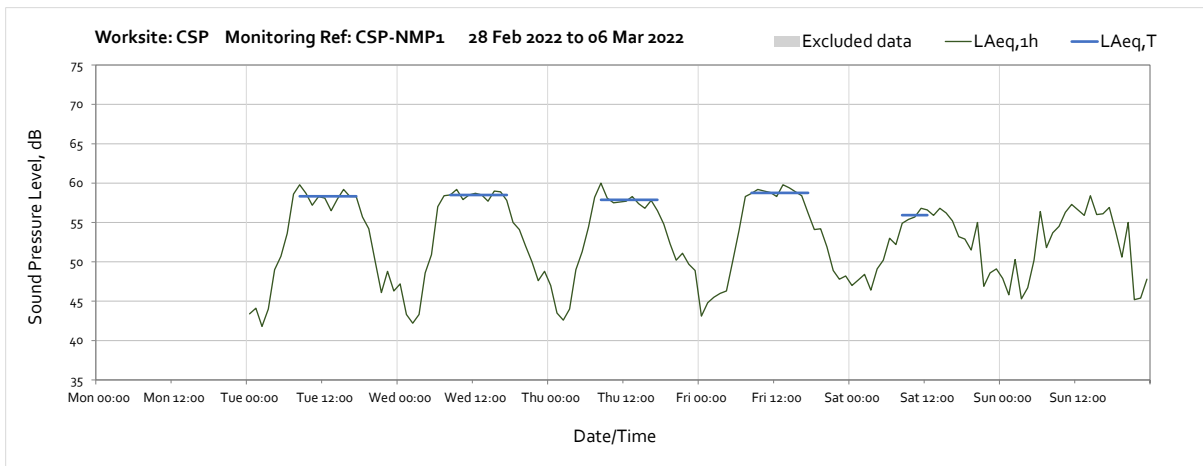


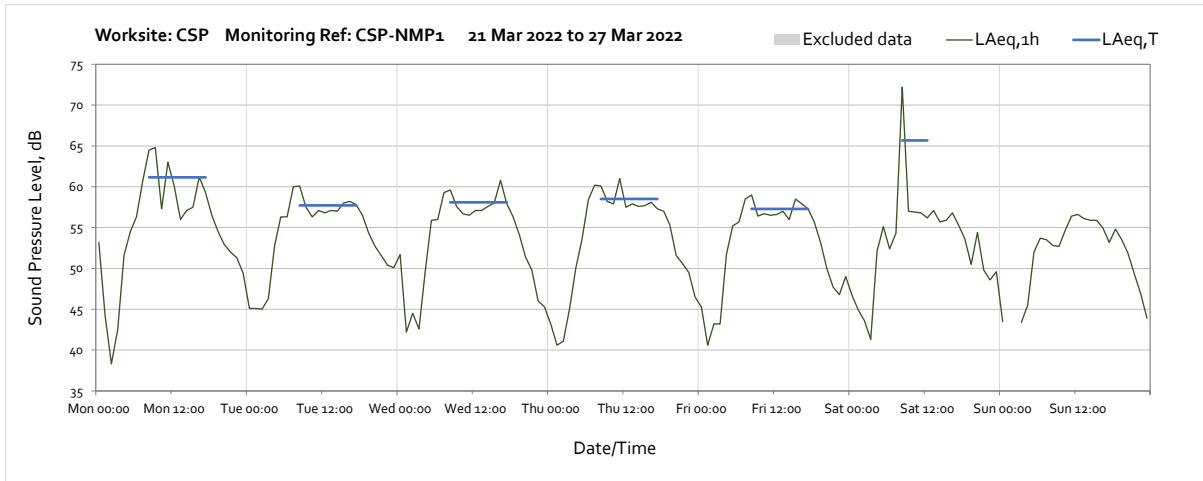


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time

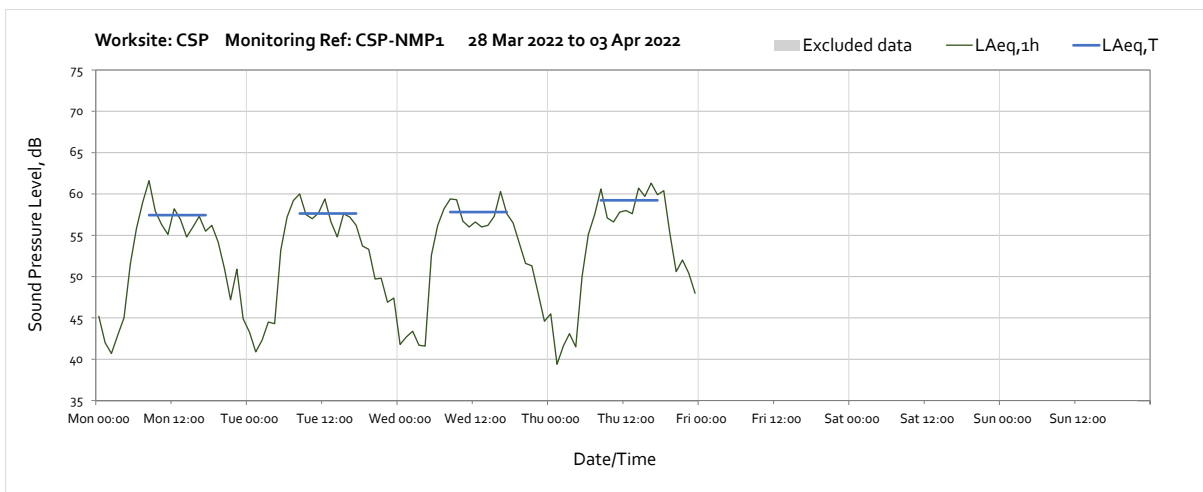


Worksite: CSP – Monitoring Ref: CSP-NMP1

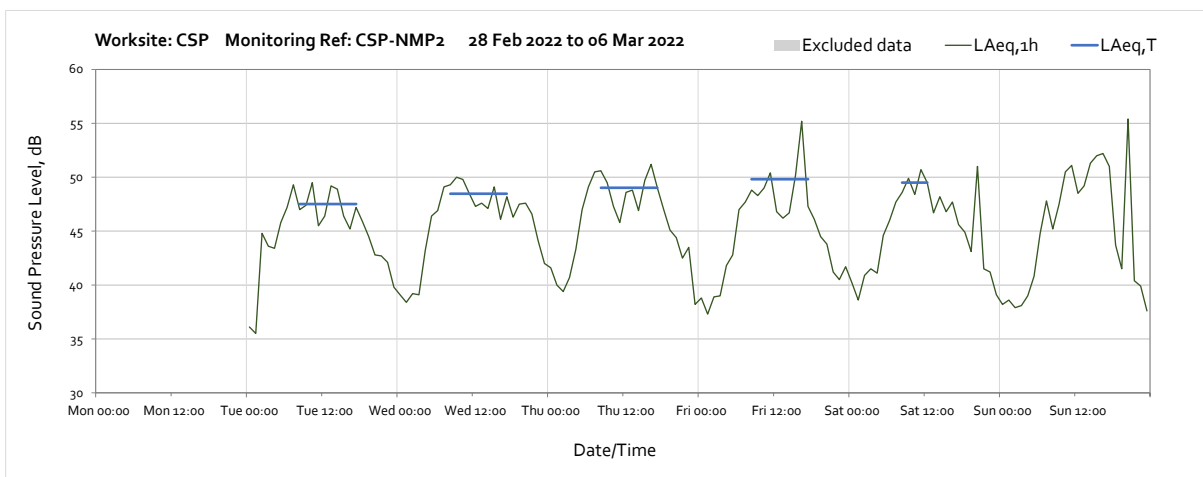


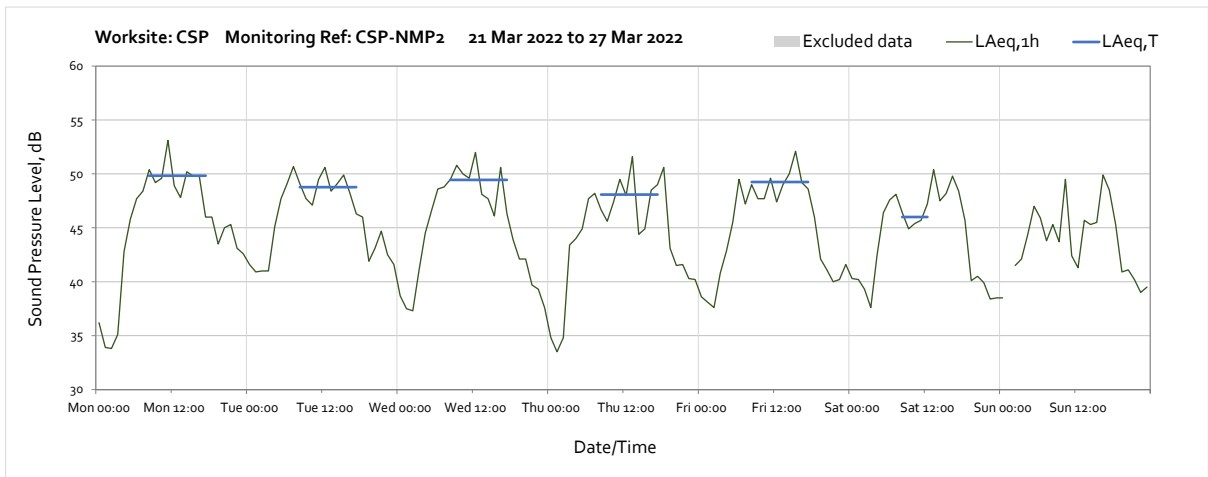
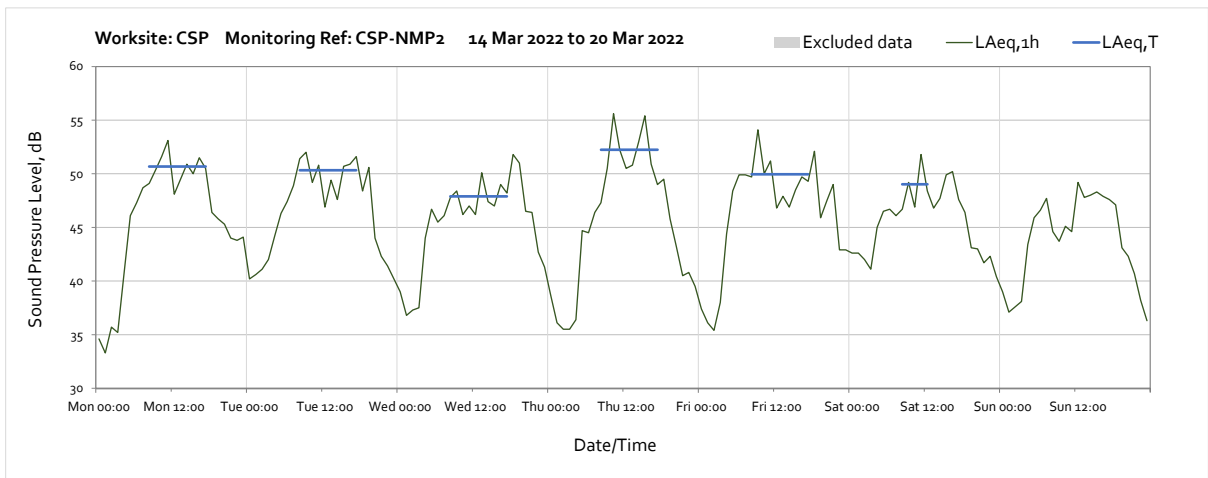
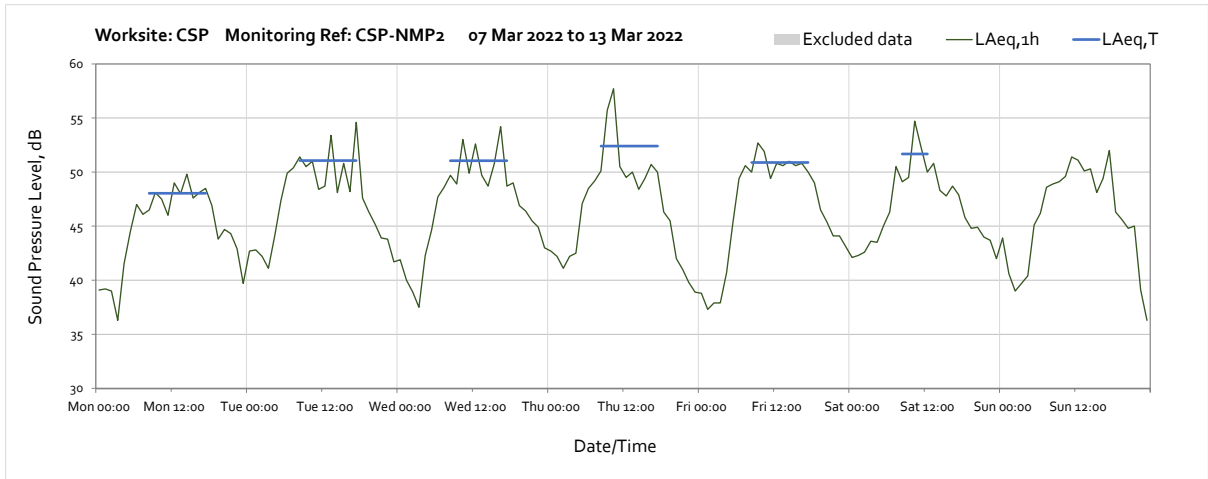


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

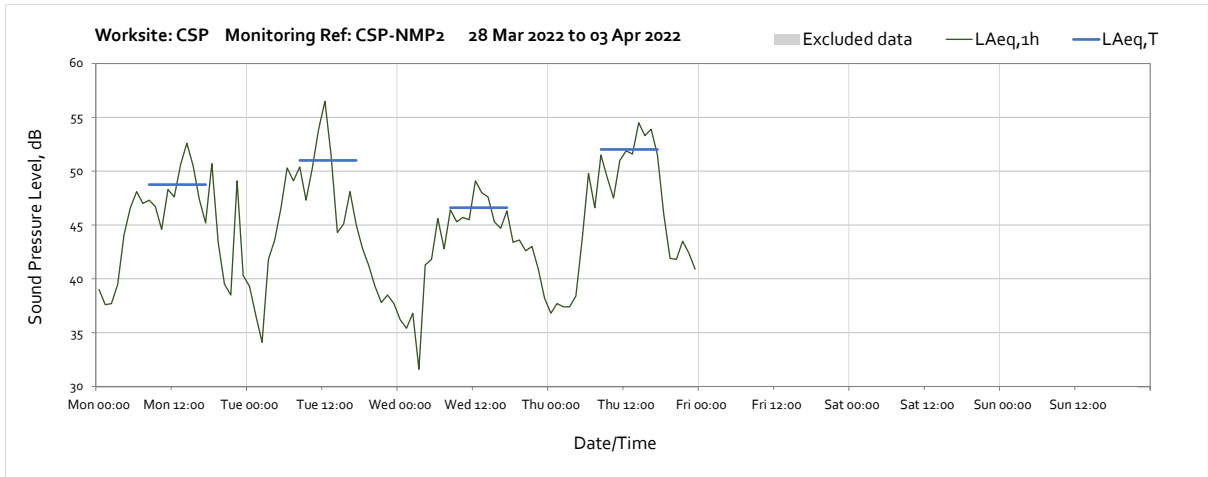


Worksite: CSP - Monitoring Ref: CSP-NMP2

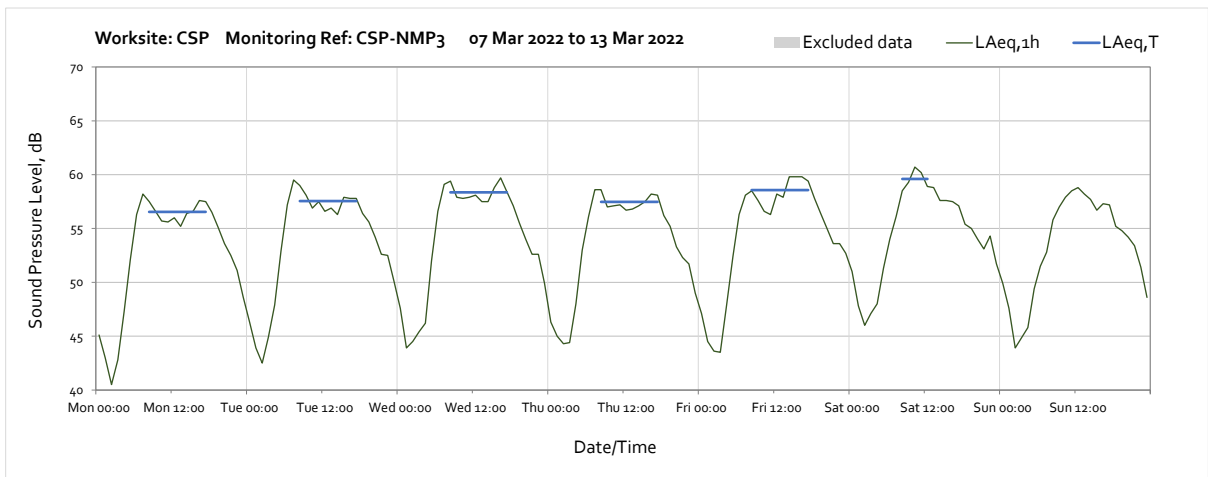
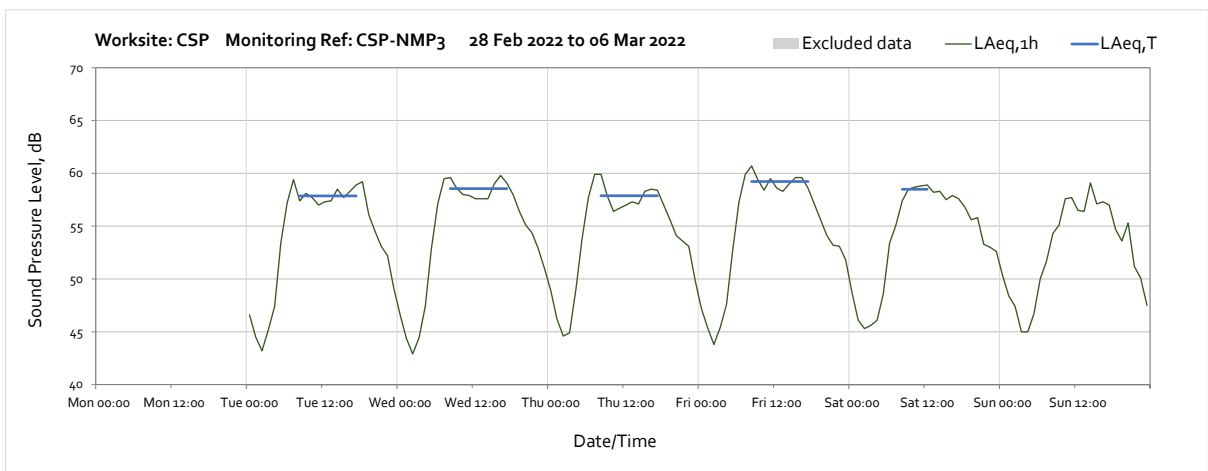


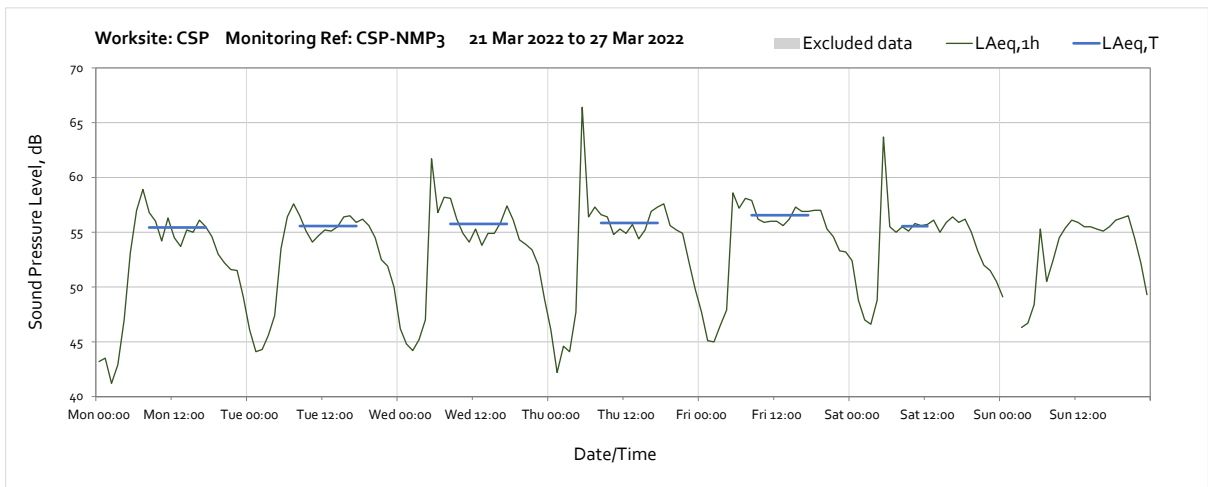
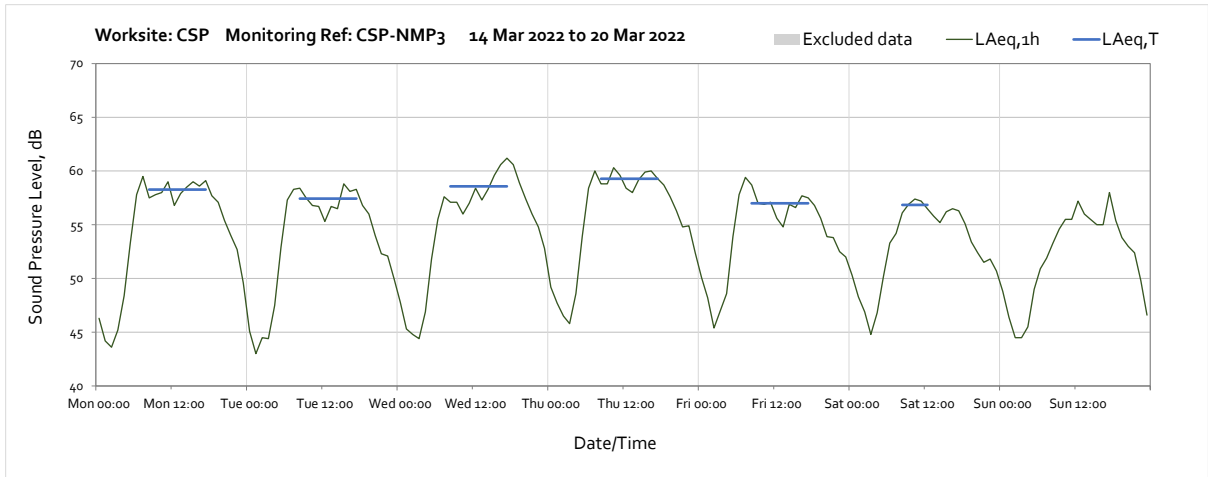


Note: Missing data at 01:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

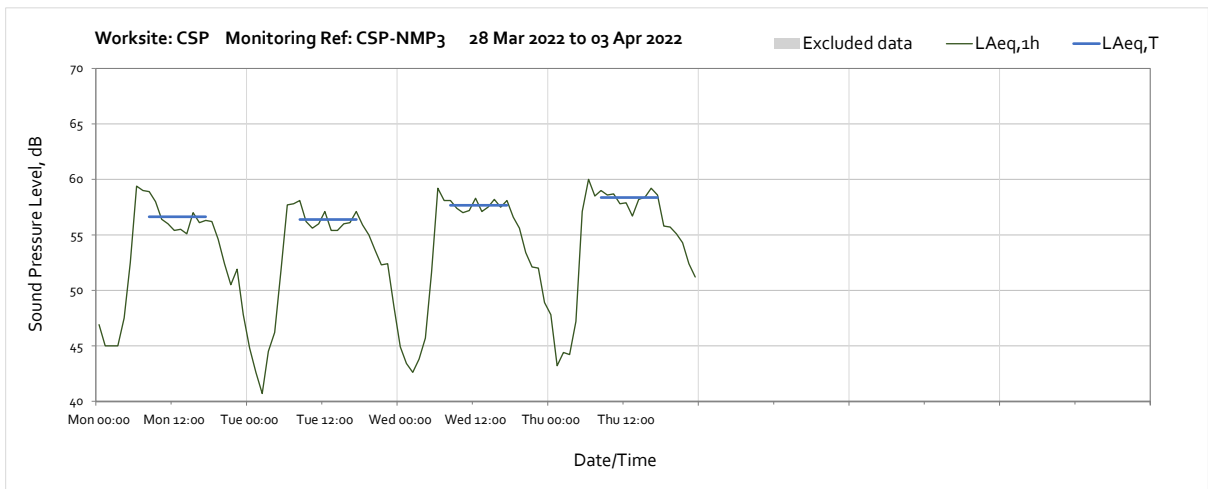


Worksite: CSP – Monitoring Ref: CSP-NMP3

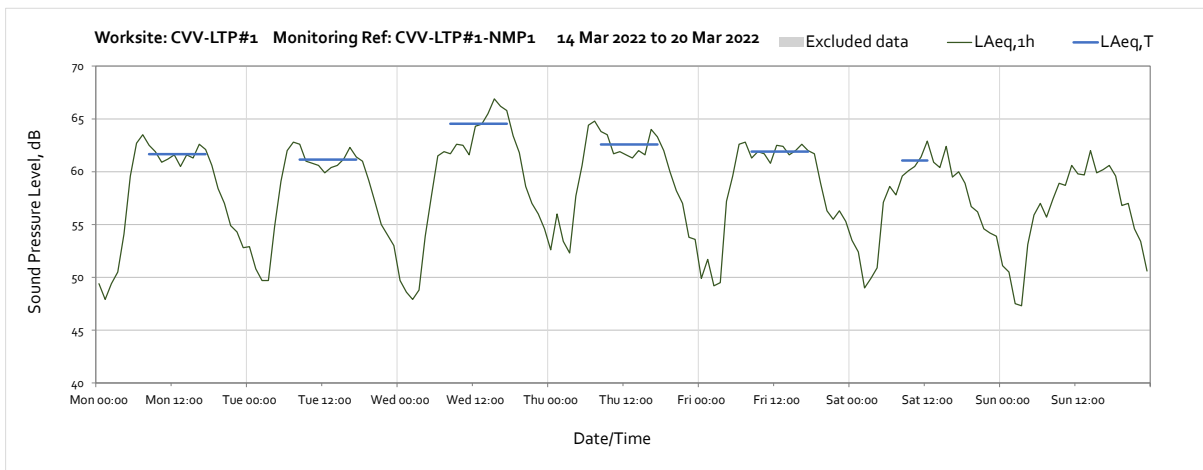
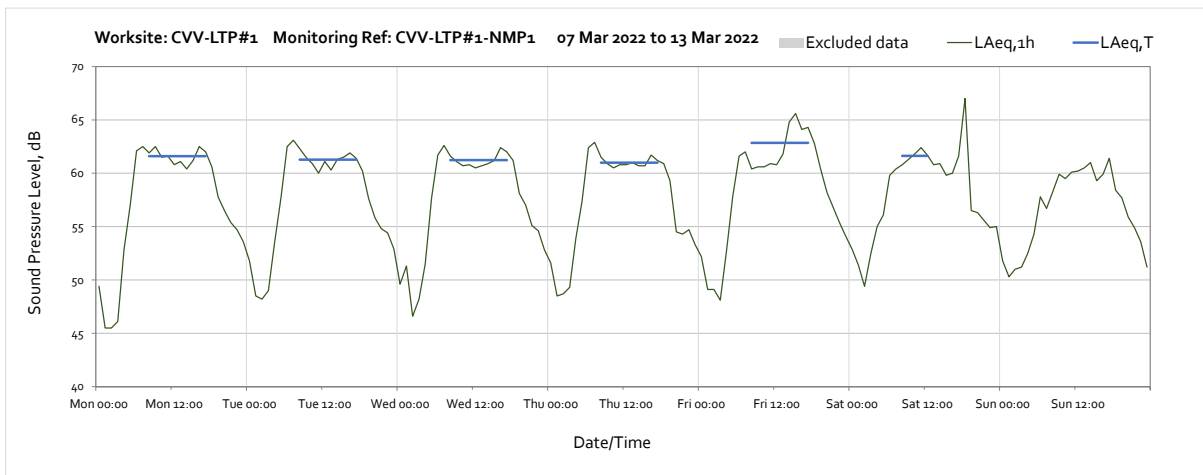
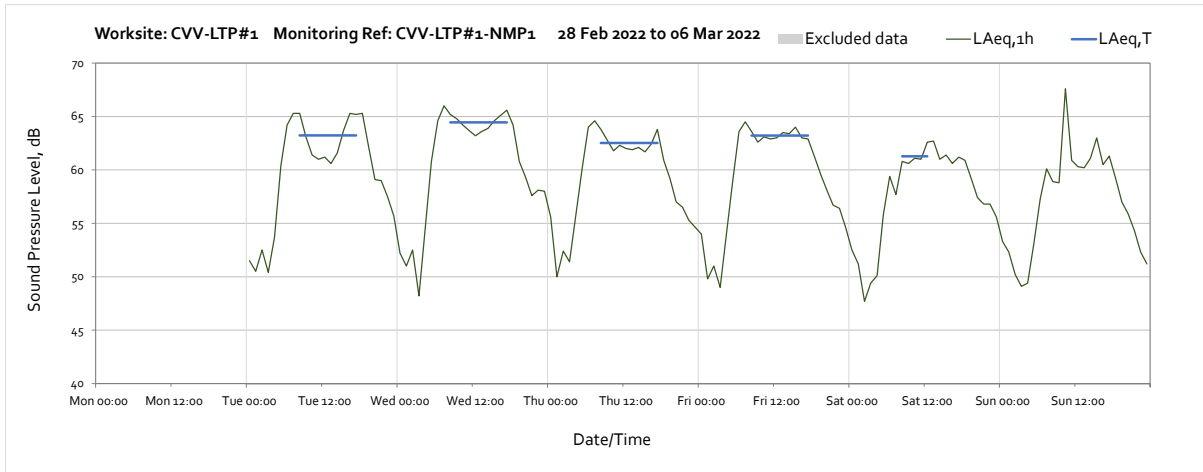


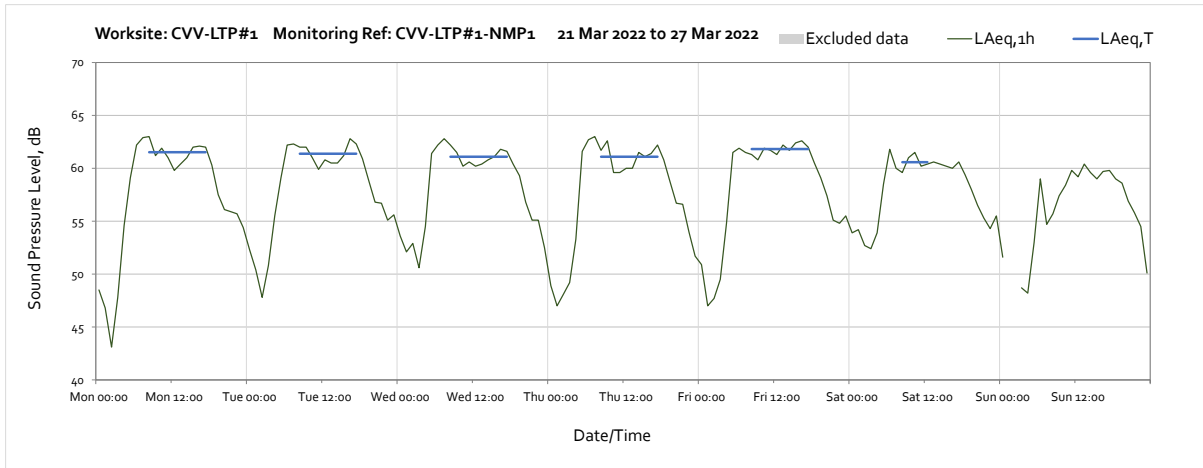


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

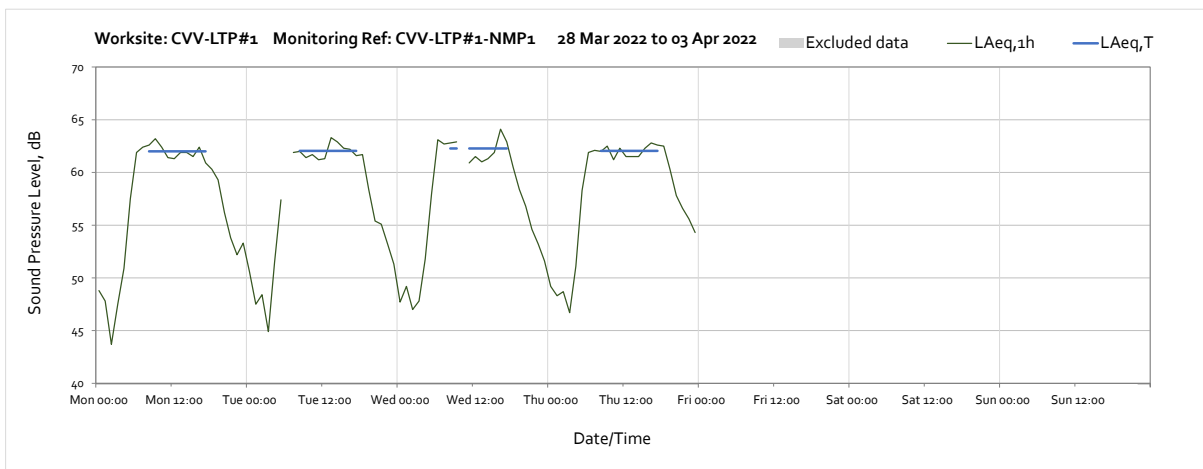


Worksite: CVV-LPT#1 – Monitoring Ref: CVV-LPT#1-NMP1



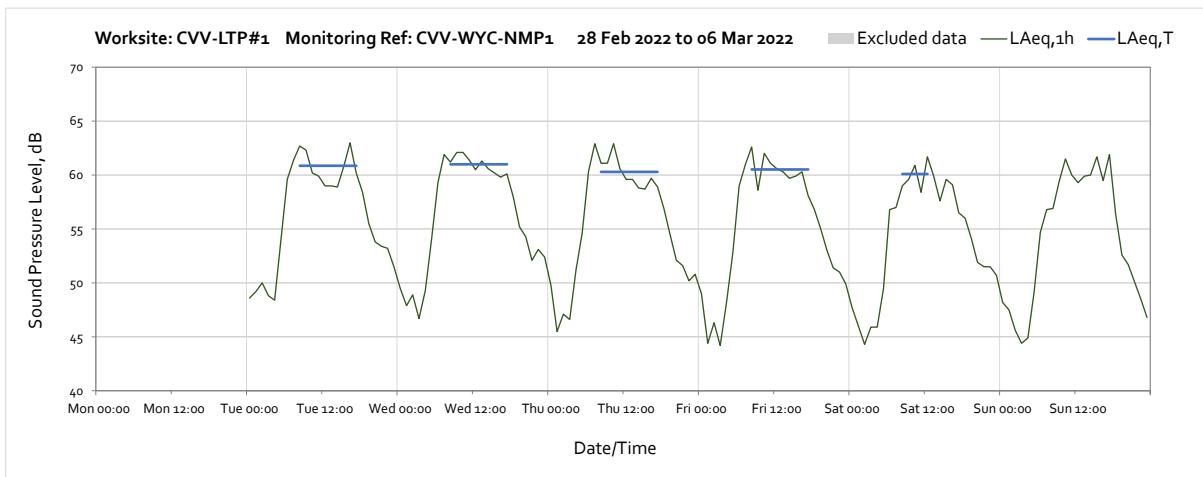


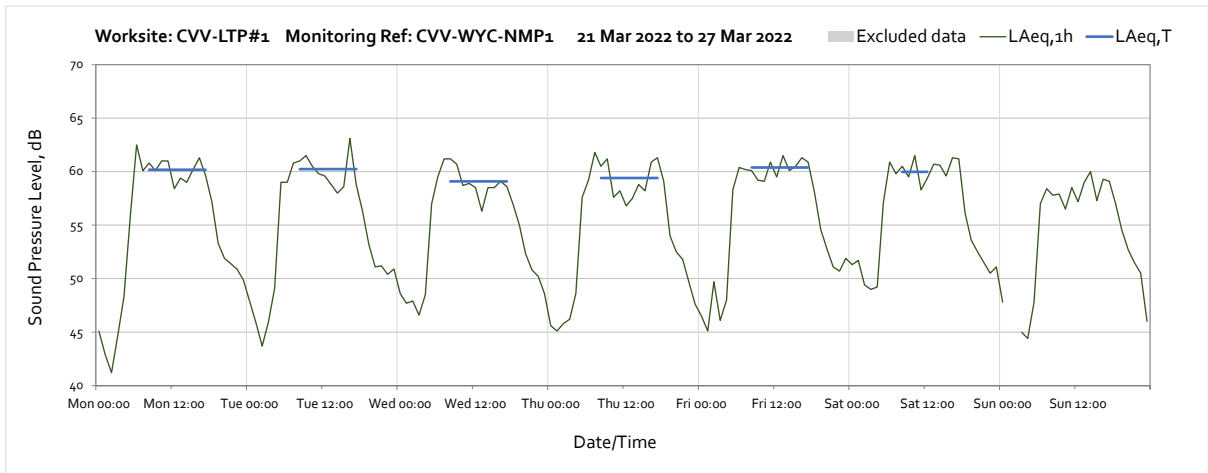
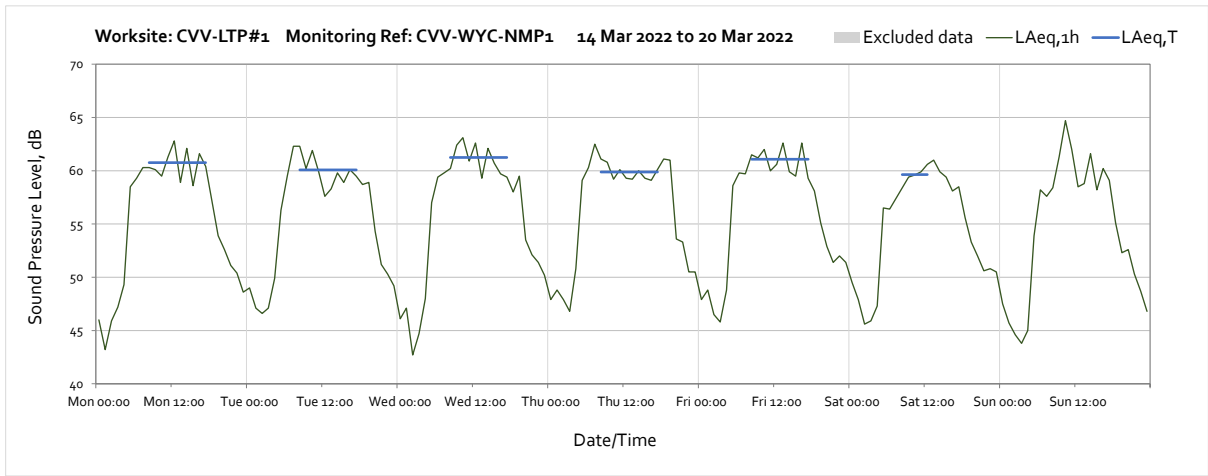
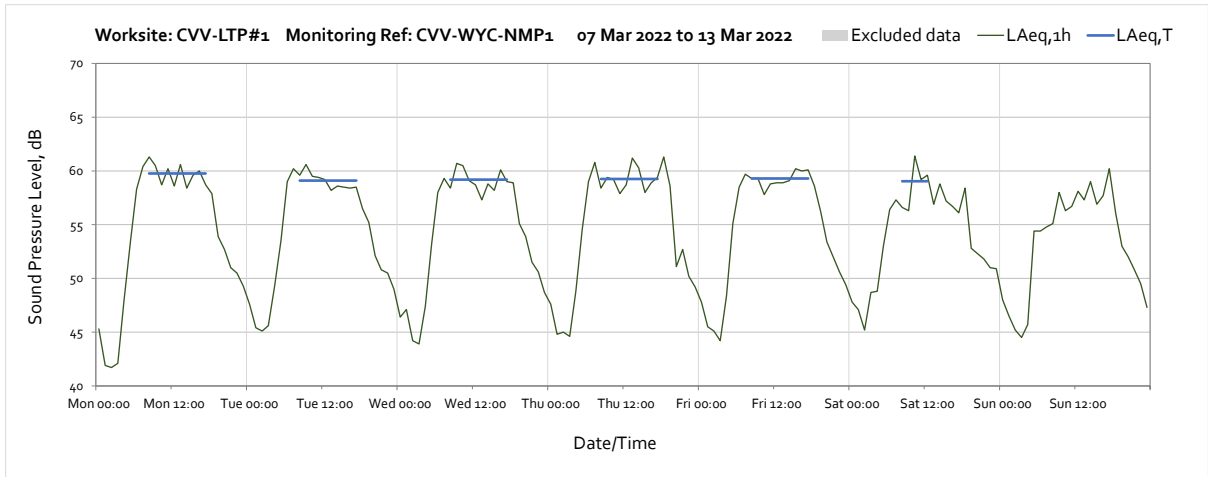
Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.



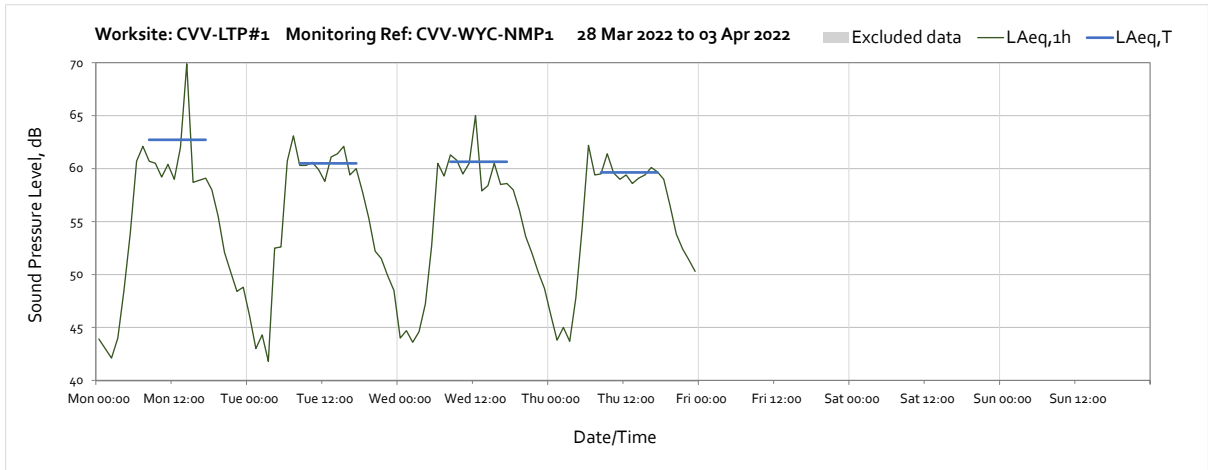
Note: Missing data throughout the week was due to loss of connection at the monitoring station.

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

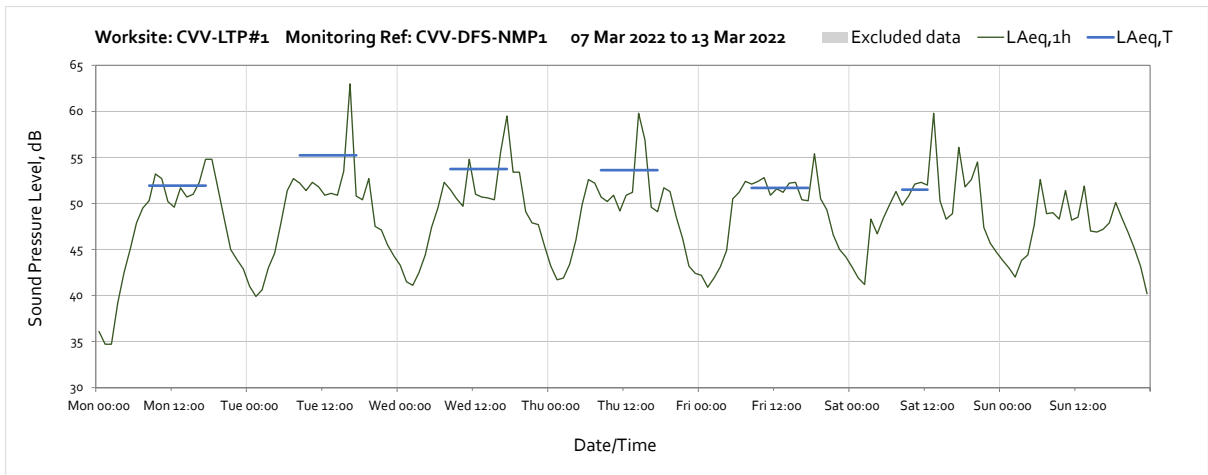
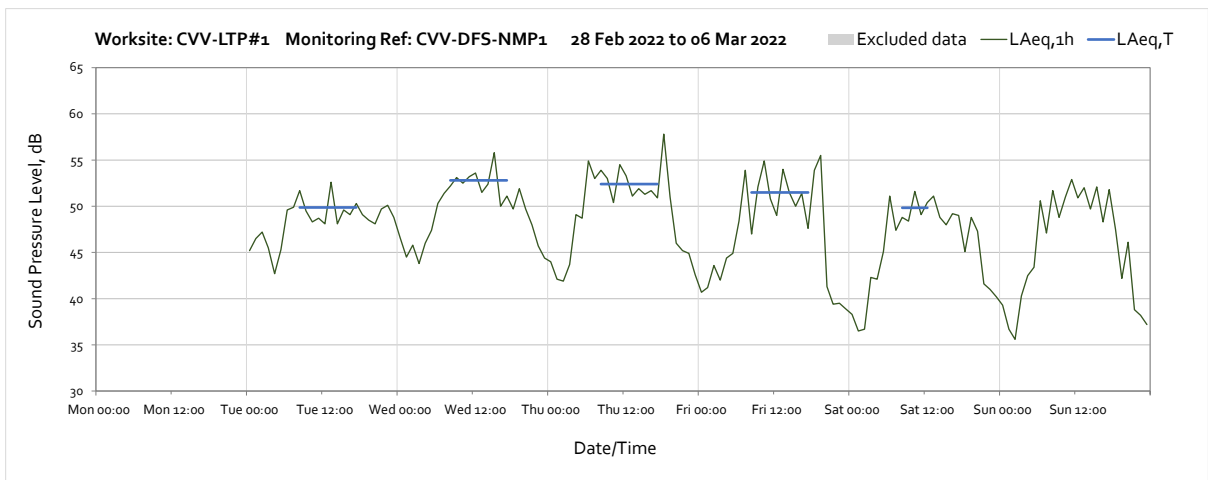


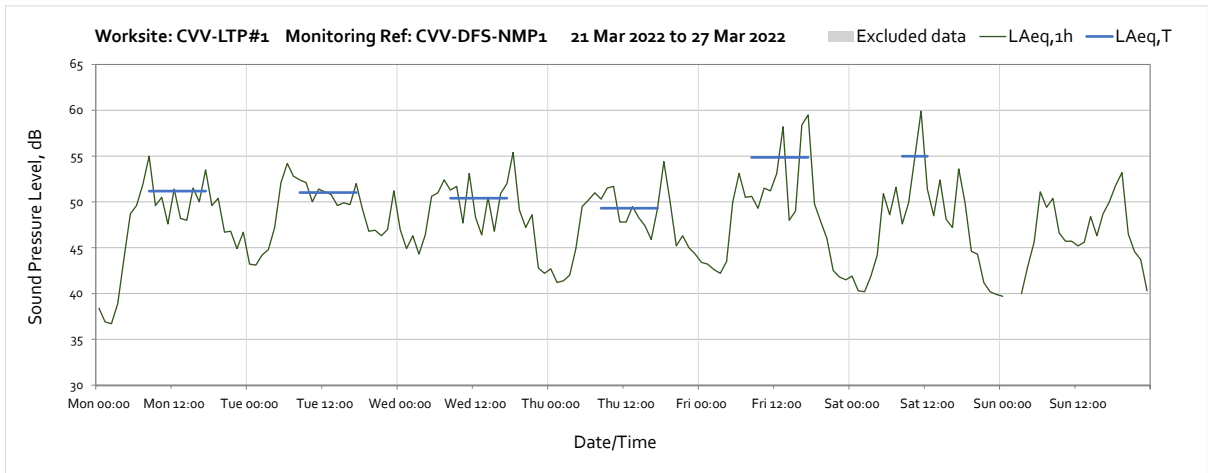
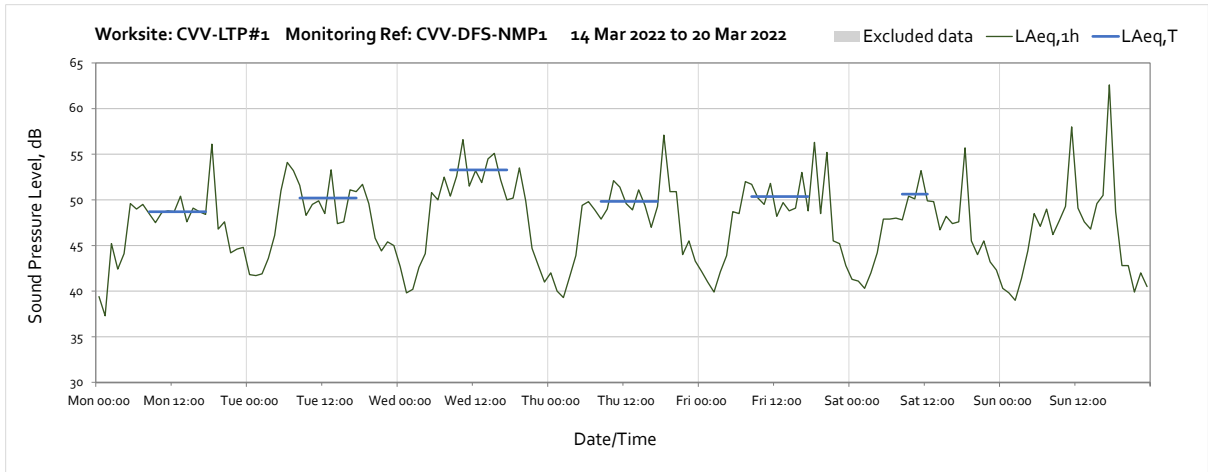


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

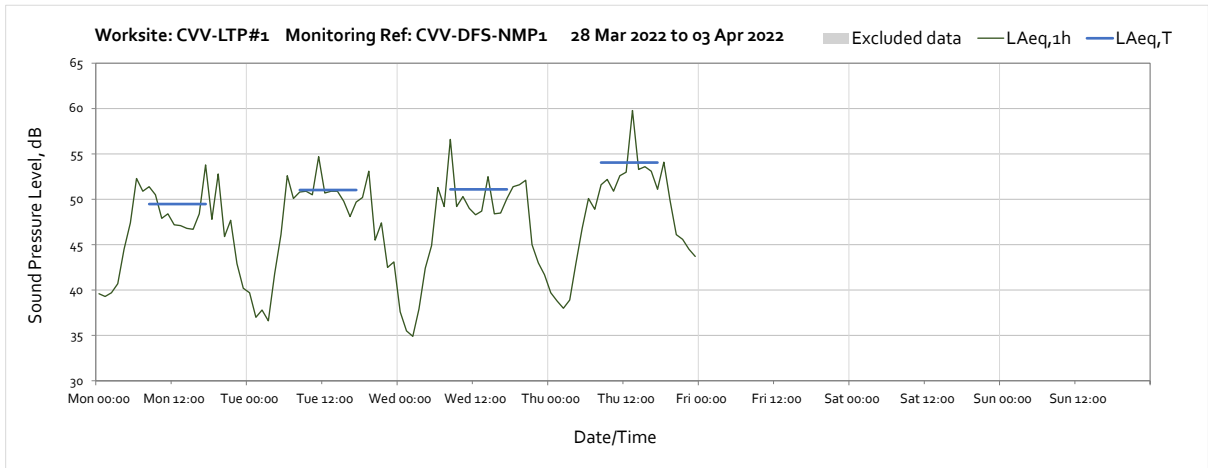


Worksite: CVV-LTP#1 - Monitoring Ref: CVV-DFS-NMP1

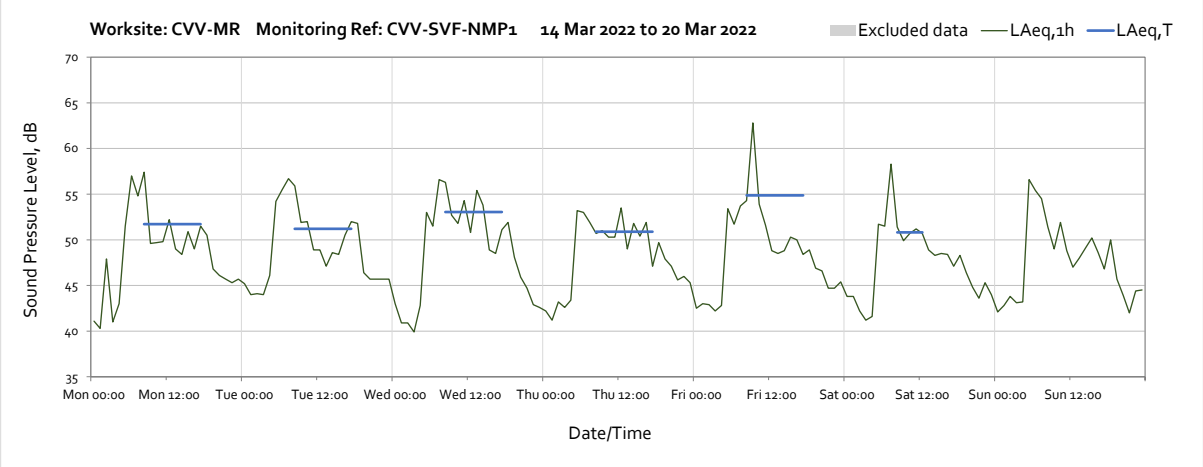
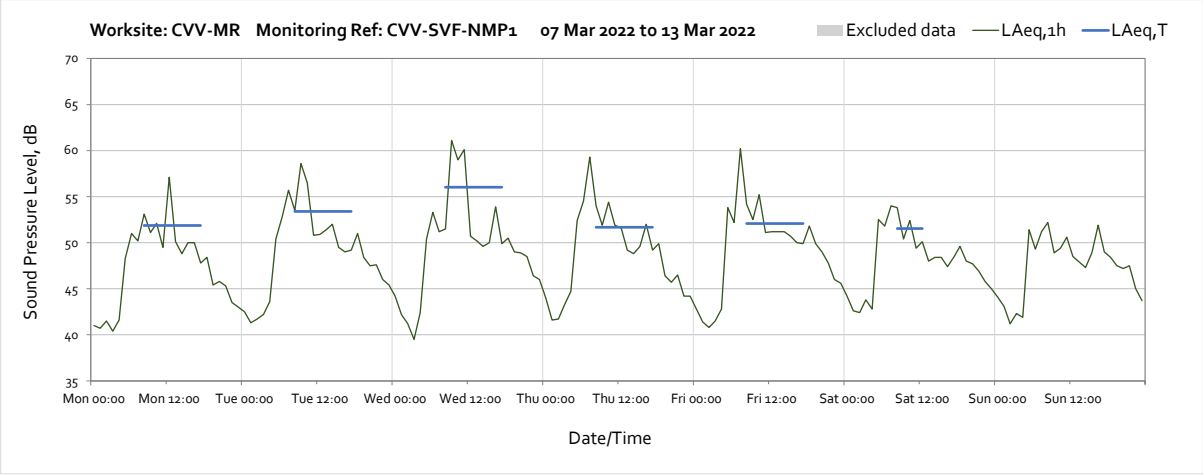
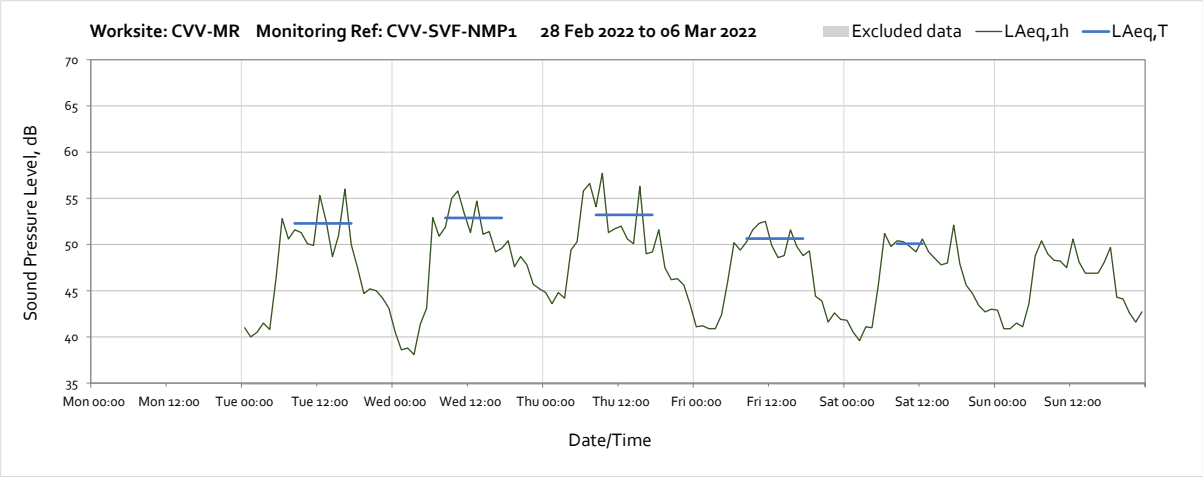


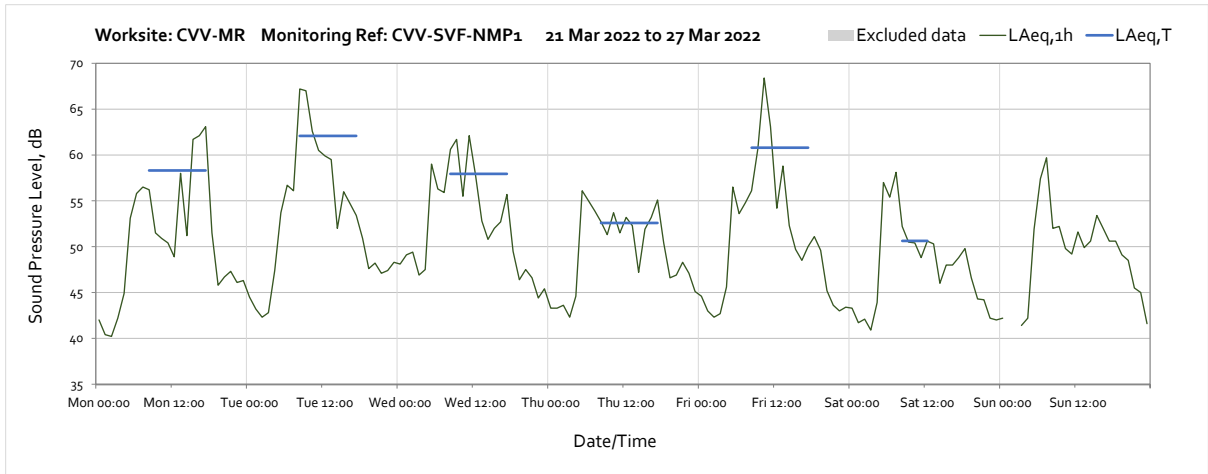


Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

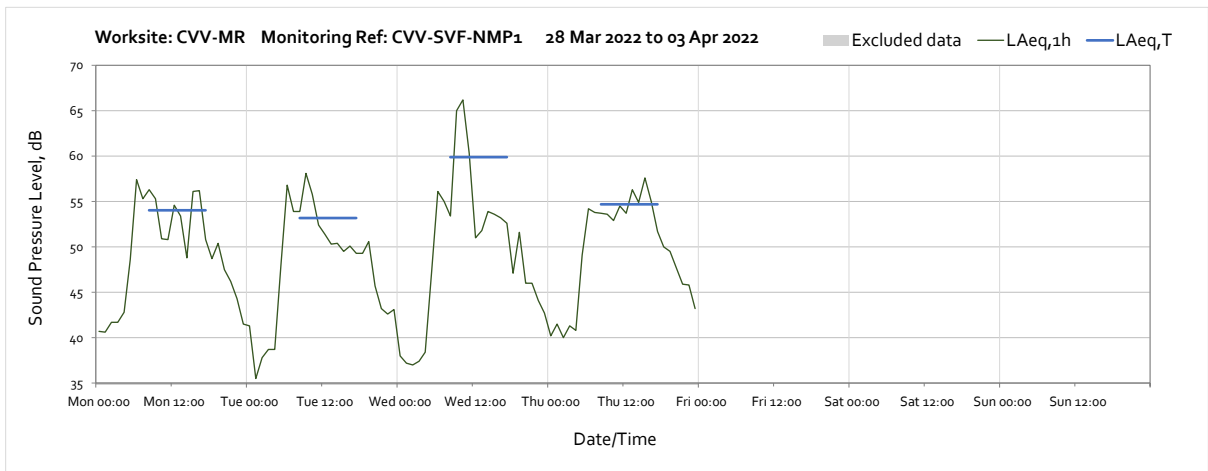


Worksite: CVV-MR – Monitoring Ref: CVV-SVF-NMP1





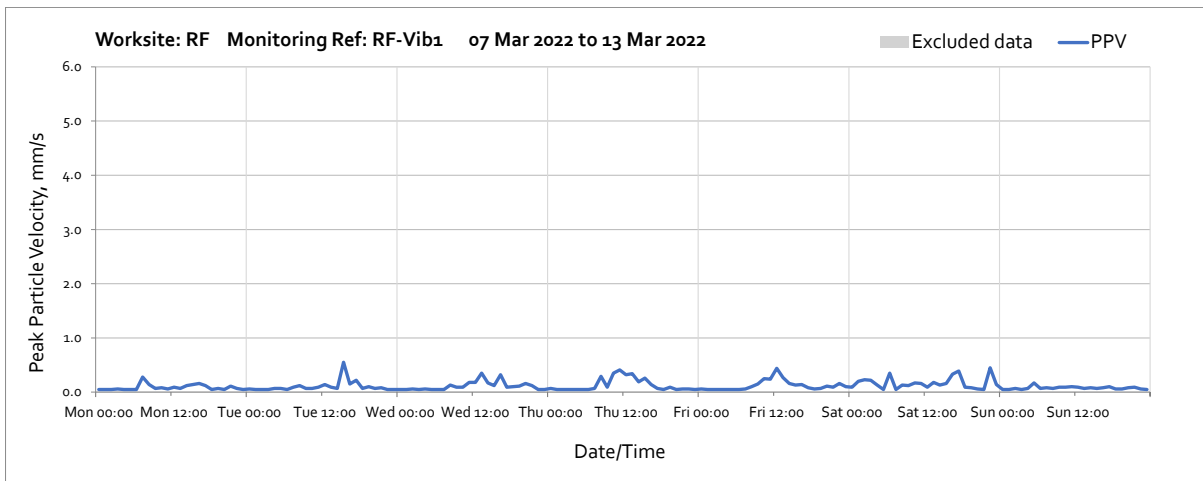
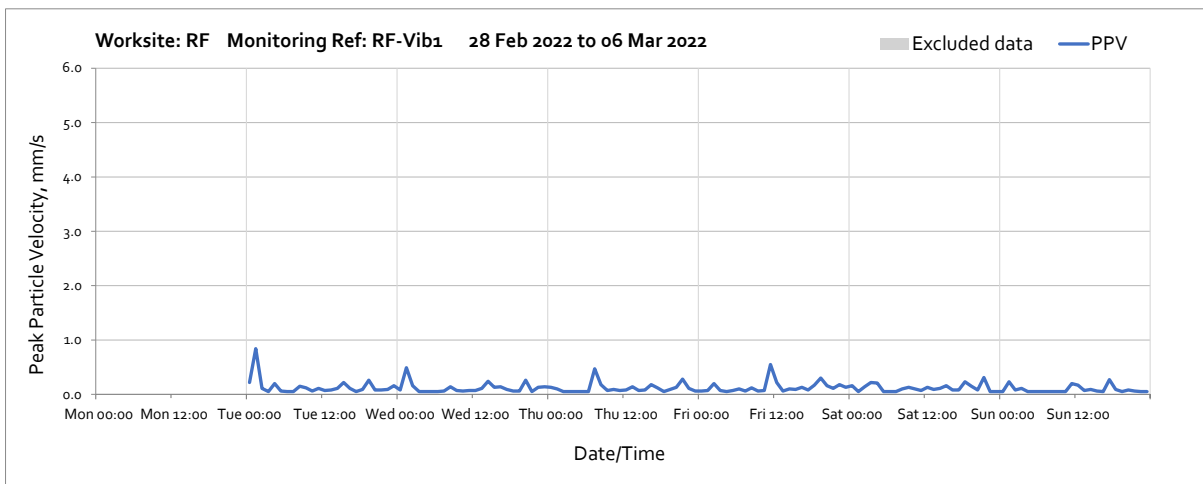
Note: Missing data between 01:00 and 02:00 on Sunday 27th March was due to the clocks going forward at the start of British Summer Time.

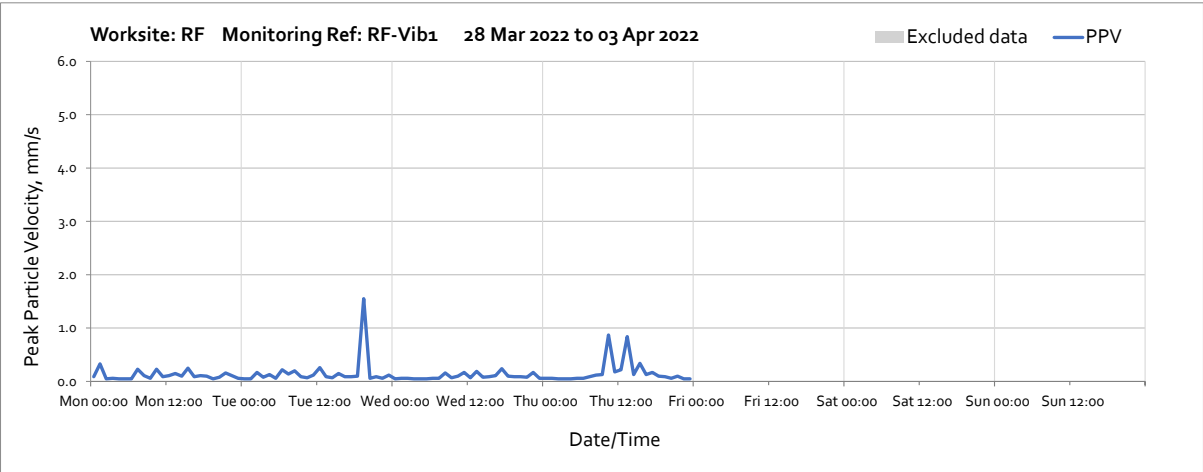
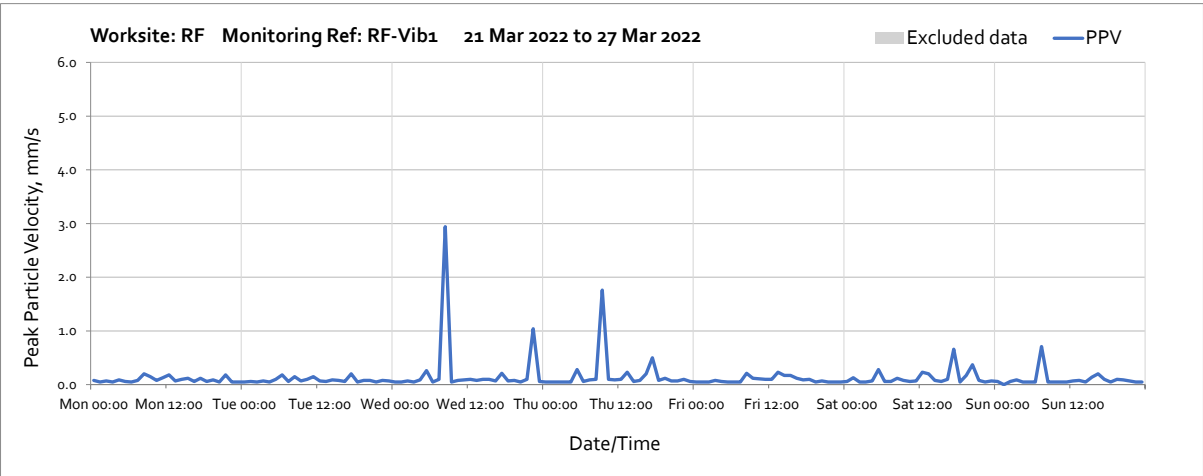
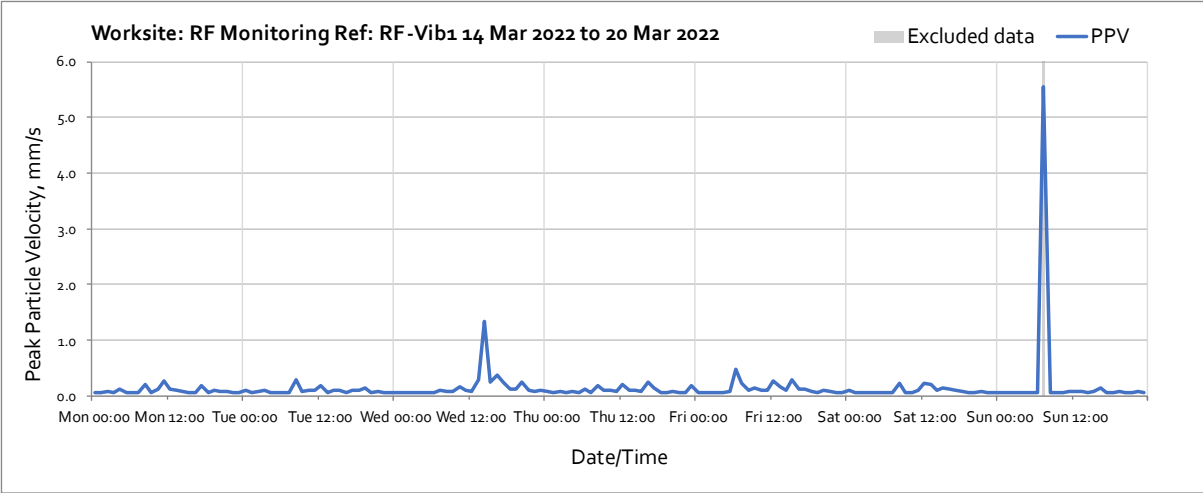


Vibration

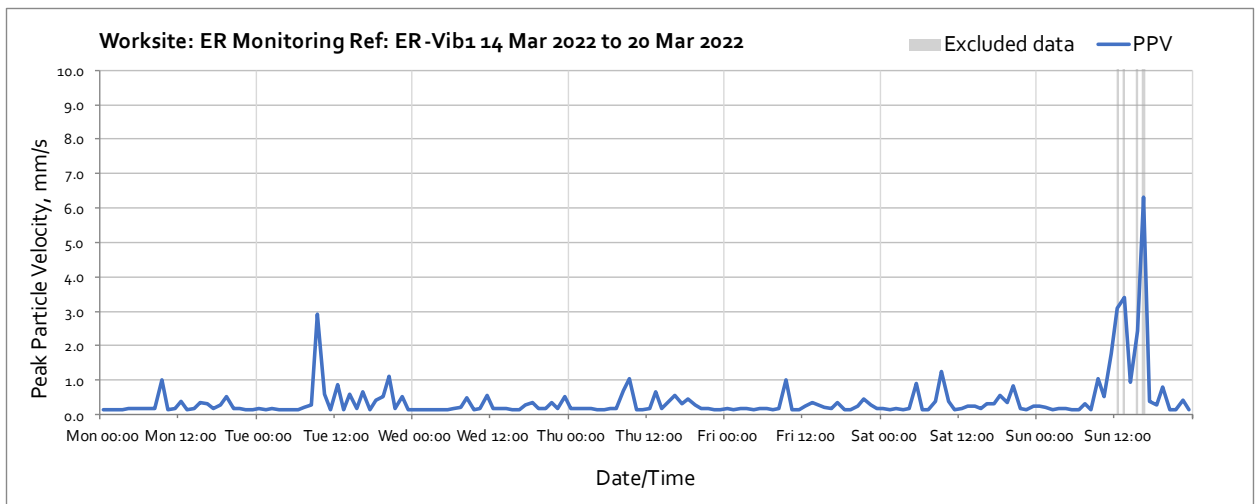
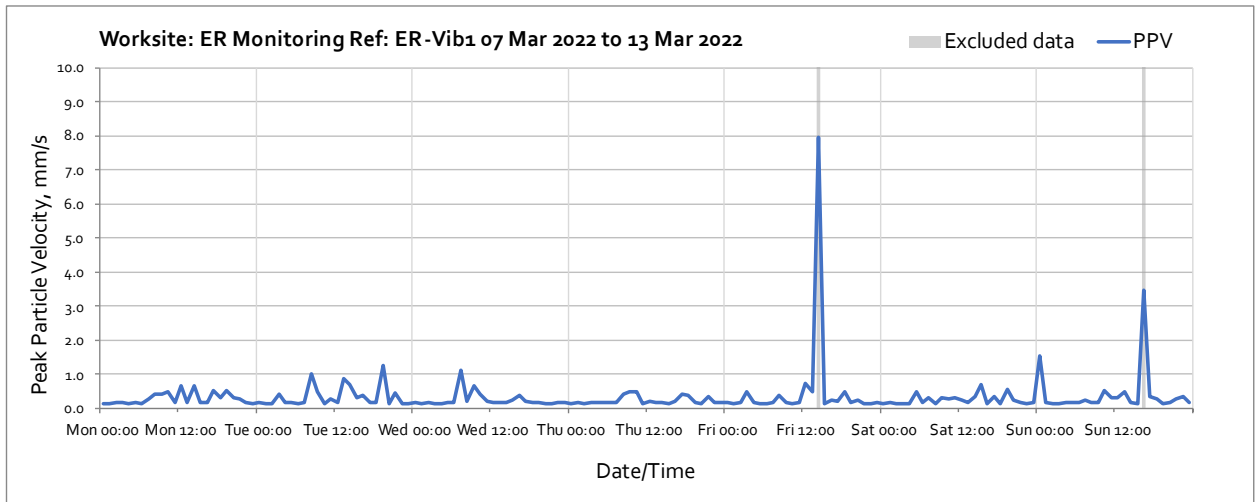
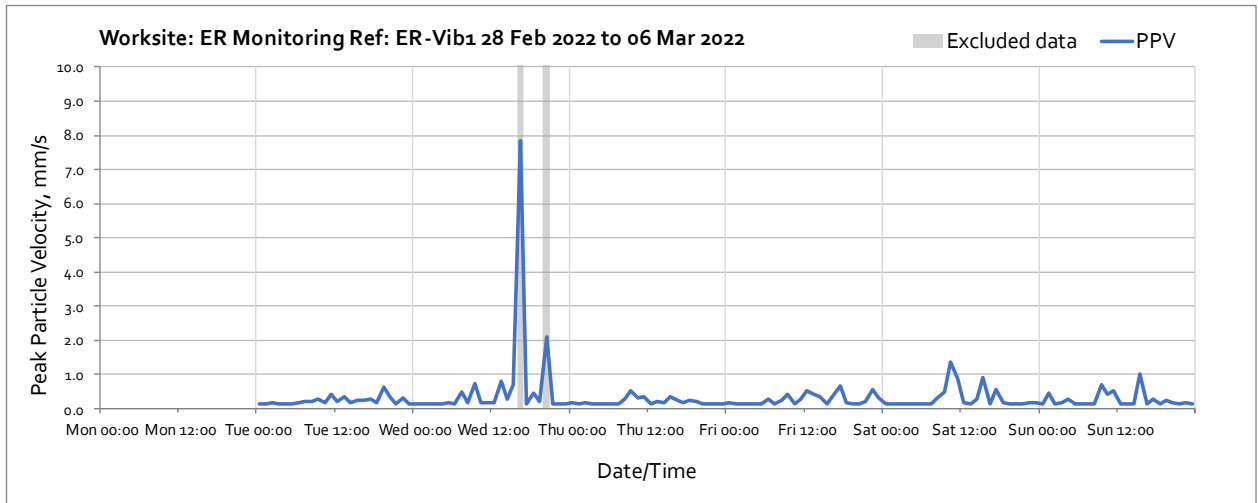
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axes x, y and z. Where high values of PPV were caused by local interference with the vibration monitor, which are not representative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

Worksite: RF – Monitoring Ref: RF-Vib 1





Worksite: ER – Monitoring Ref: ER-Vib 1



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