HS2

August 2024

Construction Noise and Vibration Monthly Report – June 2024

Buckinghamshire

List of tables

Non-Technical Summary

This Noise and Vibration Monitoring Report fulfils HS2 Limited's commitment detailed in the Environmental Minimum Requirements (EMRs), Annex 1, Code of Construction Practice, to present the results of noise monitoring carried out within Buckinghamshire (BS) during the month of June 2024.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of the A422 Turweston North worksite (ref.: A422 TN) where material movements, excavation, instrumentation and monitoring installation, crushing and screening and overbridge and viaduct construction were underway.
- Noise monitoring was undertaken in the vicinity of the School End (ref.: SE) and Hermitage Chetwode (ref.: HC) worksites where compound development, haul road maintenance, bulk excavation, topsoil stripping, fencing works, drainage works, stockpiling and vehicle movements were underway.
- Noise monitoring was undertaken in the vicinity of the Twyford worksite (ref.: TW) where site access road and haul road maintenance and operation, drainage works, culvert works, topsoil stripping, stockpiling and vehicle movements were underway.
- Noise monitoring was undertaken in the vicinity of the West Street Overbridge worksite (ref.: WSO), where pile cap works, reinforced concrete works, technical backfilling and earthworks were underway.
- Noise monitoring was undertaken in the vicinity of the Calvert worksite (ref.: CAL) where capping beam works, platform installation, operation of concrete batching plant, material movements and earthworks were underway.
- Noise monitoring was undertaken in the vicinity of the Woodlands worksite (ref.: WDL) where reinforced concrete works, culvert installation, material movements, earthworks and sheet piling were underway.
- Noise monitoring was undertaken in the vicinity of the Quainton worksite (ref.: QAR) where de-vegetation and fence installation were underway.
- Noise monitoring was undertaken in the vicinity of Oat Close worksite (ref: OC) where overbridge works, earthworks, excavation, stockpiling, waterproofing, drainage works were underway.
- Noise monitoring was undertaken in the vicinity of Waddesdon worksite (ref.: WAD) where road works and earthworks were underway.

- Noise monitoring was undertaken in the vicinity of Nash Lee Lane worksite (ref.: NLL) where surface water management, installation of safety bunds and piling platform, overbridge and culvert works, including piling and concrete pours were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Green Tunnel worksite (ref.: WGT) where utility works, de-vegetation, stockpiling, road works, construction of haul road, viewing platform and walkways, installation of fencing, culverts and bunds, crane commissioning, material deliveries and movements, grouting, operation and maintenance of slurry batching plant, excavation, Euro Dome installation and concrete processing were underway.
- Noise monitoring was undertaken in the vicinity of Grove Farm worksite (ref.: GF) where drilling, construction of haul and site access road and utility works were underway.
- Noise monitoring was undertaken in the vicinity of Small Dean Viaduct Compound worksite (ref.: SDVC) where concrete pours, installation of viaduct fins, welding, construction of launch foundations and plinths, pile cropping and stockpile movements were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref.: RLE) where earthworks, surface water management, concrete pours, steel fixing and formwork, concrete blinding were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Dean Viaduct worksite (ref.: WDV) where abutment works, welding and assembly of steel work and steel fixing were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref.: LL) where intrusive survey works were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref.: SHCW) where no works were underway.
- Noise monitoring was undertaken in the vicinity of North Portal worksite (ref.: NP) where plant operations, platform construction, piling platform reinstatement, porous portal structure works, tunnel bore machine dismantling, compound works, building construction and batching plant installation and operation were underway.
- Noise monitoring was undertaken in the vicinity of Chesham Road worksite (ref.: CHSM), where general site activities, headhouse construction and internal and external building works were underway.
- Noise monitoring was underway in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site operation, tunnel connections, steel works, zinc cladding and building construction were underway.

- Noise monitoring was underway in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site operation, external and internal works, tunnel connection, superstructure concrete works, pre-casting of boundary wall, steel, cladding and mechanical plant works were underway.
- Noise monitoring was underway in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where site operation, road maintenance, tunnel connection works and internal and external building works were underway.
- Noise monitoring was underway in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where site operation, road maintenance, tunnel connections, steel, cladding and internal and external building works were underway.
- Noise monitoring was underway in the vicinity of the Colne Valley Viaduct worksite, which is partly located in the London Borough of Hillingdon (LBH), (ref.: CVV), where jetty and haul road maintenance, operation and removal, compound operations, auto transformed feeder station works, ground investigation, pier construction, pumping water management, satellite compound welfare works, abutment works, generator farm operation, gas crossing emergency dismantling works, environmental maintenance, River Colne crossing, viaduct girder, viaduct deck, landscaping works and footbridge installation were underway.

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

- Charndon Lodge Pumping Station where technical backfill, drainage works, excavation and trench sheeting were underway.
- Infrastructure Maintenance Depot (IMD) where technical backfill and earthworks were underway.
- MCJ where stabilisation, culvert excavation and dig and replace were underway.
- Bat mitigation structure where formwork reinforced concrete works were underway.
- SLC13 where formwork reinforced concrete works were underway.
- Greatmoor Culvert where waterproofing, technical backfill and formwork reinforced concrete works were underway.
- GUN28 overbridge where formwork reinforced concrete works and technical backfilling were underway.
- QUA36 overbridge where formwork reinforced concrete and pile cap works were underway.
- Finemere Culvert where sheet piling, earthworks and excavation were underway.

- Hills Farm where stockpiling was underway.
- Doddershall Culvert where stabilisation was underway.
- Edgcott Road overbridge where girder installations were underway.
- Calvert Overbridges where pile cropping, excavation, and platform excavation works were underway.
- Addison Road where road and utility diversion works were underway.
- CAG2 where formwork reinforced concrete works were underway.
- Aylesbury Golf Course where cutting and culvert works, and utility diversion were underway.
- Thame Valley Viaduct Causeway where piling, drainage works, installation of reinforced concrete, pile cropping, and installation of formwork and beams were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Along A41 where concrete batching plant operation, earthworks, vehicle restraint system installation, highway construction, kerbing, pavement construction, signage installation and drainage works were underway.
- A418 realignment where earthworks, topsoil stripping, filling and subbase works and drainage installation were underway.
- Bowood Lane where steel fixing, shuttering, concrete pours, excavation, vegetation maintenance and stockpile relocation were underway.
- Nash Lee Road Diversion where earthworks were underway.

The HS2 threshold levels for significant noise impacts, which are defined in Information Paper E23 (https://www.gov.uk/government/publications/hs2-information-papers-environment), were exceeded three (3) times during the reporting period.

One (1) exceedance of trigger levels as defined in Section 61 consents occurred during the reporting period.

Three (3) complaints were received within the Buckinghamshire area during the monitoring period. A description of the complaints, the results of investigations and any actions taken are detailed in Table 8 of this report.

Abbreviations and Descriptions

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

Table 1: Table of Abbreviations

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

1 Introduction

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

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

1.1.2 Monitoring data and interpretive reports are to be provided to each relevant local authority on a monthly basis and shall include a summary of the construction activities occurring, the data recorded over the monitoring period, any complaints received, any periods in exceedance of agreed trigger levels, the results of any investigations and any actions taken or mitigation measures implemented. This report provides noise data, and interpretation thereof, for monitoring carried out by HS2 within the Buckinghamshire (BS) Local Authority area for the period 1st to 30th June 2024.

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

- A422 Turweston North worksite, ref.: A422 TN (see Plan 1 in Appendix A), where works activities included:
  - Material movements, including stockpile relocation.
  - Excavation.
  - Instrumentation and monitoring instillation.
  - Crushing and screening.
  - Overbridge construction.
  - Viaduct construction.
- School End worksite, ref.: SE (see Plan 2 in Appendix A) and Hermitage Chetwode Worksite ref.: HC (see plan 2 in Appendix A), where works activities included:
  - Compound development.
  - Haul road maintenance.

    - Bulk excavation.
    - Topsoil stripping.
    - Fencing works, including removal of badger fencing.
    - Drainage works, including pond maintenance.
    - Stockpiling.
    - Vehicle movements.
- Twyford worksite, ref.: TW (see Plan 2 in Appendix A), where works activities included:
    - Site access road and haul road maintenance and operation.
    - Drainage works.
    - Culvert works.
    - Topsoil stripping.
    - Stockpiling.
    - Vehicle movements.
- West Street Overbridge worksite, ref.: WSO (see Plan 2 in Appendix A), where works activities included:
    - Pile cap works.
    - Reinforced concrete works.
    - Technical backfilling.
    - Embankment earthworks.
- Calvert worksite, ref.: CAL (see Plan 3 in Appendix A) where works activities included:
    - Capping beam works.
    - Platform installation.
    - Concrete batching plant operation.
    - Material movements.
    - Earthworks, including excavation and backfilling.
- Woodlands worksite, ref.: WDL (see Plan 4 in Appendix A) where works activities included:

    - Reinforced concrete works (including formwork).
    - Culvert installation.
    - Material movements.
    - Earthworks (dig and replace).
    - Sheet piling.
- Quainton worksite, ref.: QAR (see Plan 4 in Appendix A) where works activities included:
    - De-vegetation.
    - Fence installation.
- Oat Close worksite, ref.: OC (see Plan 5 in Appendix A), where works activities included:
    - Overbridge works, including piling, formwork reinforced concrete works and beam installation.
    - Earthworks.
    - Excavation.
    - Stockpiling.
    - Waterproofing.
    - Drainage works, including manhole works.
- Waddesdon worksite, ref.: WAD (see Plan in Appendix A), where works activities included:
    - Road works, including curbing.
    - Earthworks (Excavation and topsoil stripping).
- Nash Lee Lane worksite, ref.: NLL (see Plan 6 in Appendix A), where works activities included:
    - Surface water management.
    - Installation of safety bunds.
    - Installation of piling platform.
    - Overbridge works, including piling.
    - Culvert works, including steel works, shuttering, headwall construction and concrete pours.

- Wendover Green Tunnel worksite, ref.: WGT (see Plan 6 in Appendix A), where works activities included:
    - Utility works.
    - De-vegetation.
    - Stockpiling, including stockpile movements.
    - Road works, including stoning and kerbing.
    - Construction of haul road.
    - Construction of viewing platform.
    - Installation of fencing.
    - Crane commissioning.
    - Material deliveries and movements.
    - Grouting.
    - Commissioning, operation and maintenance of slurry batching plant.
    - Construction of walkways.
    - Installation of culverts.
    - Installation of bunds.
    - Excavation.
    - Euro Dome installation.
    - Concrete processing.
- Grove Farm worksite, ref.: GF (see Plan 7 in Appendix A), where works activities included:
    - Drilling.
    - Construction of haul and site access road.
    - Utility works.
- Small Dean Viaduct Compound worksite, ref.: SDVC (see Plan 7 in Appendix A), where works activities included:
    - Concrete pours.
    - Installation of viaduct fins.
    - Welding.

    - Construction of launch foundations.
    - Construction of plinths.
    - Pile cropping.
    - Stockpile movements.
- Rocky Lane Embankment worksite, ref.: RLE (see Plan 7 in Appendix A), where works activities included:
    - Earthworks.
    - Surface water management.
    - Concrete pours.
    - Steel fixing and formwork.
    - Concrete blinding.
- Wendover Dean Viaduct worksite, ref.: WDV (see Plan 7 in Appendix A), where works activities included:
    - Abutment works, including fixing reinforcement and concrete pours.
    - Welding and assembly of steel work.
    - Steel fixing.
- Leather Lane worksite, ref.: LL (see Plan 8 in Appendix A), where works activities included:
    - Intrusive survey works.
- South Heath Cutting worksite, ref.: SHCW (see Plan 8 in Appendix A), where no works were underway.
- North Portal worksite, ref.: NP (see Plan 8 in Appendix A), where works activities included:
    - Operation of site support plant.
    - Platform construction.
    - Piling platform reinstatement.
    - Porous portal structure works including reinforced concrete frame and concrete works.
    - Tunnel bore machine dismantling.
    - Compound works.

    - Building construction.
    - Batching plant installation and operation.
- Chesham Road worksite, ref.: CHSM (see Plan 8 in Appendix A), where works activities included:
    - General site activities.
    - Headhouse construction works, including concrete and external works.
    - Internal and external building works, including steel and cladding works.
- Little Missenden Vent Shaft worksite ref.: LM (see Plan 9 in Appendix A), where works activities included:
    - General site activities including operation of plant.
    - Tunnel connection works.
    - Steel works and zinc cladding.
    - Building construction internal and external works.
- Amersham Vent Shaft worksite, ref.: AM (see Plan 10 in Appendix A), where works activities included:
    - General site activities including operation of plant.
    - External and internal works.
    - Tunnel connection works.
    - Superstructure concrete works.
    - Pre-casting of boundary wall.
    - Steel and cladding works.
    - Mechanical plant works.
- Chalfont St Giles Vent Shaft worksite, ref.: CSG (see Plan 11 in Appendix A), where works activities included:
    - General site activities including operation of plant.
    - Road maintenance.
    - Tunnel connection works.
    - Internal and external building works.
- Chalfont St Peter Vent Shaft worksite, ref.: CSP (see Plan 12 in Appendix A), where works activities included:

- Operation of plant.
- Road maintenance.
- Tunnel connection works.
- Steel and cladding works.
- Internal and external building works.

- Colne Valley Viaduct - Load Test Pile 1 worksite, which is partly located in the London Borough of Hillingdon (LBH), ref.: CVV (see Plan 13 in Appendix A), where works activities included:
  - Jetty and haul road operation, maintenance and removal, including excavation, backfill, landscaping, cutting piles and steel works.
  - Compound operations.
  - Auto transformed feeder station works including site preparation, bulk earthworks filling, drainage works and vegetation clearance.
  - Ground investigation works.
  - Pier construction, including tower crane mobilisation and demobilisation, formwork, reinforced concrete works and post-tensioning.
  - Pumping water management.
  - Satellite compound welfare and generator farm operation.
  - Abutment works, including earthworks, piling, pile trimming and installation, early formwork reinforced concrete works and drainage.
  - Environmental maintenance.
  - River Colne crossing including emergency removal of obstruction to reinforced concrete crossing.
  - Girder and deck erection and installation, including span segmental erection, internal post-tensioning, steel structure erection and dismantling, stressing and grouting, crane assembly and dismantling.
  - Deck finishes including preparation and operation of storage yards, installation of below deck access provision, traffic management on deck surface, installation of parapets, installation of noise barriers, troughs, pipes, steel works and other minor materials to the storage yards and deck, installation of stairs, operation of support plant, construction of kerbs, construction of concrete stitch, filling of voids and top openings, waterproofing, diaphragm walls construction, abutment works, concrete works (within deck), drainage and steel works.

- Landscaping works including removal of cofferdams, earthworks, profiling and cutting, manhole chamber construction, drainage, soil placement and vegetation clearance.
- Footbridge installation.

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

- Charndon Lodge Pumping Station where technical backfill, drainage works, excavation and trench sheeting were underway.
- Infrastructure Maintenance Depot (IMD) where technical backfill and earthworks were underway.
- MCJ where stabilisation, culvert excavation and dig and replace were underway.
- Bat mitigation structure where formwork reinforced concrete works were underway.
- SLC13 where formwork reinforced concrete works were underway.
- Greatmoor Culvert where waterproofing, technical backfill and formwork reinforced concrete works were underway.
- GUN28 overbridge where formwork reinforced concrete works and technical backfilling were underway.
- QUA36 overbridge where formwork reinforced concrete and pile cap works were underway.
- Finemere Culvert where sheet piling, earthworks and excavation were underway.
- Hills Farm where stockpiling was underway.
- Doddershall Culvert where stabilisation was underway.
- Edgcott Road overbridge where girder installations were underway.
- Calvert Overbridges where pile cropping, excavation, and platform excavation works were underway.
- Addison Road where road and utility diversion works were underway.
- CAG2 where formwork reinforced concrete works were underway.
- Aylesbury Golf Course where cutting and culvert works, and utility diversion were underway.
- Thame Valley Viaduct Causeway where piling, drainage works, installation of reinforced concrete, pile cropping, and installation of formwork and beams were underway.

- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Along A41 where concrete batching plant operation, earthworks, vehicle restraint system installation, highway construction, kerbing, pavement construction, signage installation and drainage works were underway.
- A418 realignment where earthworks, topsoil stripping, filling and subbase works and drainage installation were underway.
- Bowood Lane where steel fixing, shuttering, concrete pours, excavation, vegetation maintenance and stockpile relocation were underway.
- Nash Lee Road Diversion where earthworks were underway.

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

1.2 Measurement Locations

1.2.1 Thirty-seven (37) noise and five (5) vibration monitoring installations were active in June in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in June 2024.

1.2.2 Noise monitor GH-NMP1, within the vicinity of Meadow Way and Glebe House, ref.: MW&GH, was decommissioned at the start of June.

1.2.3 Noise monitor WGT-NMP1, within the vicinity of Wendover Green Tunnel worksite, ref.: WGT, was installed on 3rd June.

1.2.4 Noise monitor PR-NMP1, within the vicinity of South Heath Cutting worksite, ref.: SHCW, was decommissioned on 3rd June.

1.2.5 Vibration monitor WDV-Vib1, within the vicinity of Wendover Dean Viaduct worksite, ref.: WDV, was decommissioned at the start of June.

1.2.6 Maps showing the positions of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
A422 TN	TN-NMP1	Turweston, Brackley
SE	SE-NMP1	School End, Chetwode
	SE-Vib1	School End, Chetwode
HC	HC-NMP1	Hermitage, Chetwode
TW	TW-NMP1	Twyford, Buckinghamshire
WSO	WSO-NMP1	West Street, Twyford
CAL	SHC-NMP1	School Hill Compound, Calvert
	BRA-Vib1	13 Brackley Lane, Calvert Village
	FCC-NMP1	Calvert South
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton
	WDL-Vib1	Station Road, Quainton
QAR	QAR-NMP2	Station Rd, Quainton
OC	MF-NMP1	Moat Farm, Marsh Lane
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
WAD	WAD-NMP1	Waddesdon, Buckinghamshire
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
WGT	ER-NMP1	Ellesborough Rd, Wendover
	ER-Vib1	Ellesborough Rd, Wendover
	BL-NMP1	Bacombe Lane, Wendover
	WT-NMP1	A413, Wendover
	WGT-NMP1	Wendover, Aylesbury
GF	GF-NMP1	Grove Farm, Wendover
	GF-Vib1	Grove Farm, Wendover
SDVC	SDVC-NMP1	Rocky Lane, Wendover
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath
SHCW	PR-NMP1	Potters Row, South Heath
NP	BFH-NMP1	Bury Farm, Great Missenden
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missenden

Worksite Reference	Measurement Reference	Address
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath
AM	AM-NMP1	Amersham Vent Shaft Worksite, Whielden Lane, Amersham
LM	LM-NMP1	Little Missenden, A413, Amersham
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
CVV*	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite, Denham Water Ski Club
	DFS-NMP1	Denham Film Studio, Uxbridge

* 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 LAeq,T (Highest Day LAeq,T)					Saturday Average LAeq,T (Highest Day LAeq,T)					Sunday / Public Holiday Average LAeq,T (Highest Day LAeq,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	48.3	52.3	48.6	45.5	45.2	45.8	54.6	51.2	47.8	44.0	47.5	45.0
				(53.4)	(59.3)	(57.8)	(49.8)	(56.1)	(46.2)	(57.8)	(54.4)	(57.8)	(48.1)	(52.1)	(49.6)
SE	SE-NMP1	School End, Chetwode	Free-field	54.5	62.0	45.4	42.3	39.3	50.5	52.0	49.9	48.6	39.0	45.8	39.5
				(61.6)	(65.0)	(55.0)	(52.0)	(46.3)	(58.1)	(56.8)	(55.4)	(61.4)	(46.3)	(60.4)	(46.8)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	53.0	58.8	48.8	46.2	45.3	51.4	52.4	52.1	50.0	47.3	46.6	44.6
				(56.2)	(61.4)	(56.4)	(54.2)	(52.9)	(53.5)	(54.8)	(56.5)	(56.4)	(61.1)	(52.8)	(51.1)
TW	TW-NMP1	Twyford	Free-field	48.9	53.5	46.9	46.0	45.1	47.3	58.6	56.8	48.5	44.2	46.6	44.0
				(60.8)	(62.8)	(57.7)	(57.8)	(64.4)	(50.5)	(71.2)	(72.4)	(58.5)	(48.9)	(52.0)	(54.3)
WSO	WSO-NMP1	West Street, Twyford	Free-field	49.5	56.2	50.0	47.9	45.3	48.7	52.9	53.3	51.8	46.9	49.6	41.2
				(56.5)	(64.6)	(68.5)	(65.2)	(59.1)	(54.0)	(63.8)	(68.9)	(65.6)	(64.3)	(61.6)	(50.7)
CAL	SHC-NMP1	School Hill Compound, Calvert	Free-field	55.7	61.3	48.8	48.2	46.5	49.4	55.2	55.2	47.6	42.0	44.7	42.7
				(59.5)	(63.9)	(55.8)	(74.8)	(55.6)	(57.8)	(62.7)	(69.3)	(61.6)	(49.6)	(52.5)	(54.6)
	FCC-NMP1	Calvert South	Free-field	50.3	51.8	46.8	45.9	42.6	44.1	48.1	47.6	45.3	41.7	43.8	43.2
				(57.3)	(54.8)	(51.3)	(56.2)	(52.3)	(48.9)	(50.3)	(52.5)	(52.0)	(50.9)	(50.4)	(50.4)
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Free-field	62.8	68.1	50.1	45.1	44.5	54.7	56.8	55.9	49.9	42.0	55.9	42.2
				(66.5)	(70.3)	(55.4)	(56.2)	(54.6)	(57.5)	(61.6)	(67.0)	(58.2)	(50.0)	(69.6)	(51.8)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average LAeq,T (Highest Day LAeq,T)					Saturday Average LAeq,T (Highest Day LAeq,T)					Sunday / Public Holiday Average LAeq,T (Highest Day LAeq,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
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	54.3	55.2	52.1	48.7	47.1	53.3	56.0	56.5	52.0	45.3	51.2	46.9
				(59.2)	(70.1)	(58.8)	(56.9)	(57.9)	(57.1)	(64.4)	(71.3)	(60.4)	(58.9)	(61.8)	(55.9)
OC	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	46.4	51.3	45.3	43.6	42.1	42.5	48.9	45.7	45.0	42.8	45.6	38.6
				(58.1)	(68.2)	(58.5)	(49.9)	(58.0)	(45.1)	(55.3)	(52.3)	(55.9)	(58.6)	(57.1)	(45.8)
	MF-NMP1	Moat Farm, Marsh Lane	Free-field	47.7	54.6	44.2	43.9	41.1	43.6	46.4	46.0	44.2	40.5	45.1	39.3
				(60.4)	(65.3)	(51.3)	(52.8)	(54.1)	(45.7)	(50.0)	(53.6)	(50.6)	(46.2)	(58.6)	(46.7)
WAD	WAD-NMP1	Waddesdon, Buckinghamshire	Free-field	50.1	56.3	47.1	46.0	44.2	46.1	53.7	55.8	50.6	42.5	46.4	43.0
				(53.1)	(66.5)	(53.0)	(52.9)	(52.8)	(48.4)	(56.9)	(59.9)	(59.4)	(47.4)	(53.1)	(49.9)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	52.3	53.2	51.2	49.0	46.6	49.8	51.8	51.3	49.4	45.6	49.0	46.3
				(59.7)	(55.7)	(55.3)	(53.8)	(53.5)	(50.4)	(54.2)	(57.3)	(55.9)	(49.1)	(53.0)	(52.4)
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	52.8	60.5	49.8	48.1	45.4	48.7	51.7	50.3	49.5	44.5	48.3	44.7
				(56.9)	(74.9)	(53.4)	(54.2)	(53.6)	(52.2)	(54.6)	(55.9)	(60.7)	(47.5)	(58.3)	(53.5)
WGT	ER-NMP1	Ellesborough Rd, Wendover	Free-field	55.6	55.6	55.3	52.7	50.8	52.3	54.8	55.0	54.0	50.4	54.0	51.2
				(60.5)	(69.2)	(60.1)	(56.2)	(60.4)	(55.4)	(56.8)	(56.3)	(56.2)	(54.9)	(57.2)	(58.0)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	45.8	58.5	47.7	45.8	41.5	46.5	49.4	48.1	46.7	40.9	47.0	40.6
				(50.1)	(65.8)	(62.7)	(61.6)	(49.2)	(48.8)	(58.7)	(51.5)	(51.1)	(45.5)	(52.5)	(46.8)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average LAeq,T (Highest Day LAeq,T)					Saturday Average LAeq,T (Highest Day LAeq,T)					Sunday / Public Holiday Average LAeq,T (Highest Day LAeq,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
	WT-NMP1	A413, Wendover	Free-field	66.4	65.9	65.7	62.8	60.1	62.5	64.7	64.4	63.4	57.9	63.4	59.8
				(68.1)	(69.7)	(67.5)	(68.6)	(70.6)	(63.6)	(66.1)	(65.3)	(65.4)	(64.6)	(66.0)	(67.0)
	WGT-NMP1	Wendover, Aylesbury	Free-field	47.2	49.5	48.9	47.1	42.9	39.9	41.1	41.3	40.7	36.9	39.9	36.2
				(55.3)	(56.8)	(56.7)	(55.2)	(56.2)	(52.3)	(53.7)	(58.6)	(58.4)	(51.0)	(53.3)	(54.2)
GF	GF-NMP1	Grove Farm, Wendover	Free-field	51.9	55.1	48.9	48.0	46.7	51.1	50.5	49.8	50.7	47.3	49.6	45.7
				(59.2)	(68.7)	(57.0)	(56.9)	(56.7)	(54.3)	(53.9)	(52.5)	(57.9)	(53.9)	(60.5)	(53.9)
SDVC	SDVC-NMP1	Rocky Lane, Wendover	Free-field	63.1	64.0	61.3	59.8	56.8	60.2	61.9	62.0	60.7	55.7	60.2	57.1
				(66.0)	(65.5)	(62.6)	(62.2)	(63.6)	(61.9)	(63.0)	(63.7)	(62.7)	(61.2)	(62.6)	(63.7)
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	54.1	57.7	50.1	45.6	42.9	46.0	50.0	51.8	47.7	42.9	46.3	42.4
				(59.9)	(61.4)	(58.6)	(50.9)	(52.5)	(47.9)	(53.7)	(61.5)	(53.5)	(49.2)	(50.7)	(49.0)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	55.9	57.1	54.9	52.8	49.2	52.4	55.6	56.3	53.6	48.6	52.9	49.7
				(60.5)	(61.4)	(58.5)	(61.6)	(57.0)	(53.4)	(57.8)	(62.0)	(58.2)	(57.5)	(56.6)	(63.2)
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover	Free-field	51.3	53.3	49.7	47.7	46.6	49.6	51.7	52.4	49.4	47.6	48.5	46.3
				(54.8)	(56.4)	(52.7)	(58.2)	(58.5)	(53.6)	(55.1)	(64.3)	(61.7)	(59.9)	(54.5)	(55.5)
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	50.3	55.2	48.4	46.8	45.7	50.4	52.8	56.0	50.0	47.0	48.1	44.9
				(57.0)	(62.2)	(66.0)	(64.8)	(62.6)	(57.6)	(64.1)	(66.0)	(60.0)	(60.1)	(55.5)	(57.8)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	47.6	57.8	-*	-*	46.1	46.4	49.2	49.6	49.3	43.4	49.4	43.7
				(47.6)	(57.8)	-*	-*	(49.7)	(46.4)	(49.2)	(49.6)	(53.9)	(49.2)	(56.0)	(49.1)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average LAeq,T (Highest Day LAeq,T)					Saturday Average LAeq,T (Highest Day LAeq,T)					Sunday / Public Holiday Average LAeq,T (Highest Day LAeq,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
NP	BFH-NMP1	Bury Farm, Great Missenden	Free-field	43.7	47.8	44.8	44.7	43.8	43.8	47.2	48.6	44.7	44.5	45.0	42.7
				(47.5)	(54.5)	(51.5)	(53.0)	(53.7)	(46.7)	(49.7)	(62.5)	(49.6)	(57.3)	(50.5)	(52.1)
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	50.6	52.6	48.6	48.6	47.1	51.3	53.3	52.1	49.1	48.6	50.3	48.3
				(54.1)	(59.0)	(53.7)	(56.7)	(56.0)	(54.6)	(56.1)	(64.4)	(59.3)	(57.4)	(58.7)	(59.0)
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Free-field	47.8	51.4	48.0	46.0	45.1	47.0	49.4	51.0	48.3	45.8	49.2	43.7
				(50.4)	(66.2)	(54.0)	(53.0)	(72.9)	(47.7)	(51.0)	(63.8)	(60.2)	(62.7)	(58.9)	(53.0)
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	56.3	56.2	54.9	52.0	47.9	52.0	56.0	55.7	53.3	48.2	59.3	48.5
				(58.1)	(58.5)	(56.8)	(54.6)	(57.7)	(53.2)	(56.9)	(60.5)	(56.5)	(57.7)	(75.6)	(55.1)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	60.7	62.7	59.2	57.1	52.7	57.1	60.5	59.0	57.8	52.0	57.8	52.5
				(62.1)	(69.0)	(60.3)	(59.9)	(60.0)	(58.0)	(61.5)	(60.2)	(59.8)	(55.9)	(61.7)	(59.4)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	51.0	51.8	51.4	49.4	45.1	47.7	51.0	50.3	49.3	44.9	49.0	44.3
				(54.8)	(55.8)	(55.5)	(53.3)	(55.4)	(50.4)	(54.4)	(53.1)	(55.8)	(53.1)	(53.1)	(51.6)
	PWC-NMP1	Patricia Holmes, LM Worksite, Amersham	Free-field	59.2	58.9	59.6	56.2	53.0	55.4	58.1	58.0	56.8	53.1	57.0	52.7
				(60.8)	(63.9)	(68.8)	(58.9)	(60.0)	(56.3)	(59.6)	(58.7)	(60.0)	(65.9)	(62.2)	(58.8)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average LAeq,T (Highest Day LAeq,T)					Saturday Average LAeq,T (Highest Day LAeq,T)					Sunday / Public Holiday Average LAeq,T (Highest Day LAeq,T)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
CSG	CSG-NMP1	CSG Worksite, Bottom House Farm Lane	Free-field	51.1 (57.3)	52.2 (61.6)	48.3 (51.4)	46.1 (54.7)	50.5 (80.9)	56.7 (70.9)	52.2 (55.1)	49.7 (51.1)	47.8 (57.6)	54.3 (81.8)	51.7 (59.4)	48.8 (70.7)
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter	Free-field	58.6 (60.8)	57.2 (59.1)	56.7 (63.0)	53.9 (60.5)	50.1 (58.6)	54.6 (57.4)	57.1 (57.9)	58.3 (62.9)	57.1 (66.8)	50.5 (58.8)	55.0 (59.2)	50.8 (62.6)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	46.5 (49.0)	49.5 (54.6)	47.8 (52.8)	45.7 (51.0)	42.3 (50.3)	45.6 (48.5)	50.3 (52.0)	49.4 (51.7)	48.1 (55.1)	42.8 (52.5)	48.6 (53.0)	42.0 (48.4)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	56.7 (58.8)	56.0 (57.6)	56.1 (57.2)	54.0 (56.9)	51.9 (65.1)	53.5 (54.1)	56.6 (57.2)	56.1 (57.2)	55.1 (57.5)	52.0 (64.7)	55.1 (59.2)	51.5 (65.6)
CVV	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	61.4 (62.5)	59.8 (60.5)	59.3 (62.0)	57.2 (62.8)	55.4 (62.3)	56.6 (57.7)	60.4 (62.5)	59.5 (60.7)	58.3 (63.9)	53.3 (56.9)	57.5 (59.9)	55.1 (61.7)
	DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	48.5 (55.2)	50.1 (55.3)	48.9 (54.0)	47.0 (53.7)	45.9 (59.3)	50.5 (56.6)	51.3 (55.4)	50.6 (54.6)	48.7 (56.6)	46.9 (57.8)	49.2 (56.0)	46.1 (55.9)

*Noise monitor PR-NMP1 was decommissioned on 3rd June.

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

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

Worksite Reference	Measurement Reference	Monitor Address	Highest PPV measured in any axis, mm/s
SE	SE-Vib1	School End, Chetwode	1.10 (Z-axis)
WDL	WDL-Vib1	Station Road, Quainton	1.62 (X-axis)
CAL	BRA-Vib1	13 Brackley Lane, Calvert Village	2.57 (Y-axis)
WGT	ER-Vib 1	46, Ellesborough Rd, Wendover	3.34 (X-axis)
GF	GF-Vib1	Grove Farm, Wendover	1.88 (Z-axis)

2.1.3 Appendix C presents graphs of the noise and vibration monitoring data over the month for each of the measurement locations. Noise data presented consists of the hourly L_{Aeq} values and, where relevant, the $L_{Aeq,T}$ values (where the time period T has been taken to be the averaging period as specified in Table 1 of HS2 Information Paper E23). Vibration data presented consist of hourly PPV values. The full data set for the monitoring equipment can be found at the following location: https://data.gov.uk/dataset/24542ae7-dd44-444f-b259-871c4cc43b5e/environmental-monitoring-data.

2.2 Exceedances of the LOAEL and SOAEL

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

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

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

2.2.4 Where reported construction noise levels exceed the LOAEL and SOAEL at nearby receptors, relevant periods will be identified. Summary statistics to evaluate ongoing qualification for noise insulation and temporary rehousing are also presented where relevant.

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

Table 5: Summary of Exceedances of LOAEL and SOAEL

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
A422 TN	TN-NMP1	Turweston, Brackley	All days	All periods	No exceedance	No exceedance
SE	SE-NMP1	School End, Chetwode	Weekdays	0800-1800	3	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	All days	All periods	No exceedance	No exceedance
TW	TW-NMP1	Twyford	Saturday	0800-1300	1	No exceedance
WSO	WSO-NMP1	West Street, Twyford	Weekdays Saturday	0800-1800 1800-1900 1900-2200 0800-1300 1300-1400 1400-2200	3 3 3 1 1 3	No exceedance No exceedance 1 No exceedance No exceedance 1
CAL	SHC-NMP1	School Hill Compound, Calvert	All days	All periods	Not Applicable**	Not Applicable**
	FCC-NMP1	Calvert South	All days	All periods	No exceedance	No exceedance
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Weekday Saturday	0700-0800 0800-1800 0800-1300 1400-2200	19 20 1 7	No exceedance No exceedance No exceedance No exceedance
QAR	QAR-NMP2	Station Rd, Quainton	Weekday Saturday	0800-1800 0800-1300	1 1	No exceedance No exceedance
OC	MF-NMP1	Moat Farm, Marsh Lane	Weekdays	0800-1800	3	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	WES-NMP1	Westfield, Stoke Mandeville	Weekdays	0800-1800	2	No exceedance
WAD	WAD-NMP1	Waddesdon, Buckinghamshire	Weekdays	0800-1800	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	Weekdays	0800-1800	5	1
WGT	ER-NMP1	Ellesborough Rd, Wendover	Weekdays	0800-1800	1	No exceedance
	BL-NMP1	Bacombe Lane, Wendover	Weekdays	0800-1800	3	No exceedance
	WT-NMP1	A413, Wendover	Weekday Saturday	0800-1800 0800-1300	18 2	No exceedance No exceedance
	WGT-NMP1	Wendove, Aylesbury	All days	All periods	No exceedance	No exceedance
GF	GF-NMP1	Grove Farm, Wendover	Weekdays	0800-1800	2	No exceedance
SDVC	SDVC-NMP1	Rocky Lane, Wendover	All days	All periods	No exceedance	No exceedance
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
WDV	WDV-NMP1	A413, Wendover	All days	All periods	No exceedance	No exceedance
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	Saturday	0800-1300	1	No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	All days	All periods	No exceedance	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
NP	BFH-NMP1	Bury Farm, Great Missenden	Weekday Saturday Night	1900-2200 1300-1400 2200-0700	1 1 18	No exceedance No exceedance No exceedance
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Weekday Saturday Sunday Night	1900-2200 1300-1400 1400-2200 0700-2200 2200-0700	2 1 1 5 14	No exceedance No exceedance No exceedance No exceedance No exceedance
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missinden	Weekday Saturday Sunday Night	0800-1800 1300-1400 1400-2200 0700-2200 2200-0700	1 1 1 4 2	No exceedance No exceedance No exceedance No exceedance No exceedance
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	All days	All periods	No exceedance	No exceedance
AM	AM-NMP1*	Whielden Lane, Amersham	All days	All periods	Not applicable**	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	All days	All periods	Not applicable***	Not applicable***
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane	All days	All periods	No exceedance	No exceedance
	CSP-NMP2*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
CVV	CVV-NMP1*	Denham Water Ski Club, North Orbital Road	All days	All periods	Not applicable**	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	DFS-NMP1*	Denham Film Studio, Uxbridge	All days	All periods	No exceedance	No exceedance

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

** The LOAEL or SOAEL has not been assessed due to high baseline levels.

*** The LOAEL and SOAEL have not been assessed due to distance between monitoring station and nearest receptor.

2.2.6 Exceedances of the LOAEL were recorded at seventeen (17) monitoring locations during the month of June 2024. LOAEL exceedances were recorded during weekday, Saturday and Sunday daytime, evening and nighttime working periods.

2.2.7 For the purpose of reporting the number of days where the SOAEL is exceeded, multiple exceedances of the SOAEL in a 24-hour period would be counted as a single exceedance during that day. Over the reporting period, the overall number of SOAEL exceedances at each measurement location is shown in Table 6 and 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
WSO	WSO-NMP1	West Street, Twyford	2
NLL	NLL-NMP2	Nash Lee Lane, Nash Lee	1

2.2.8 Three (3) SOAEL exceedances were recorded due to HS2 construction works during June 2024. The exceedances occurred at WSO-NMP1 and NLL-NMP2 during weekday daytime and evening, and Saturday afternoon working periods.

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
-	NLL	13/06/2024 1400-1600	De-vegetation works in close proximity to the noise monitor.	83.5 dB $L_{Aeq,T}$	Subcontractor advised to use a less noisy electrical strimmer when working at locations near receptors.

2.4 Complaints

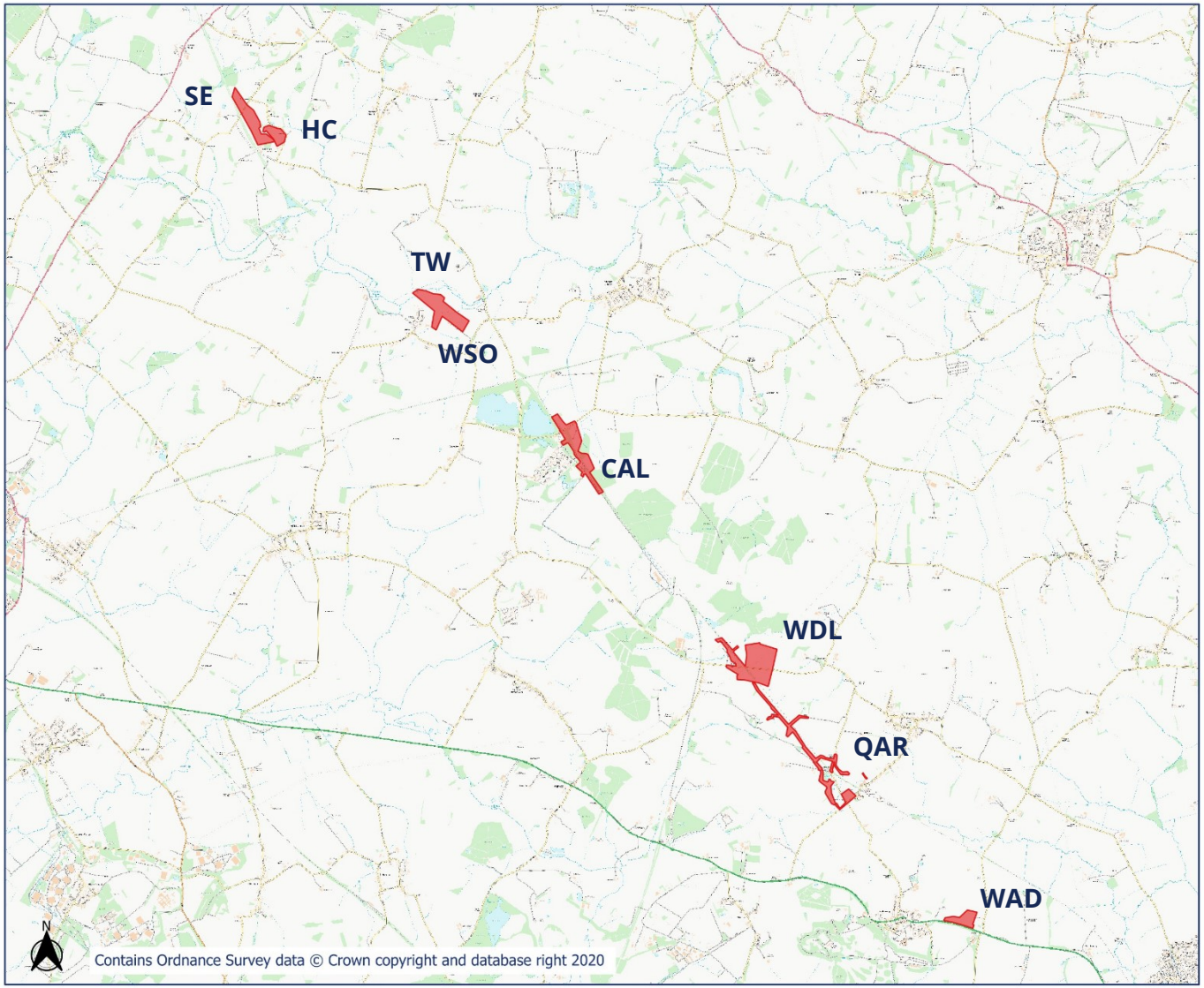
2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

Table 8: Summary of Complaints

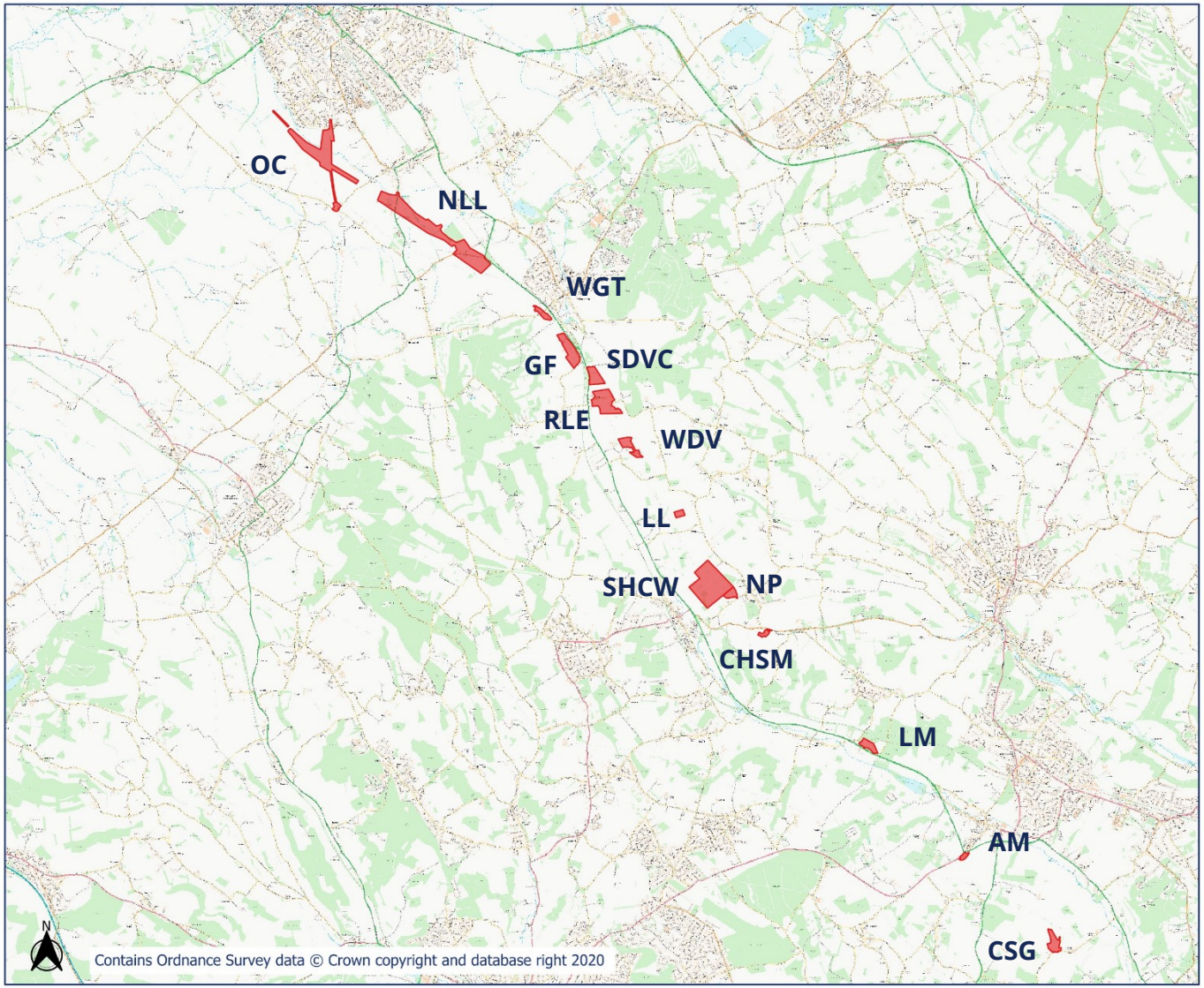
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-24-110408-E-C	OC	Complaint due to vibration and a screeching noise coming from a site near resident's home.	No works were being undertaken in the area at that time.	The results of the investigation were provided to the resident.
HS2-24-45464-C	A422 TN	Disturbance caused by drilling and other noise heard between 22:00 and 23:00.	Piling works were undertaken with consents from local authority. Advance notification of works were sent out to local community where signed up to mailing. Works have now completed.	The results of the investigation were provided to the resident.
HS2-24-45483-C	A422 TN	Complaint due to high pitched whining noise audible.	Investigation showed noise may be due to a water bowser which is used for dust suppression. It is a mobile unit operating as usual, and no alternative method or further mitigation is possible.	The results of the investigation were provided to the resident.

Appendix A Site Locations

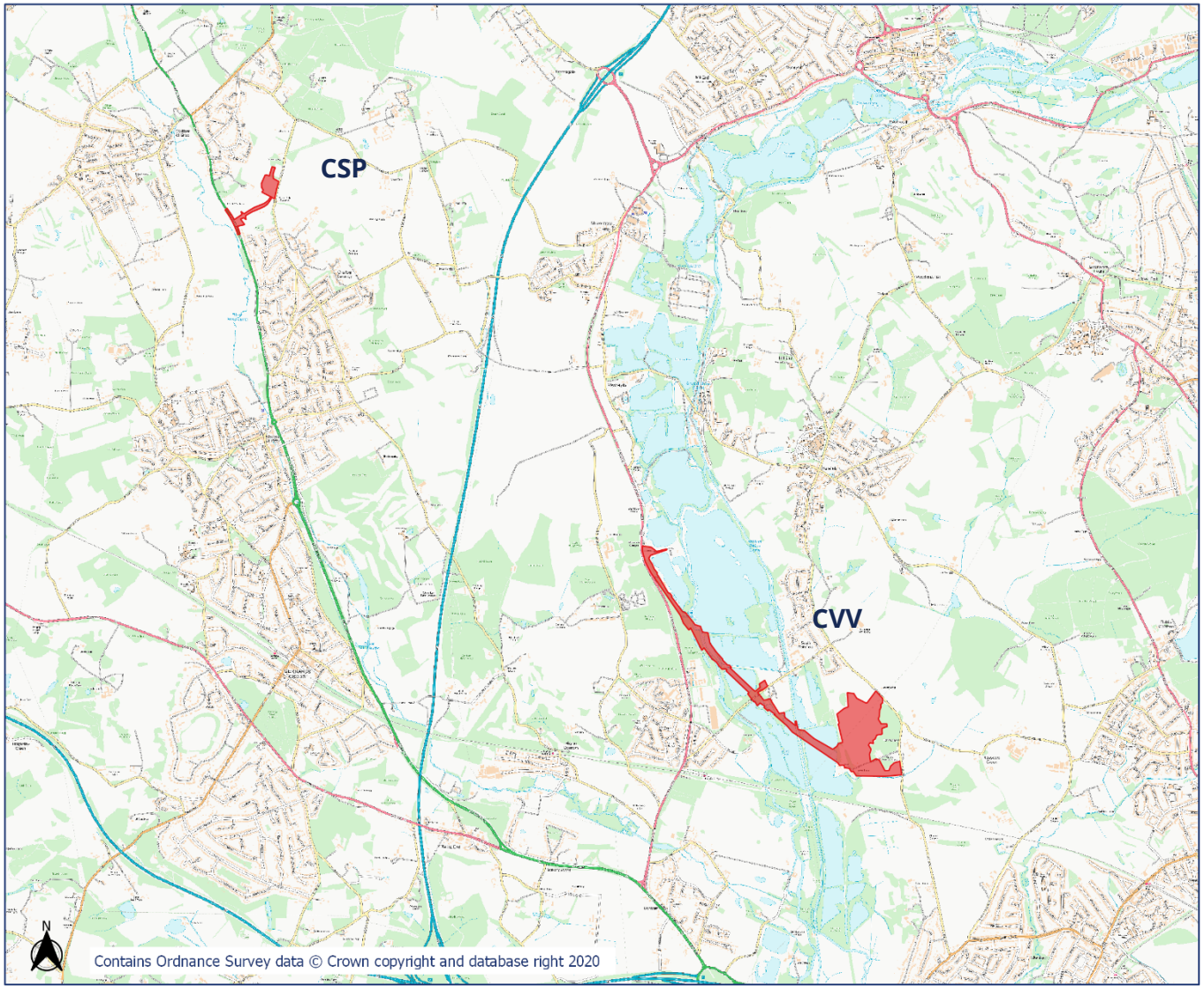
HS2 Worksite Identification Plan - Overview 1



HS2 Worksite Identification Plan - Overview 2

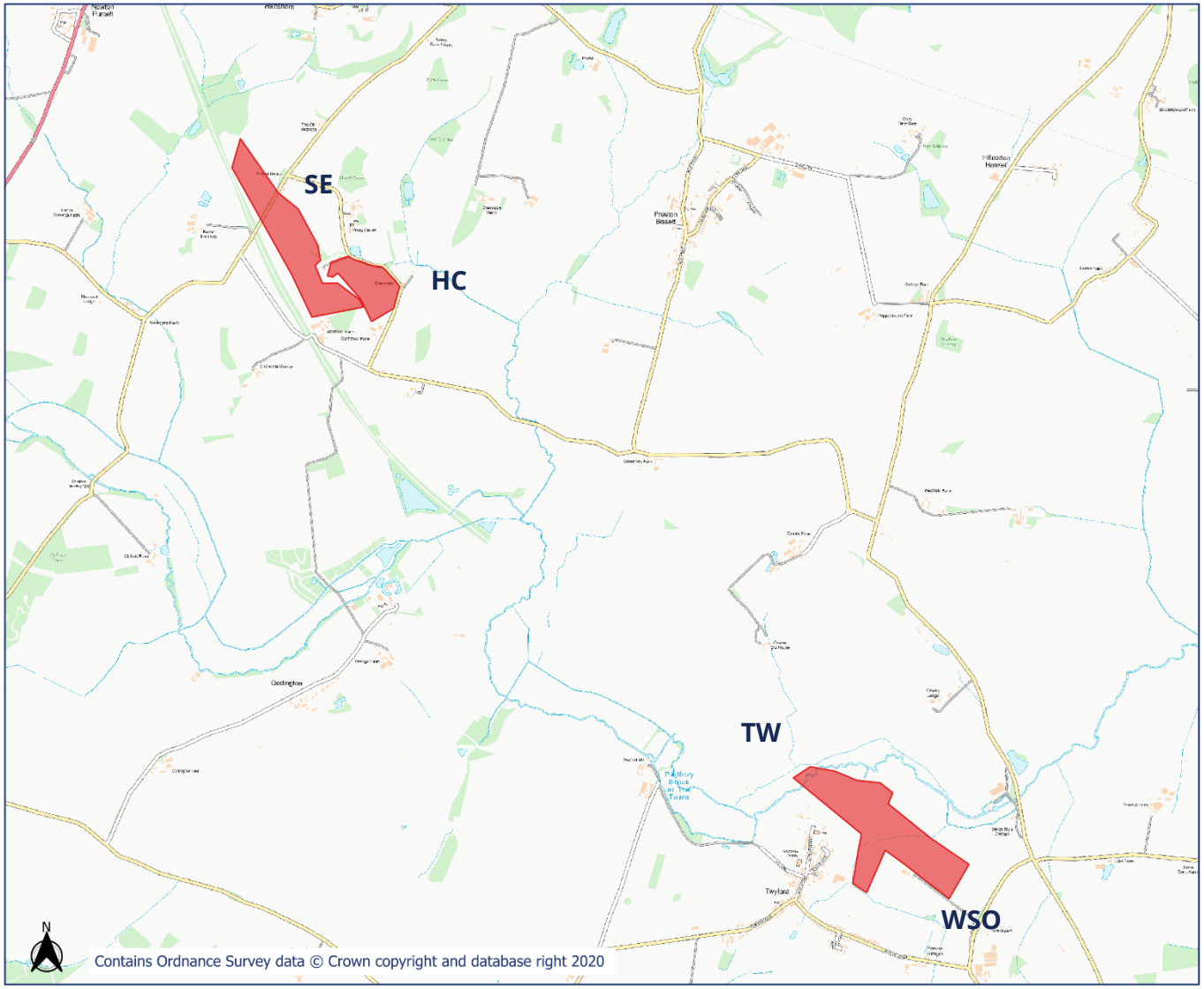


HS2 Worksite Identification Plan - Overview 3

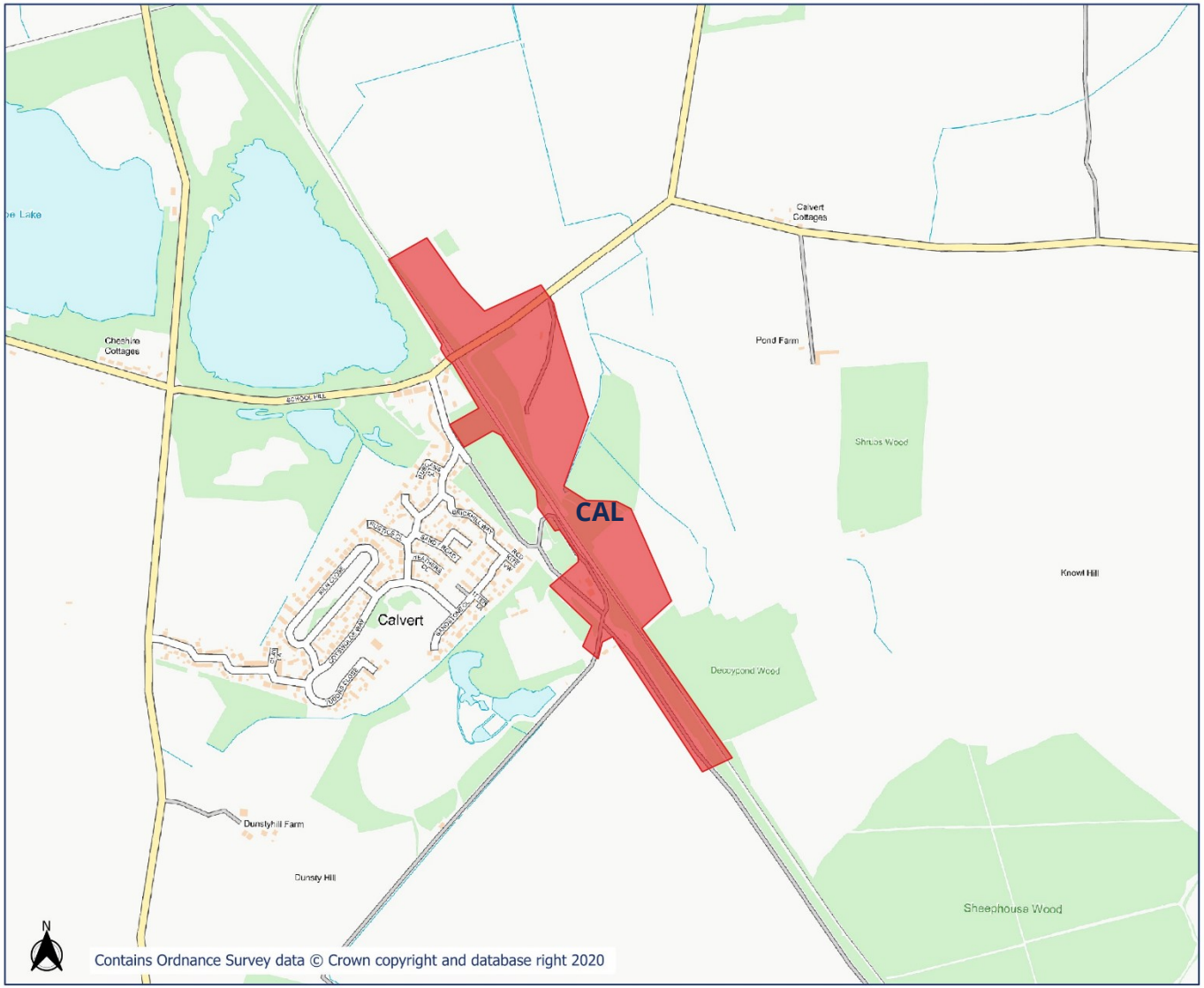


Worksite Identification Plan - 1

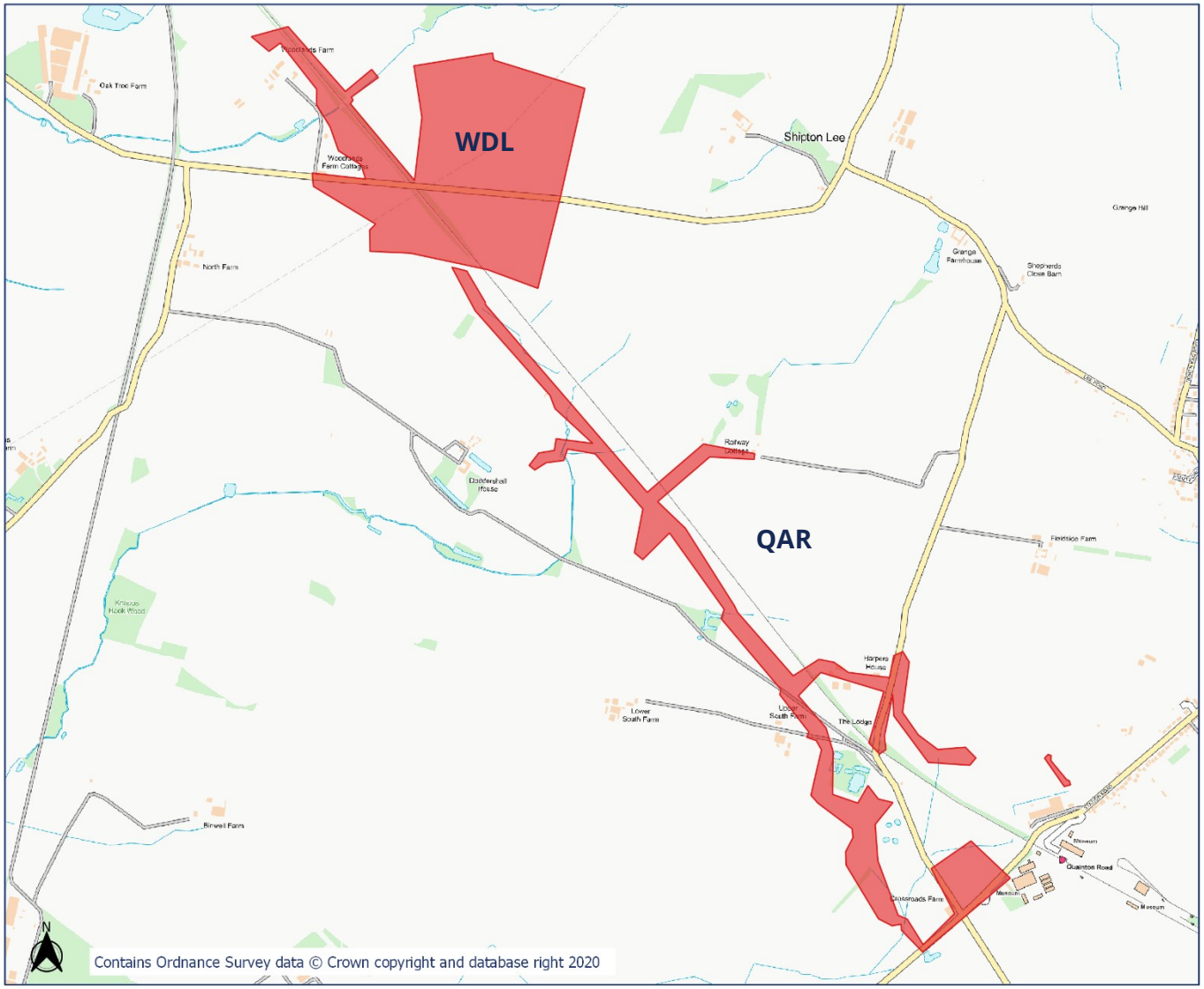
Worksite Identification Plan - 2



Worksite Identification Plan - 3

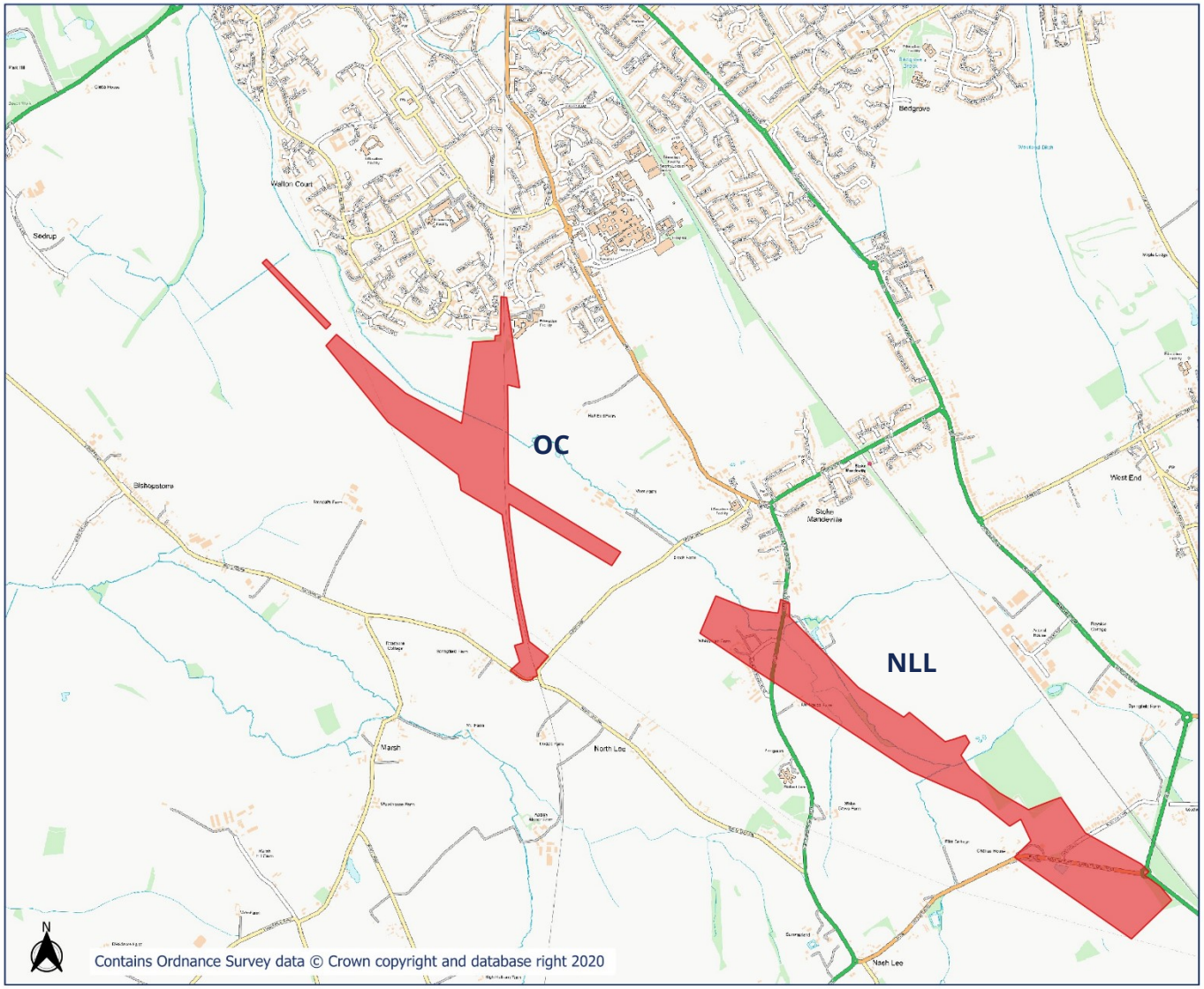


Worksite Identification Plan - 4

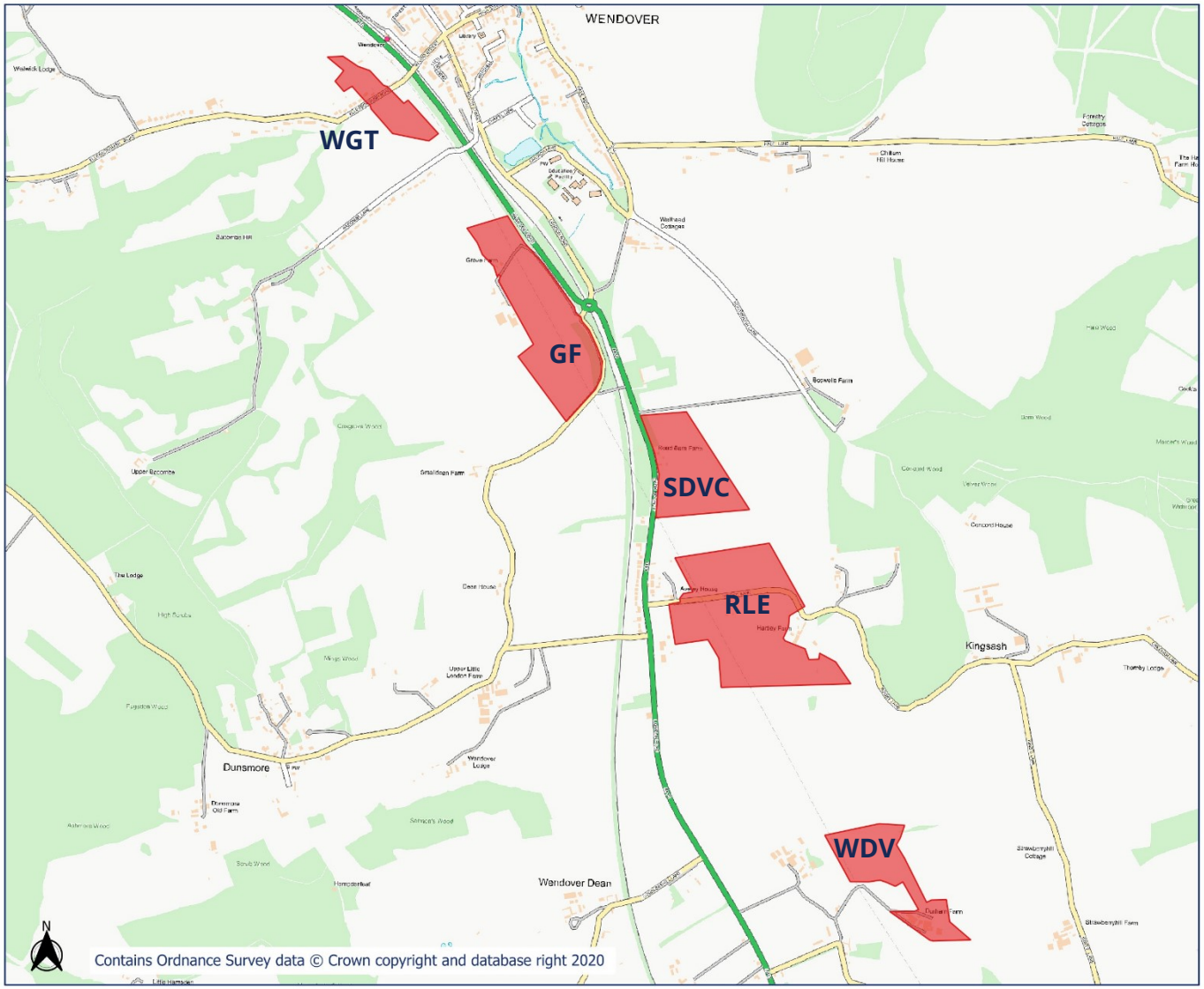


Worksite Identification Plan - 5

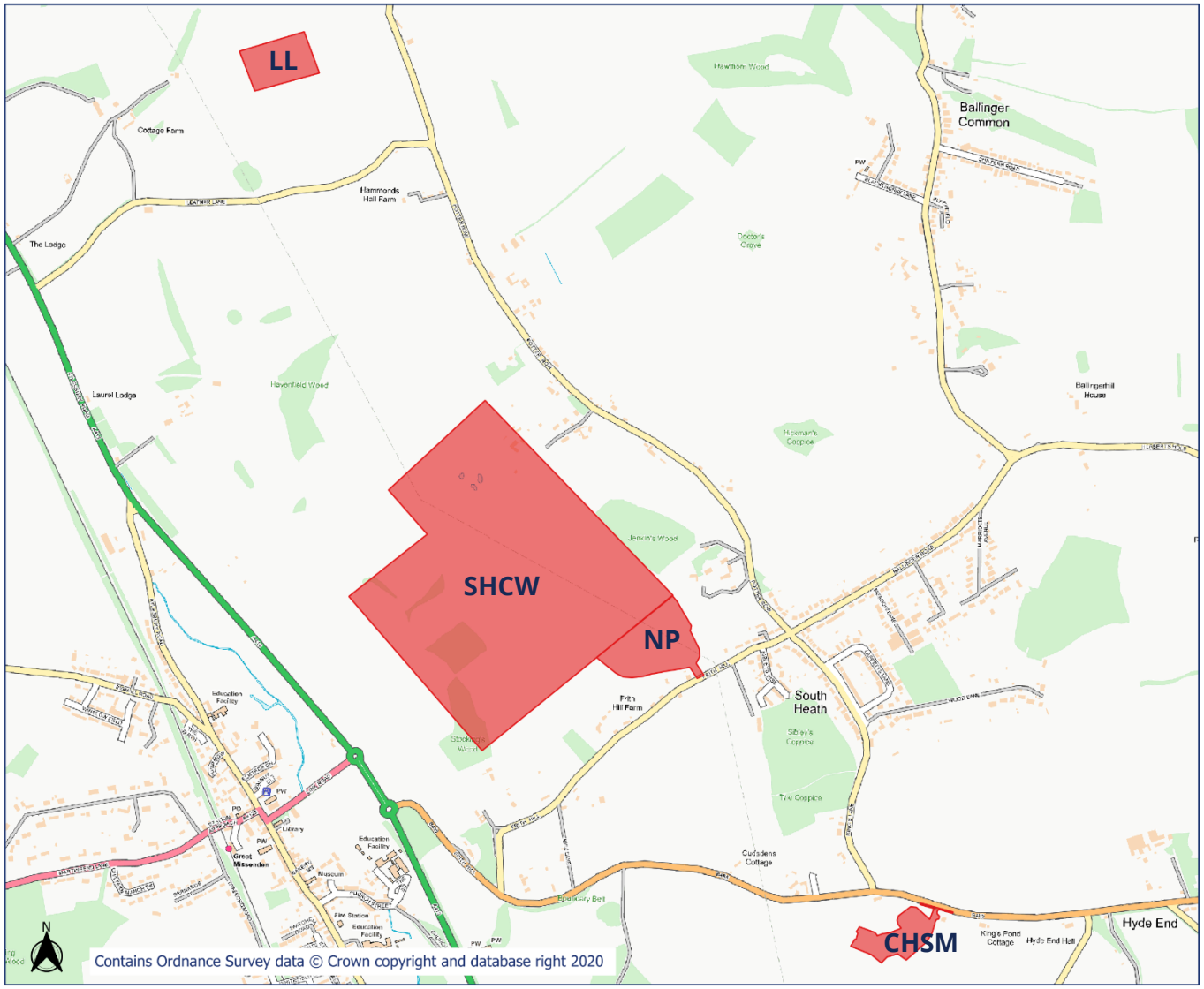
Worksite Identification Plan - 6



Worksite Identification Plan - 7



Worksite Identification Plan - 8

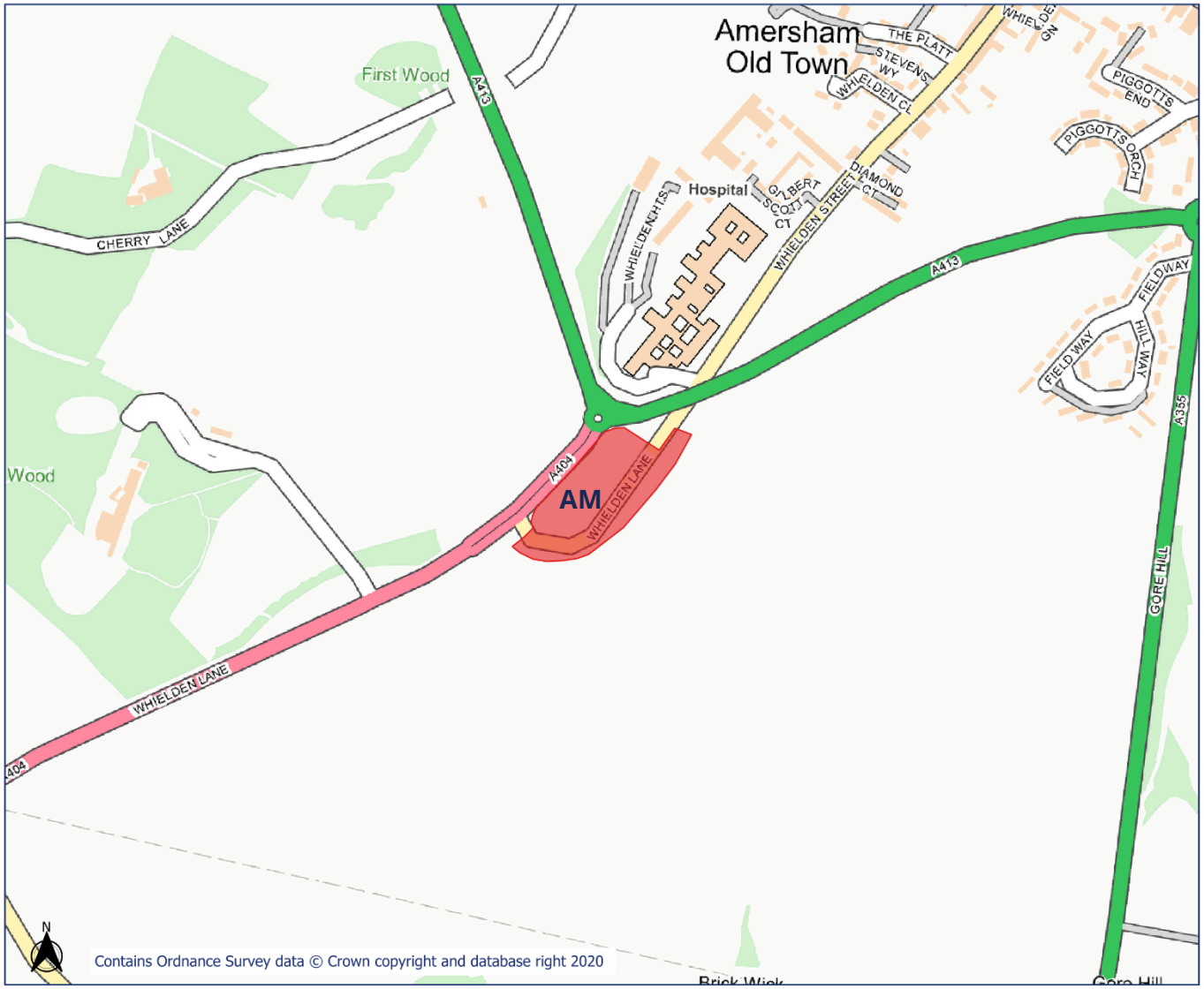


Legend

Active Worksites

Worksite Identification Plan - 9

Worksite Identification Plan - 10

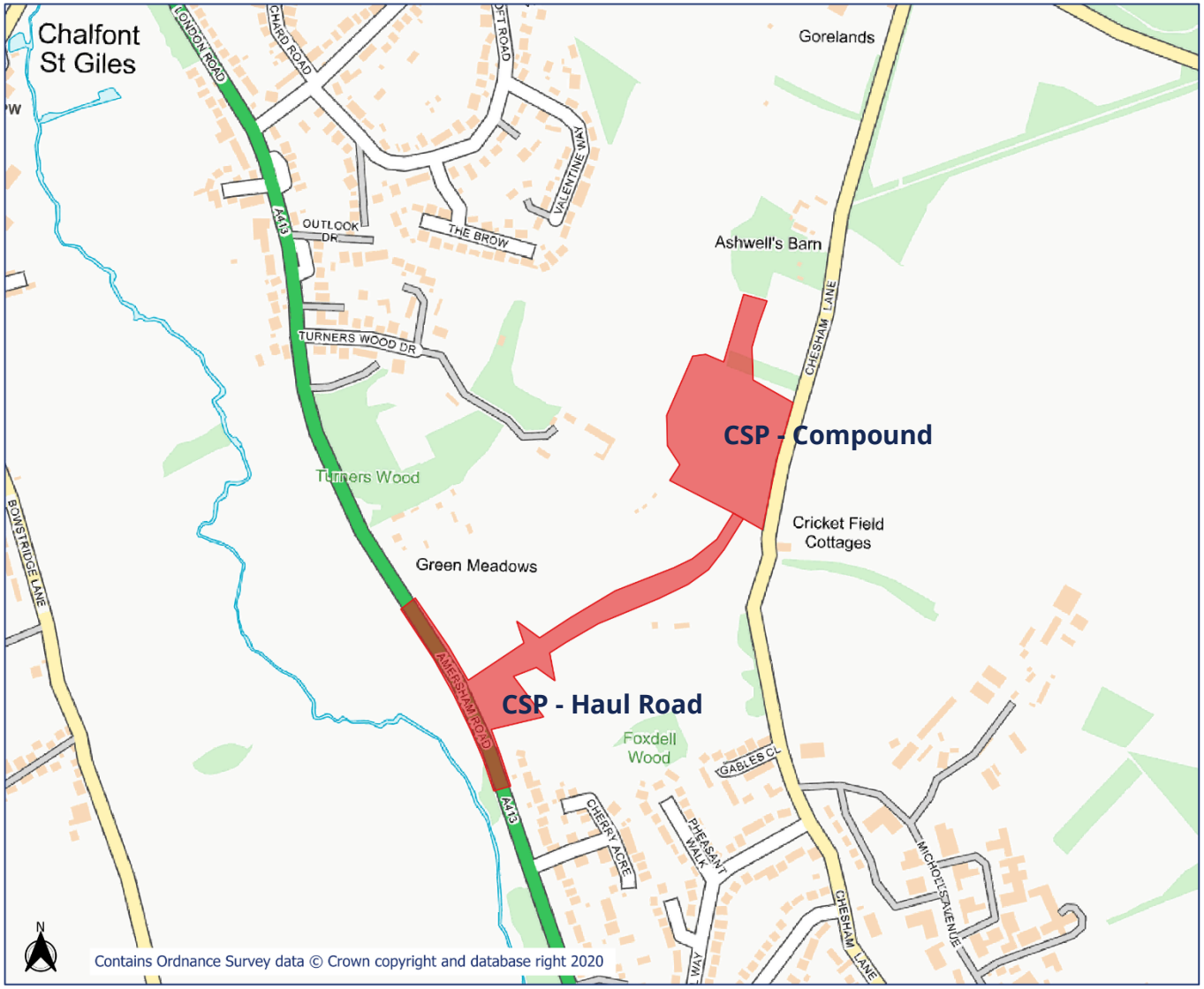


Worksite Identification Plan - 11

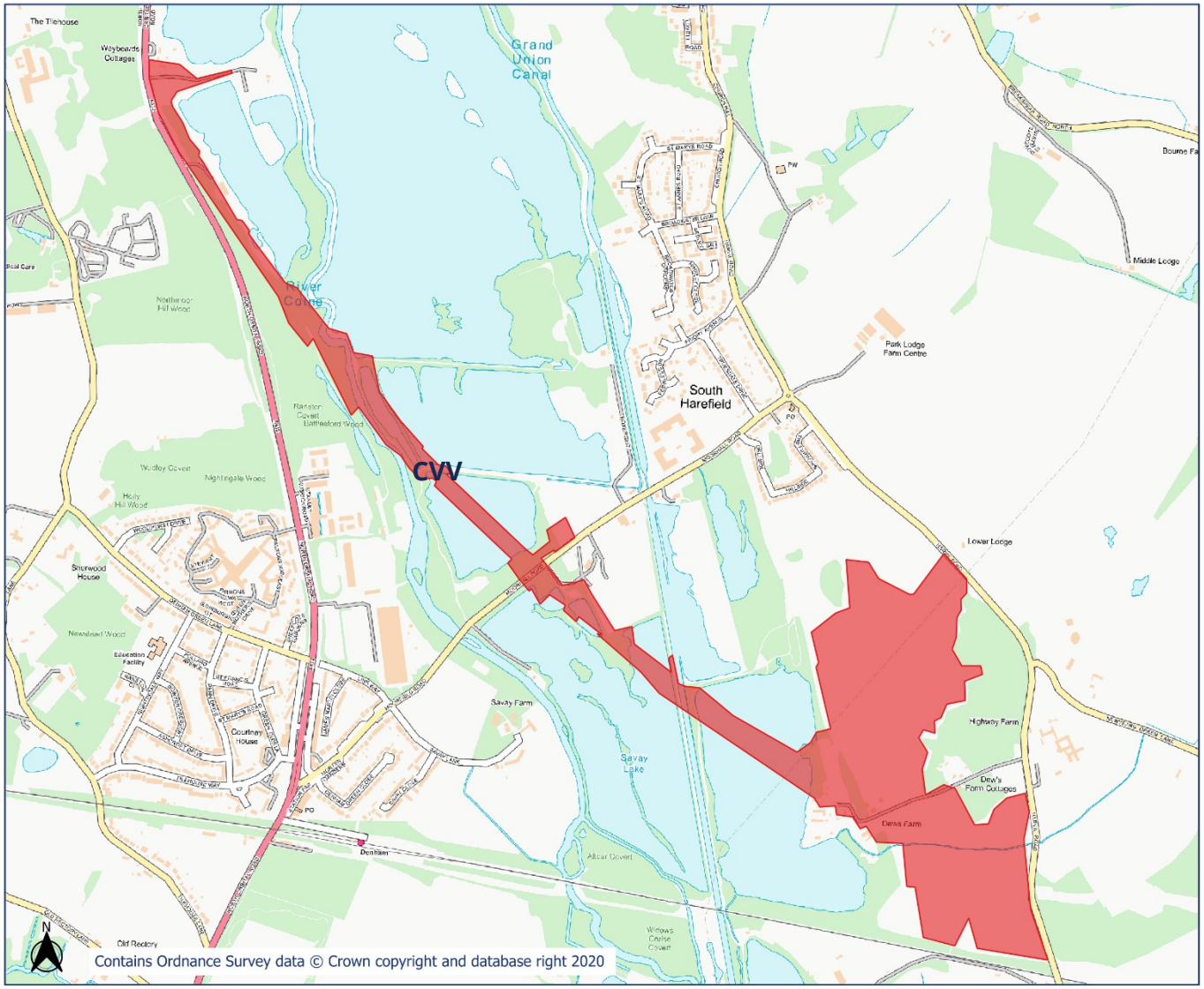
Legend

Active Worksites

Worksite Identification Plan - 12



Worksite Identification Plan - 13



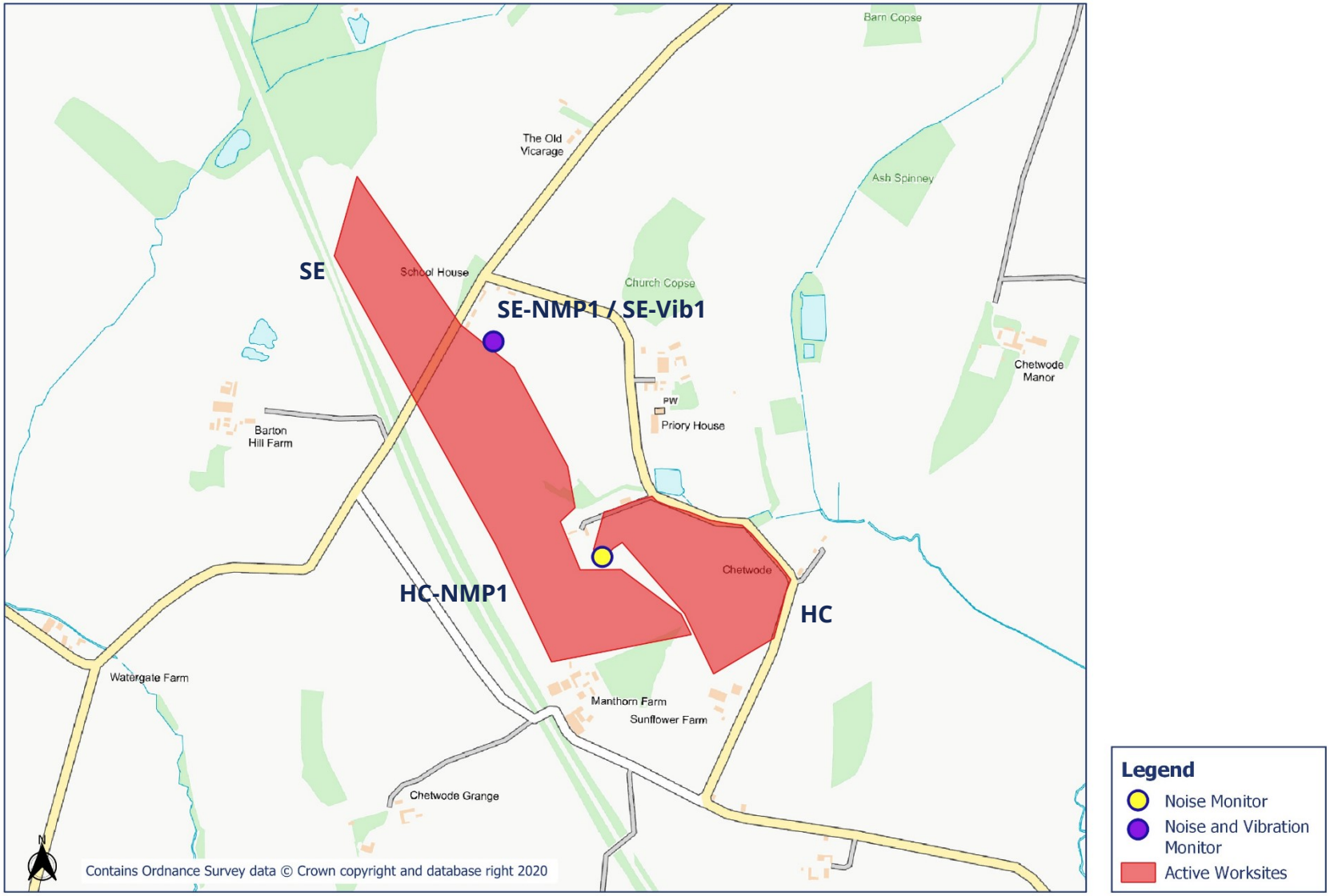
Legend

Active Worksites

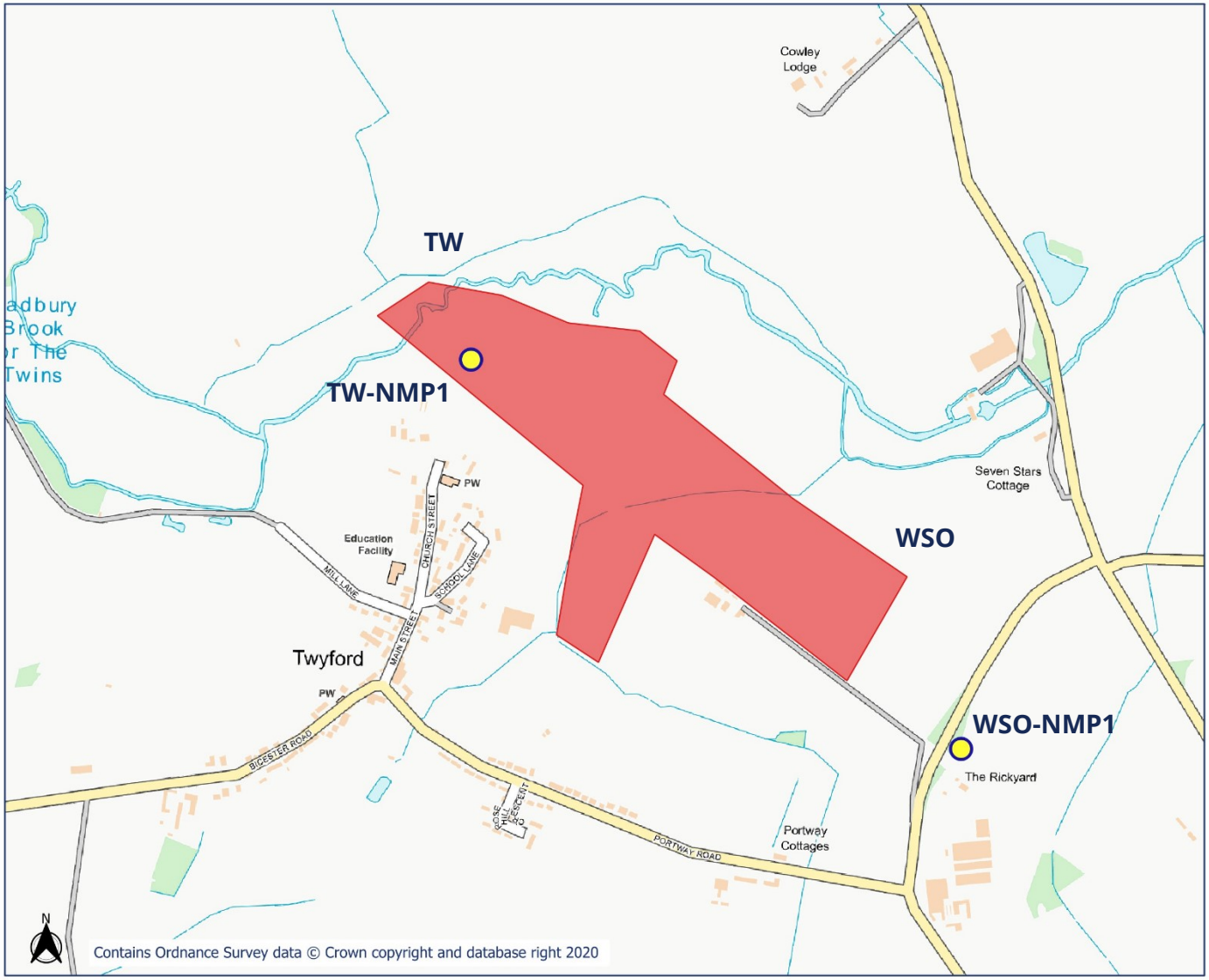
Appendix B Monitoring Locations

Noise and Vibration Monitoring Plan - 1

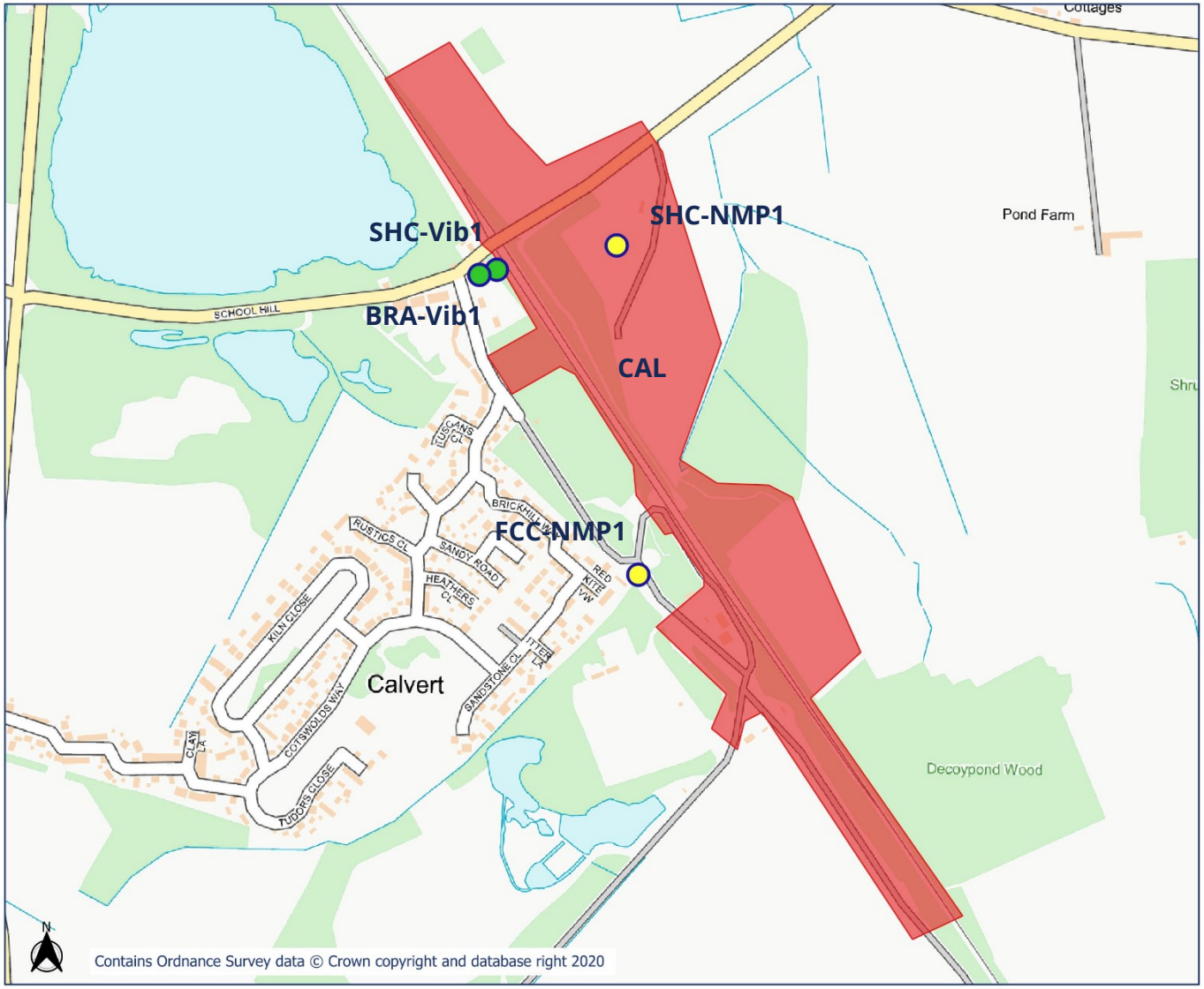
Noise and Vibration Monitoring Plan - 2



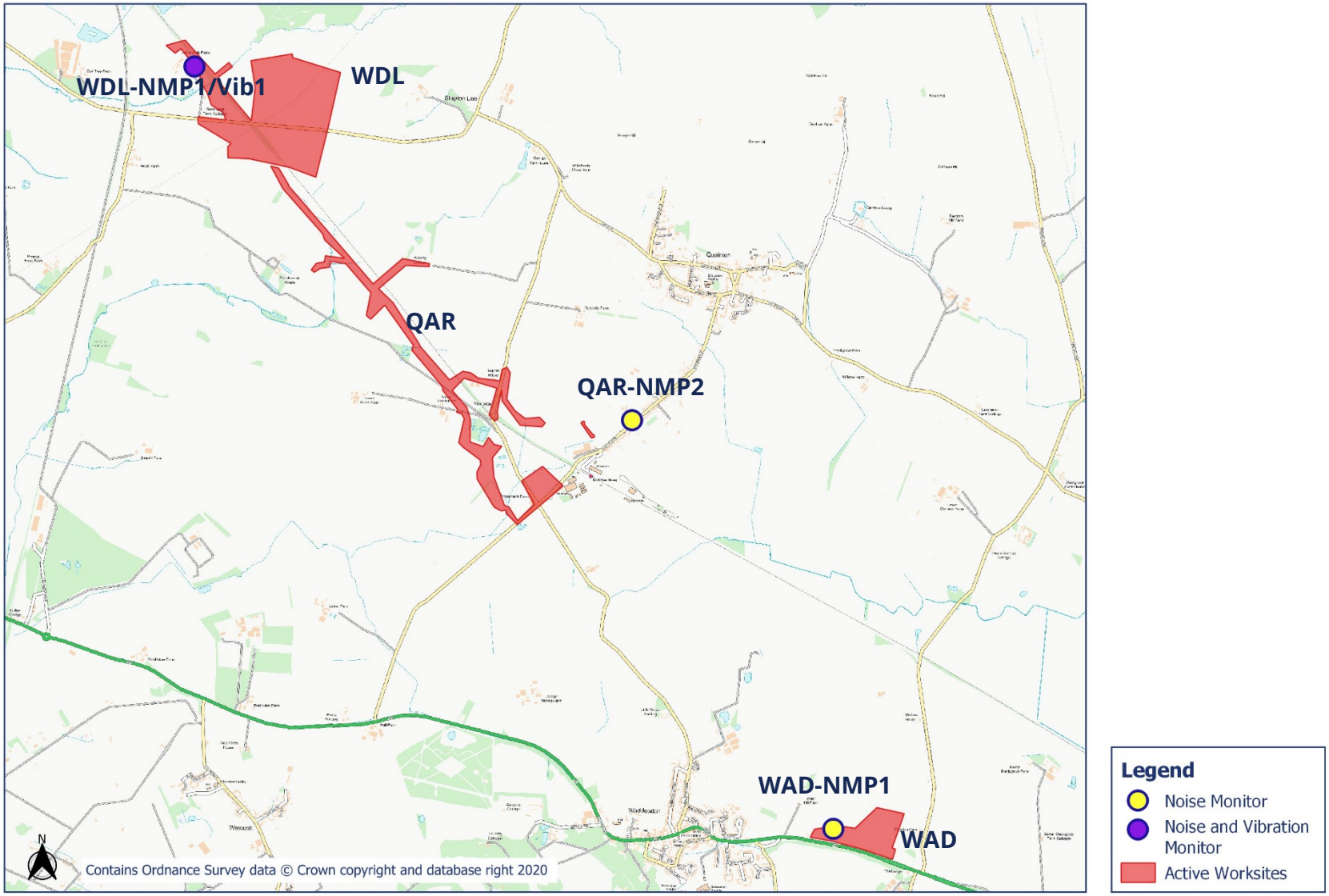
Noise and Vibration Monitoring Plan - 3



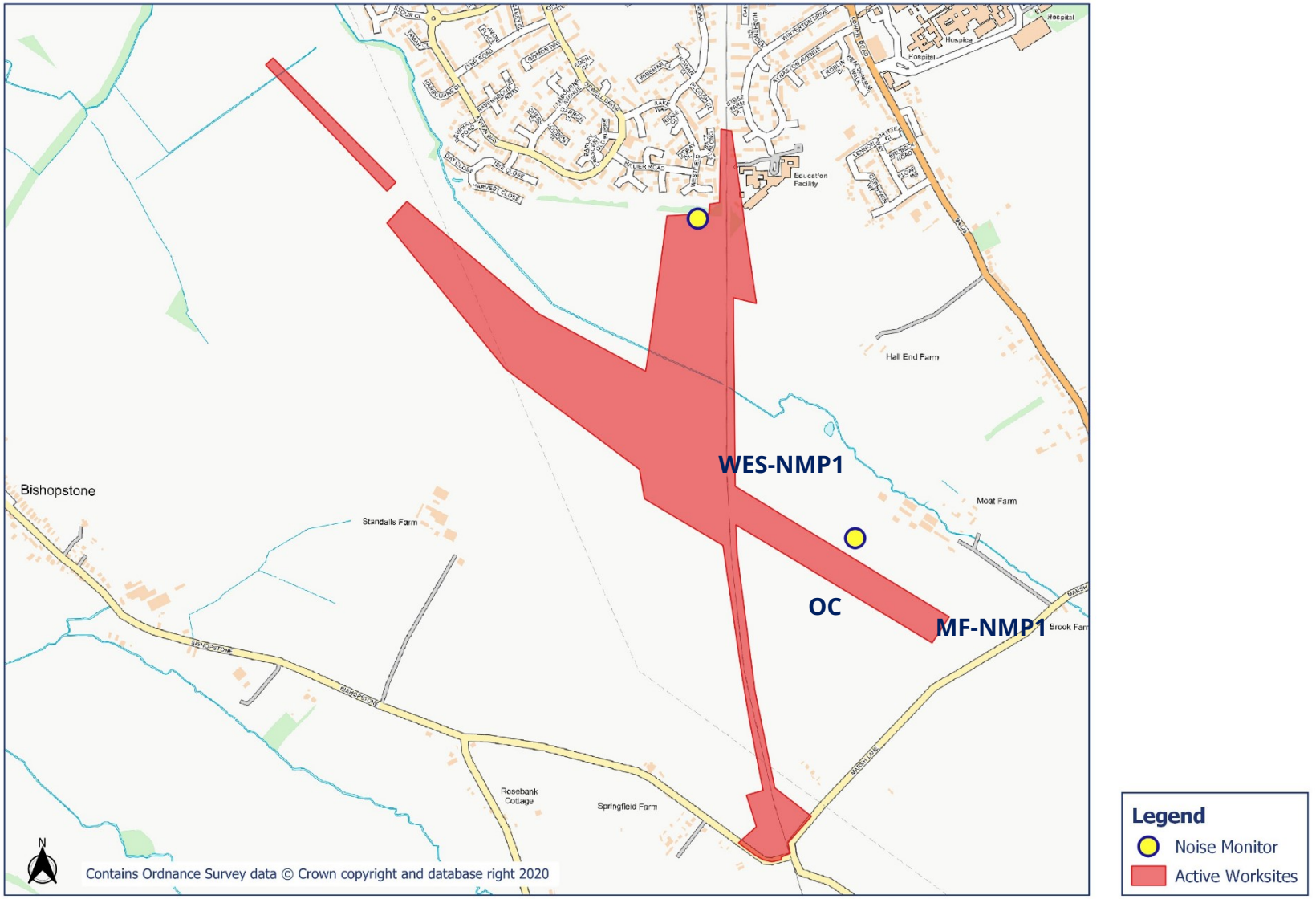
Noise and Vibration Monitoring Plan - 4



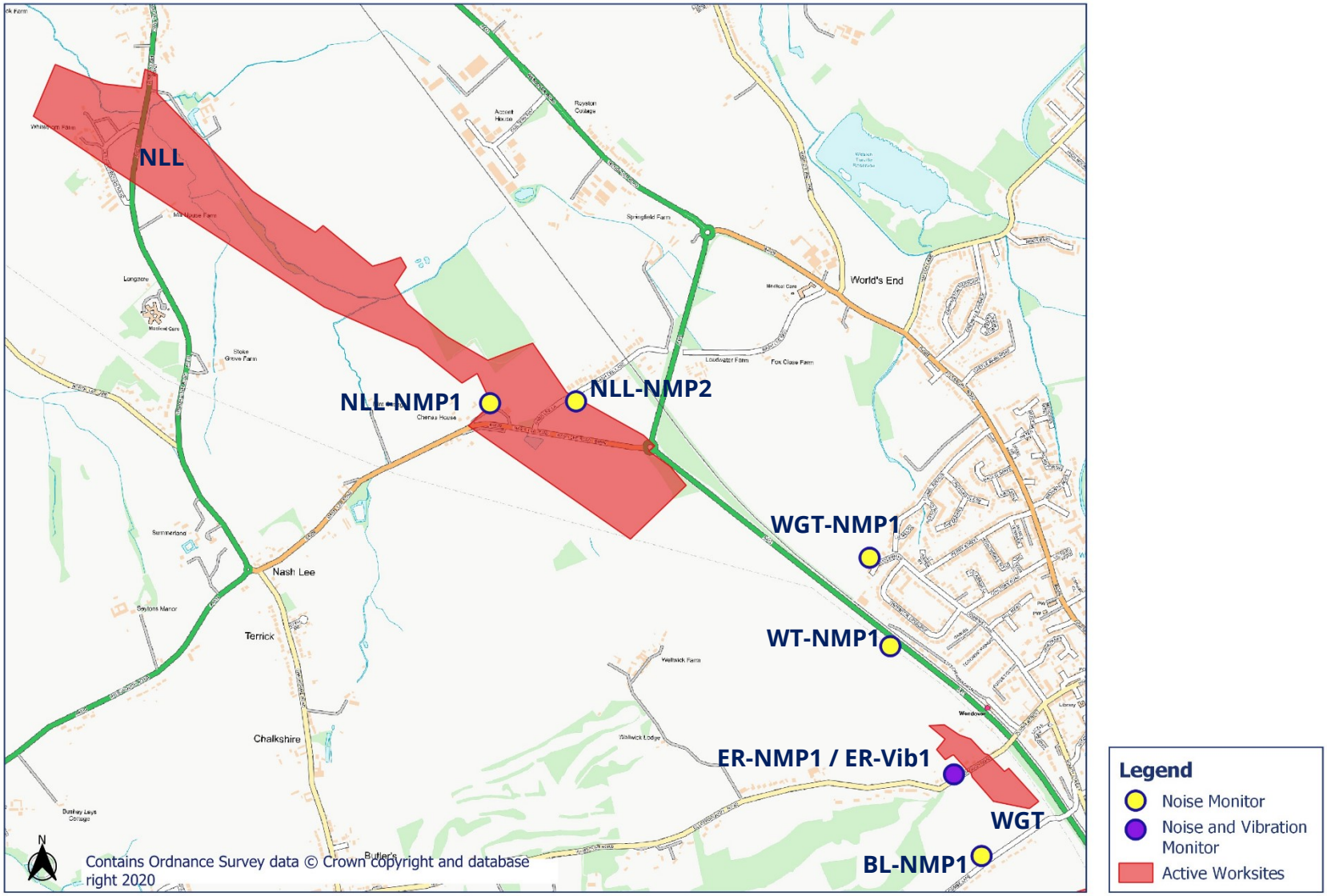
Noise and Vibration Monitoring Plan - 5



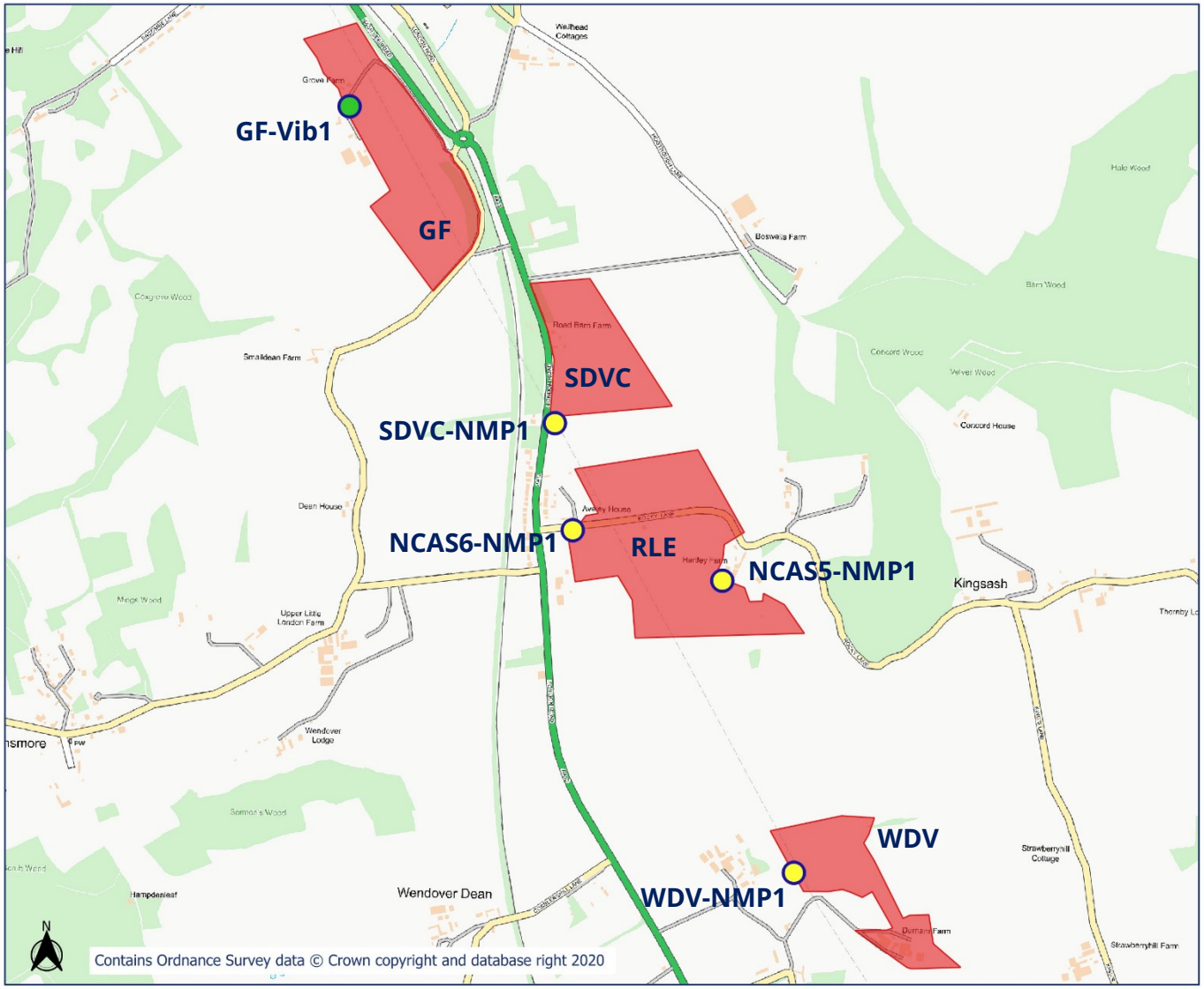
Noise and Vibration Monitoring Plan - 6



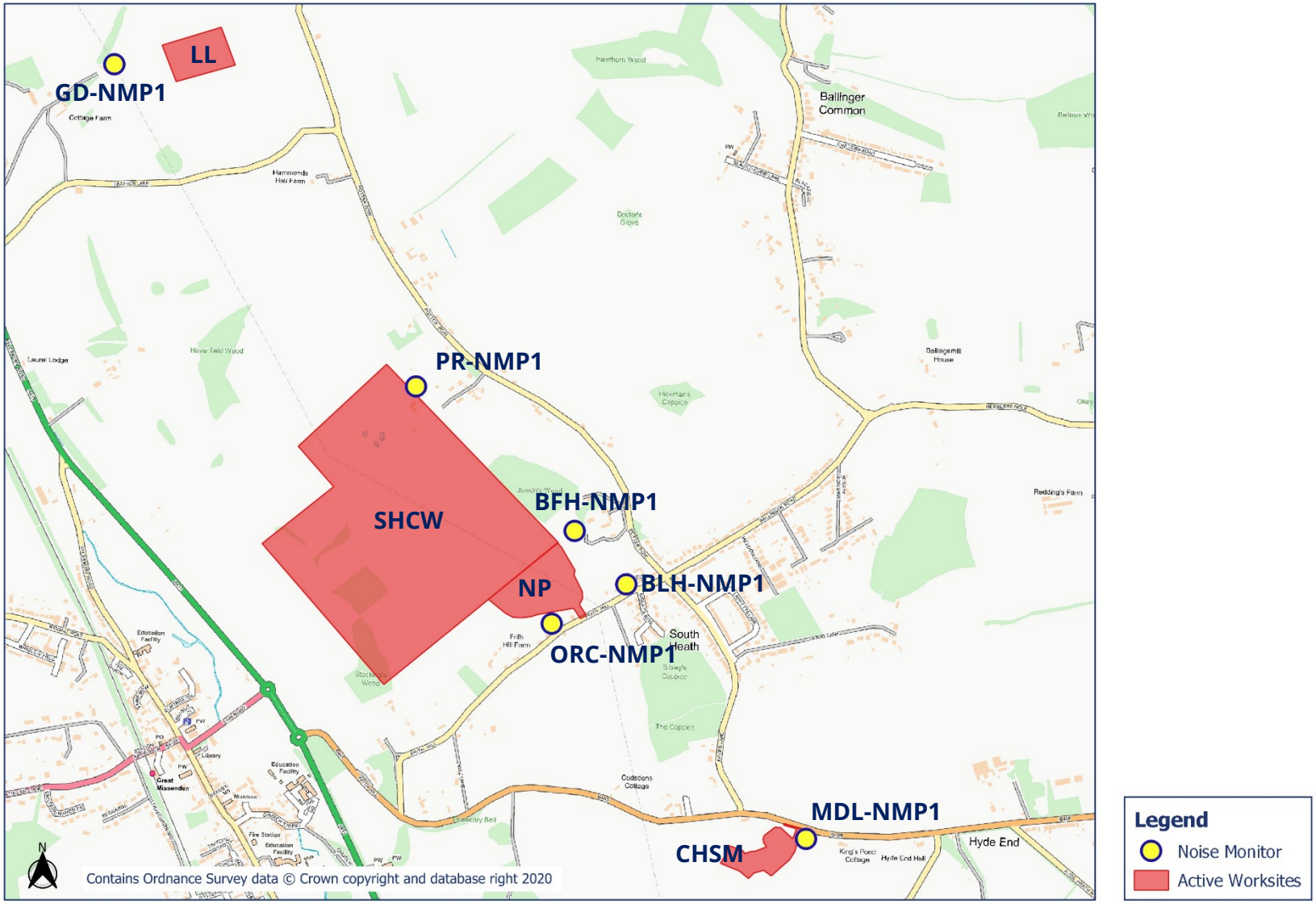
HS2 Noise and Vibration Monitoring Plan - 7



Noise and Vibration Monitoring Plan - 8

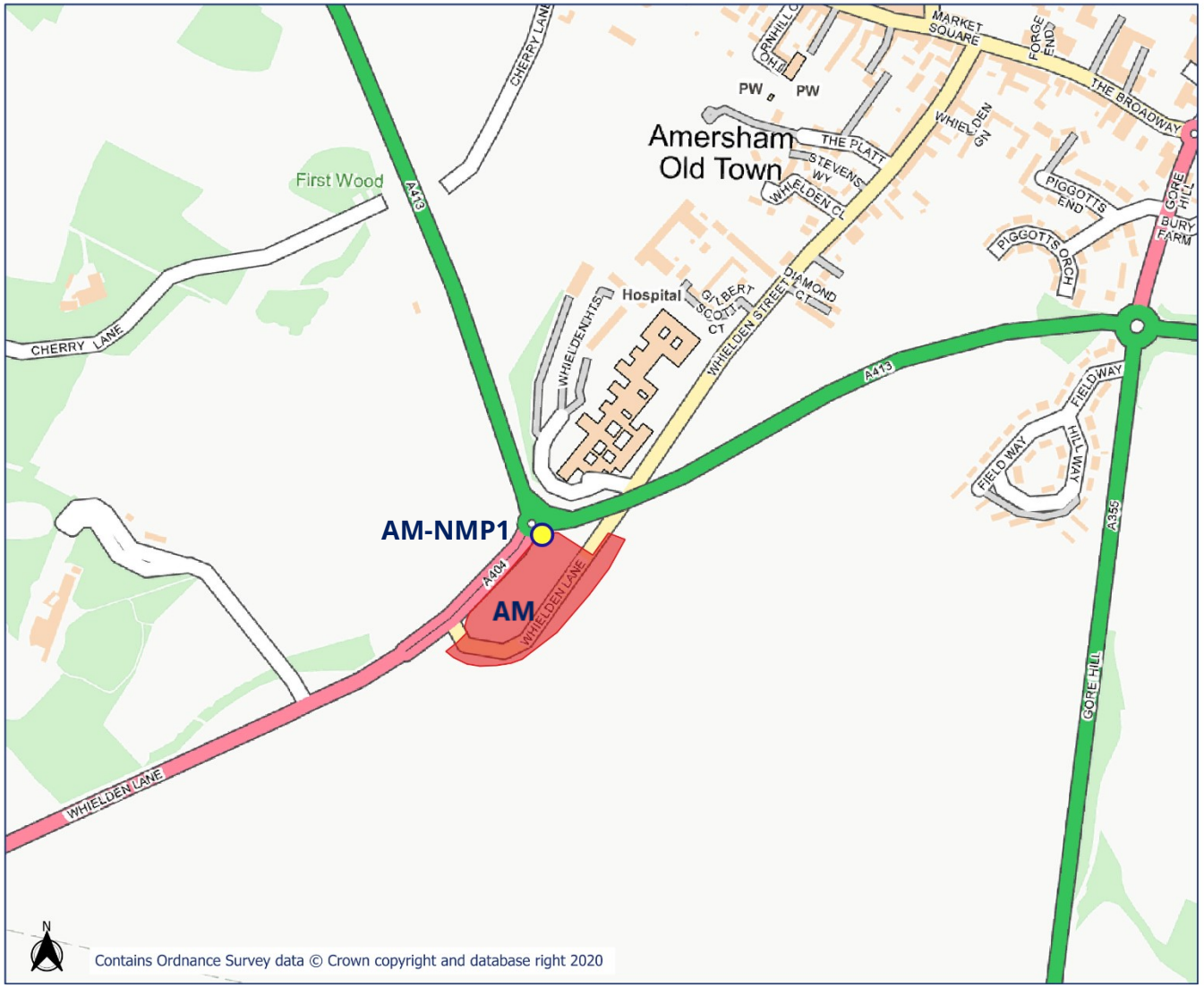


Noise and Vibration Monitoring Plan - 9

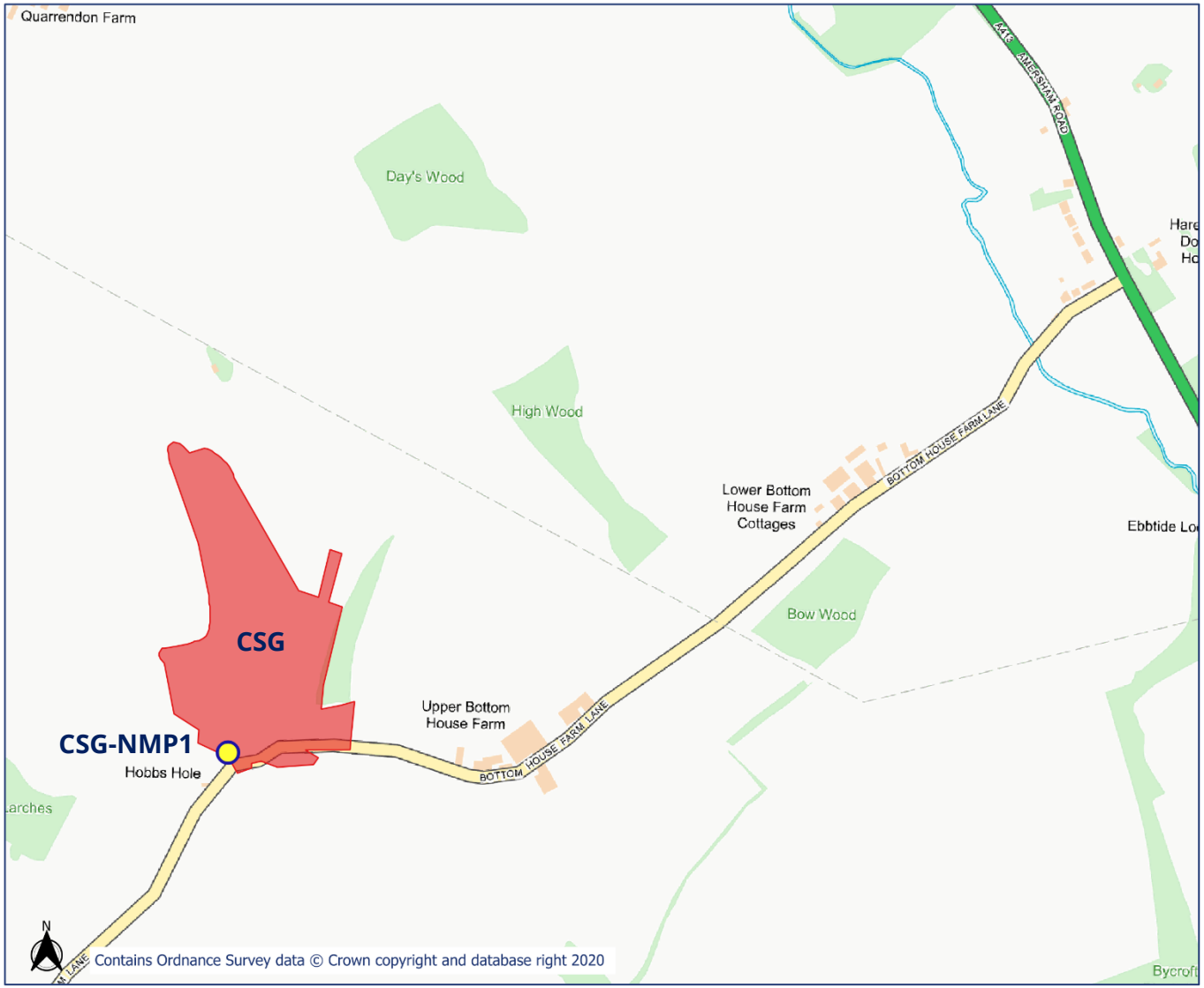


Noise and Vibration Monitoring Plan - 10

HS2 Noise and Vibration Monitoring Plan - 11

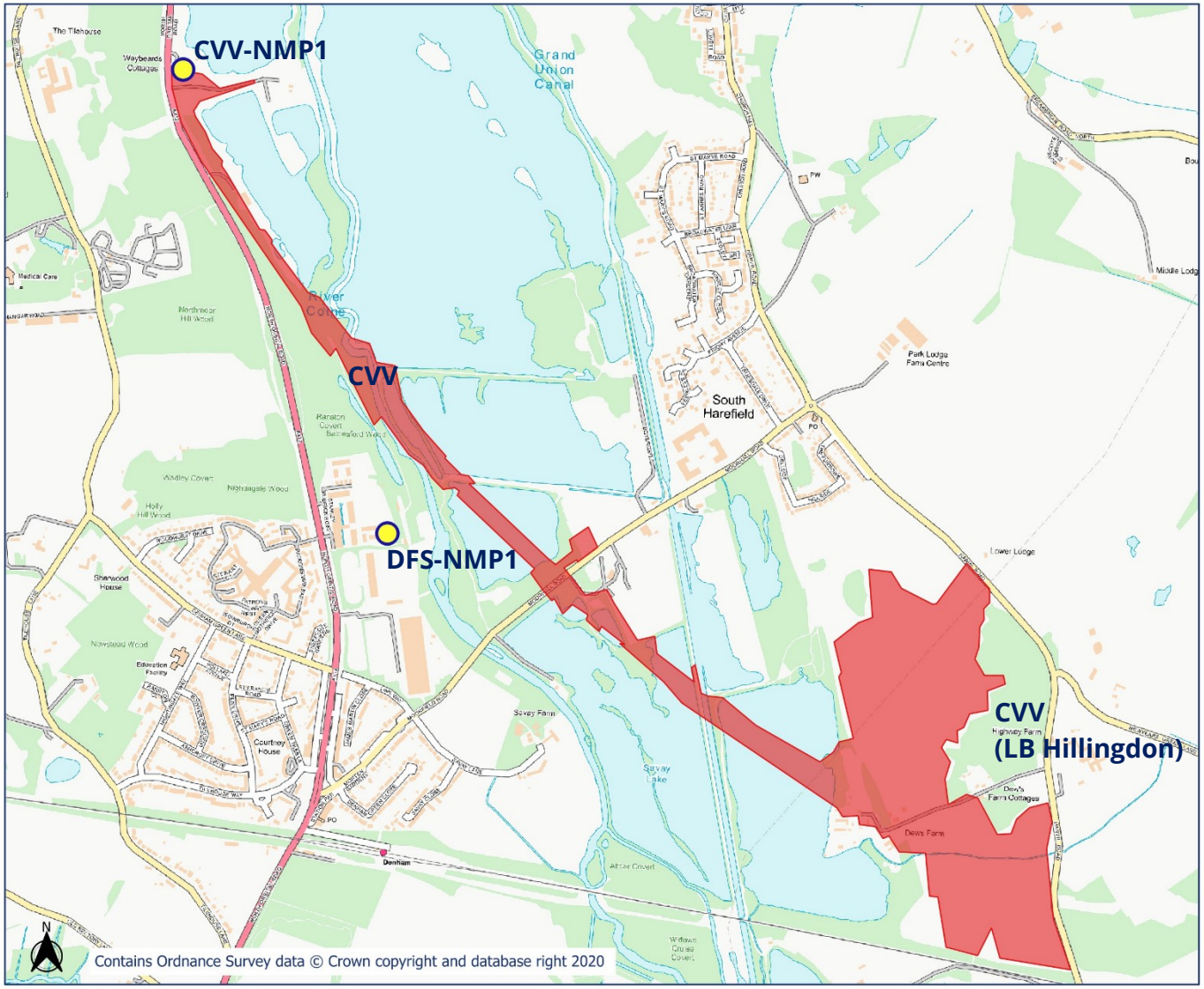


Noise and Vibration Monitoring Plan - 12



HS2 Noise and Vibration Monitoring Plan - 13

HS2 Noise and Vibration Monitoring Plan - 14

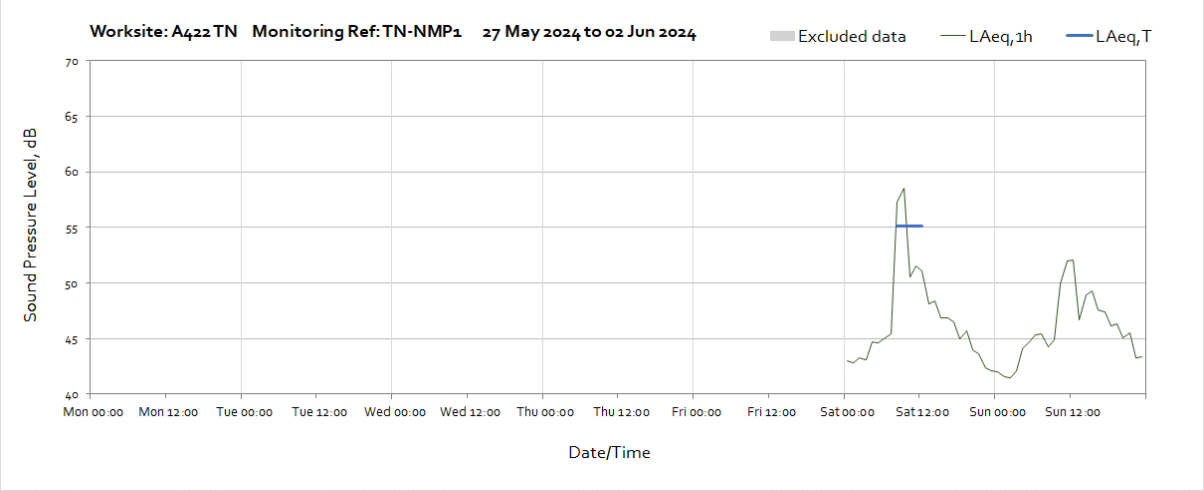


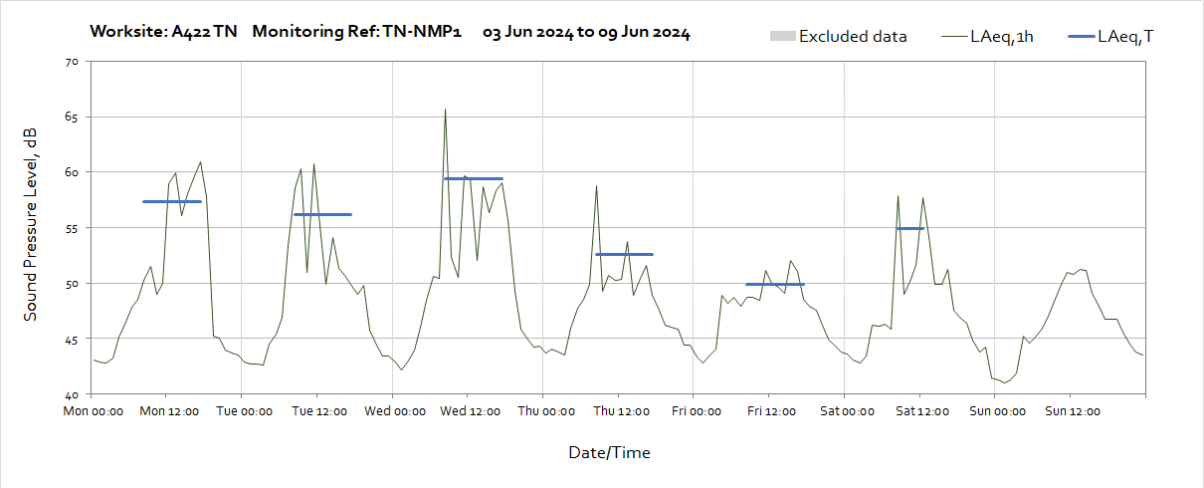
Appendix C Data

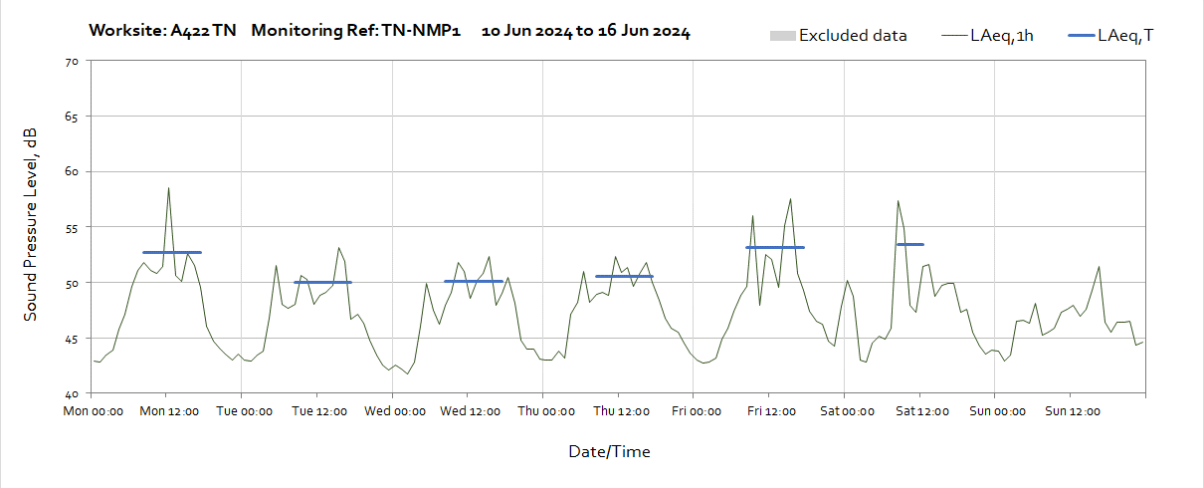
Noise

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

Worksite: A422 TN – Monitoring Ref: TN-NMP1






Worksite: A422 TN Monitoring Ref: TN-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
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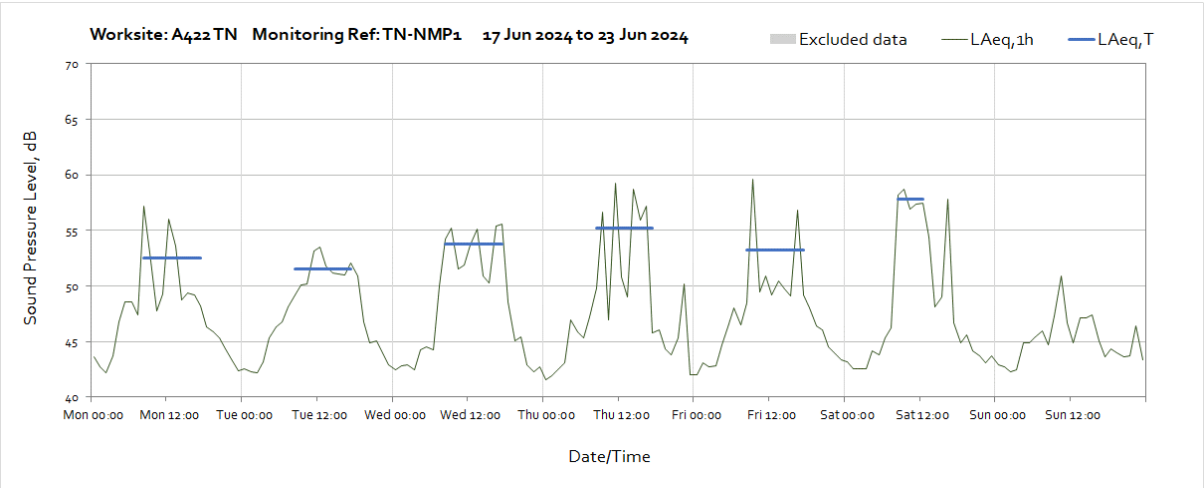
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: A422 TN Monitoring Ref: TN-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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65
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Tue 12:00
Wed 00:00
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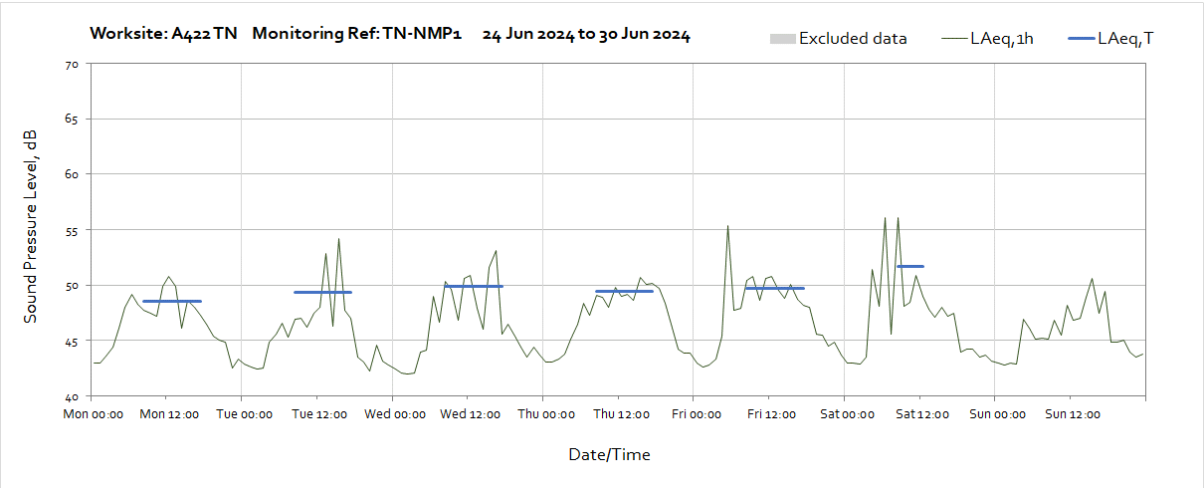
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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65
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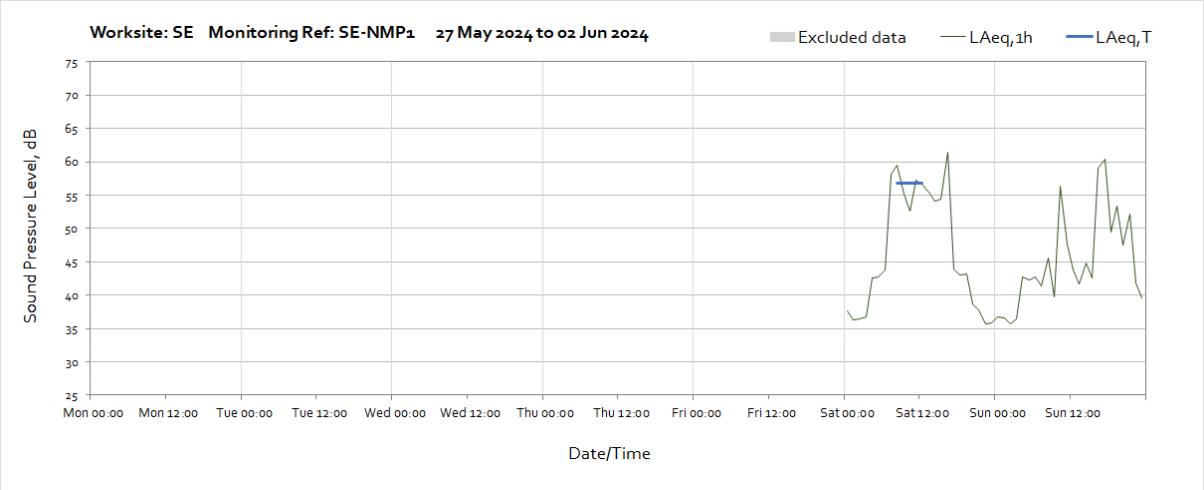
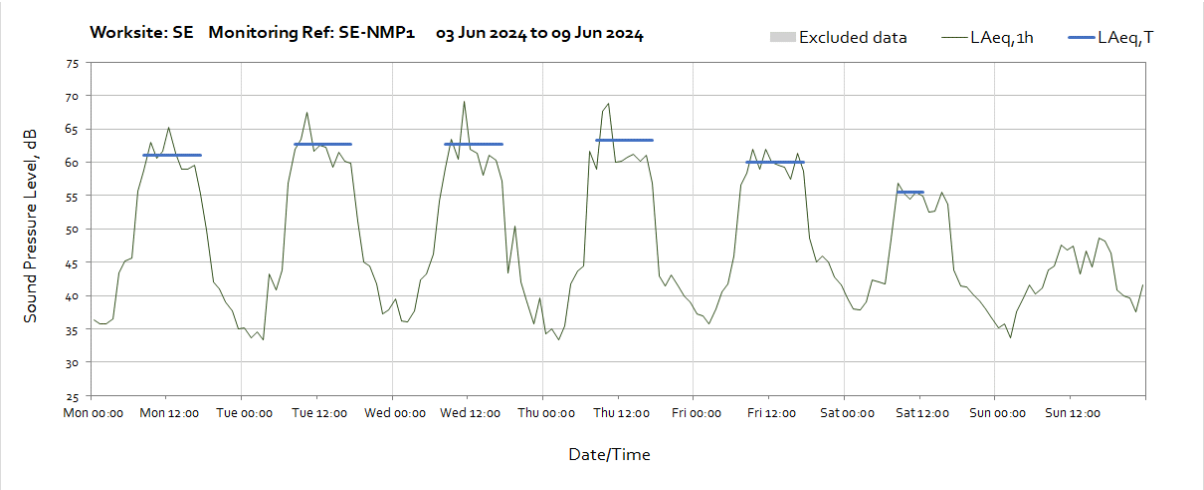
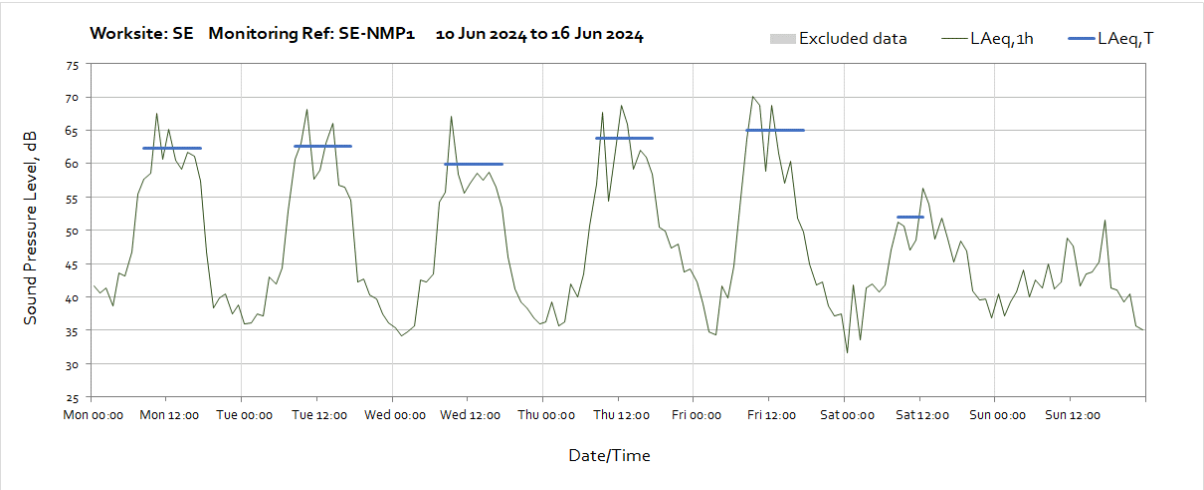
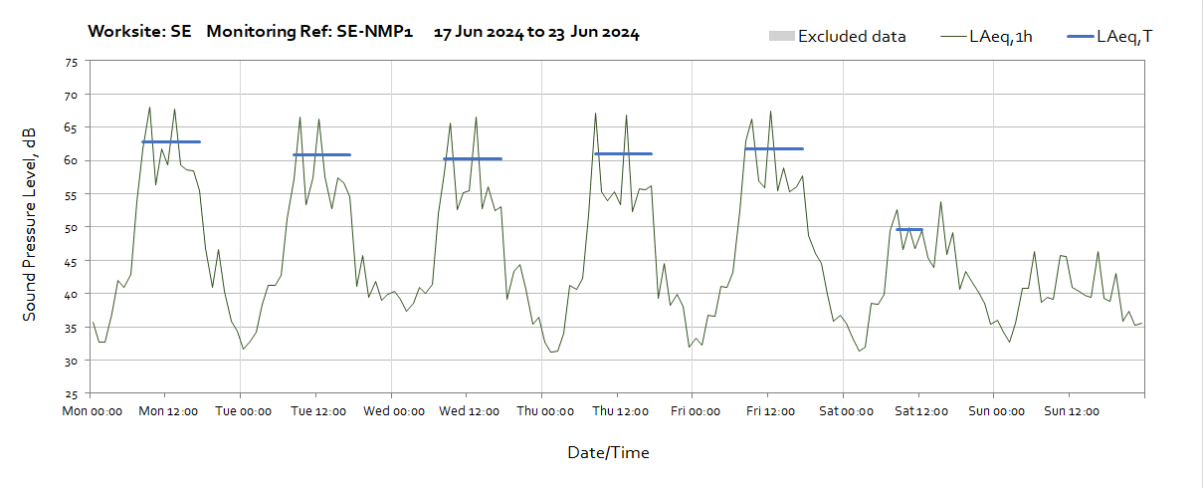
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

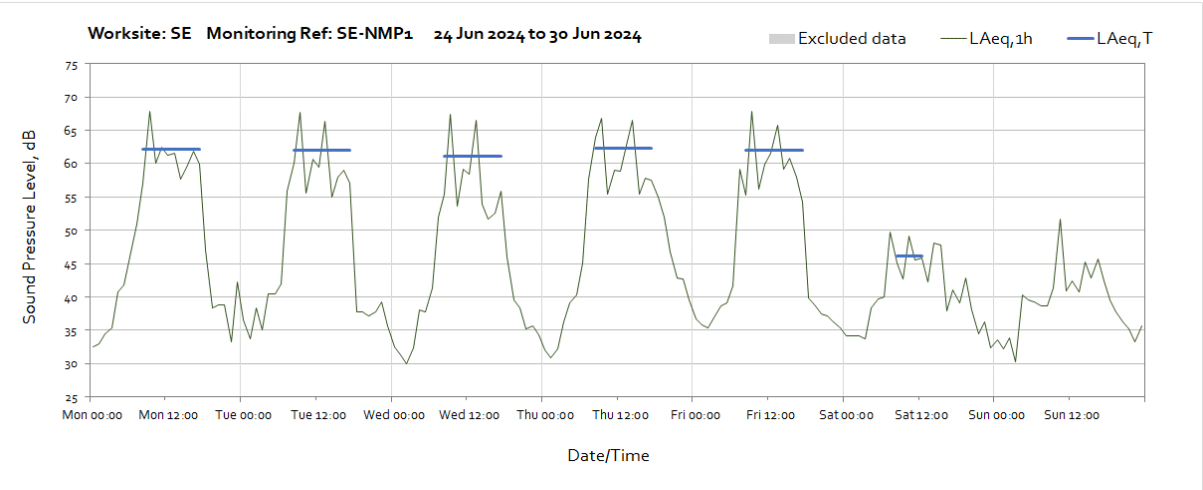
Worksite: SE – Monitoring Ref: SE-NMP1



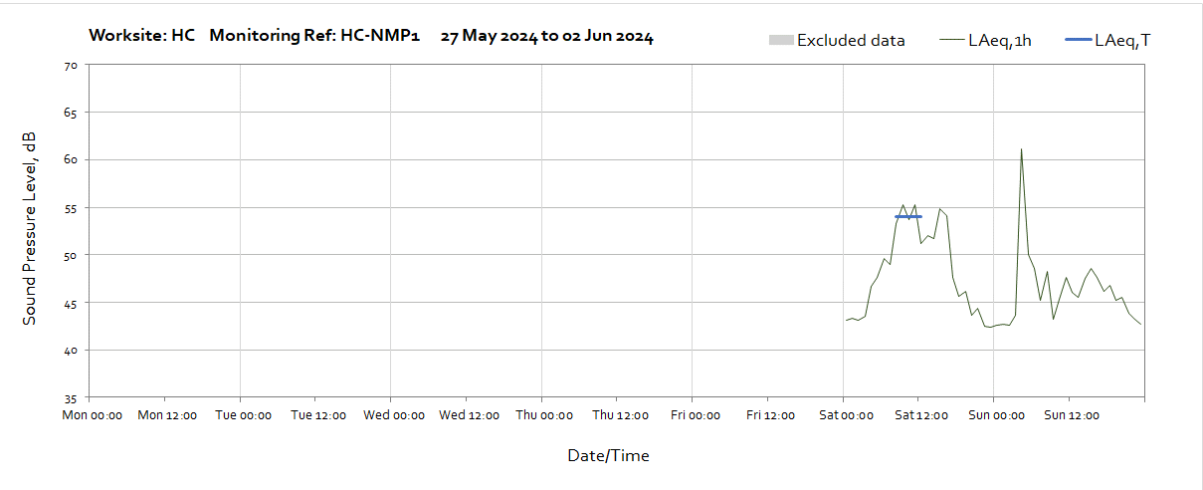


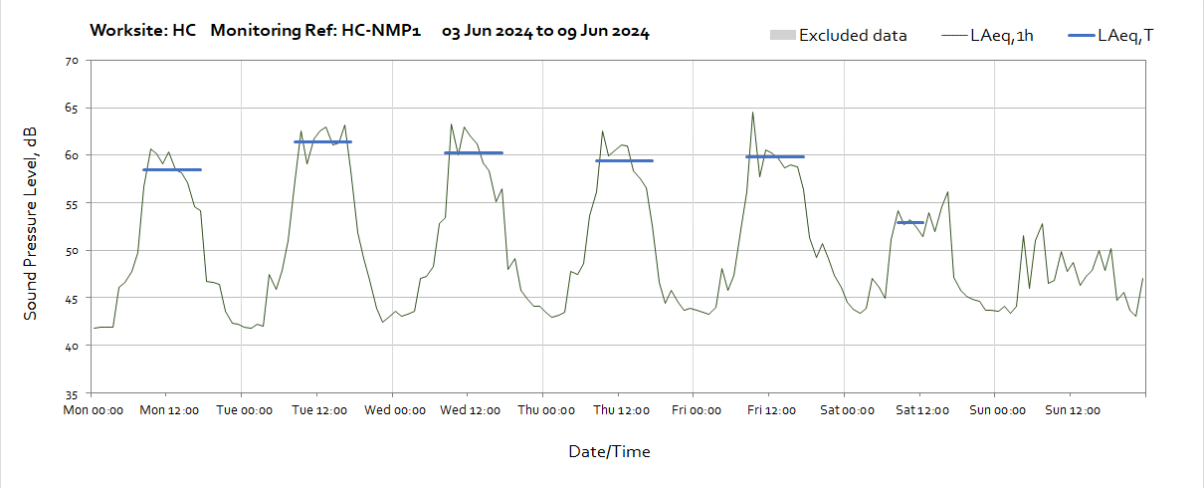






Worksite: HC – Monitoring Ref: HC-NMP1

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LAeq,T
Sound Pressure Level, dB
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60
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Wed 00:00
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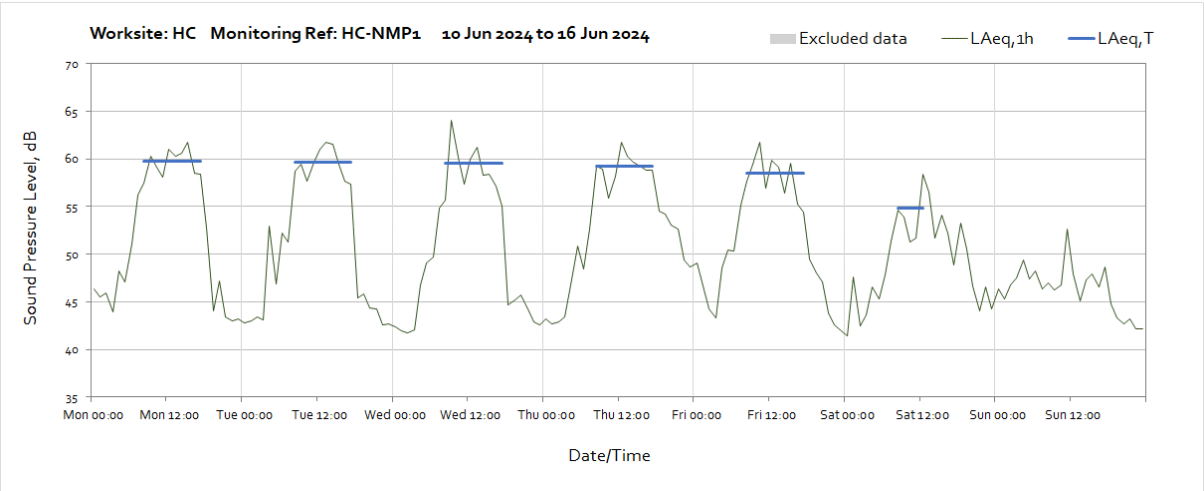
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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60
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Tue 12:00
Wed 00:00
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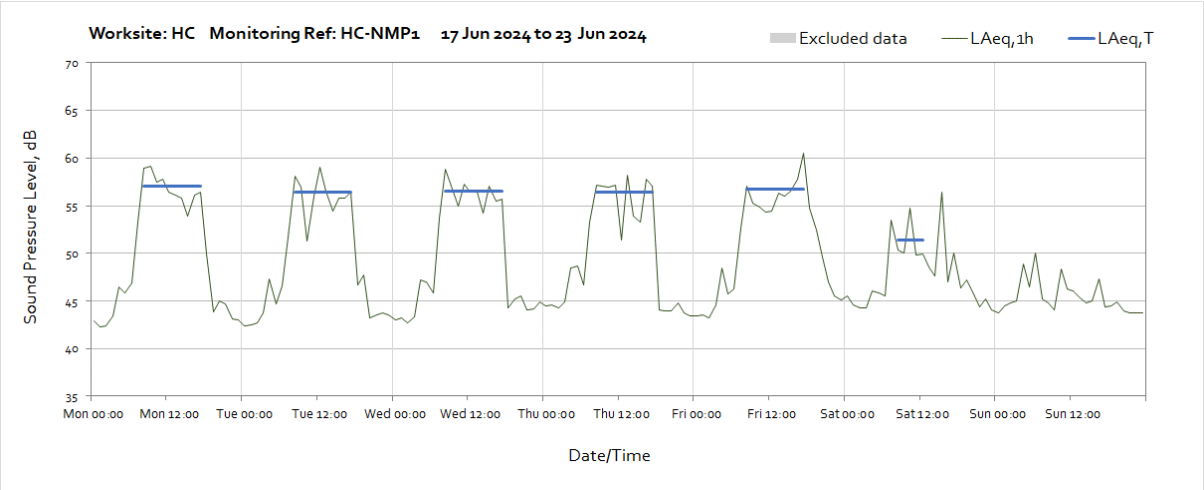
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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65
60
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35
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Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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Sat 12:00
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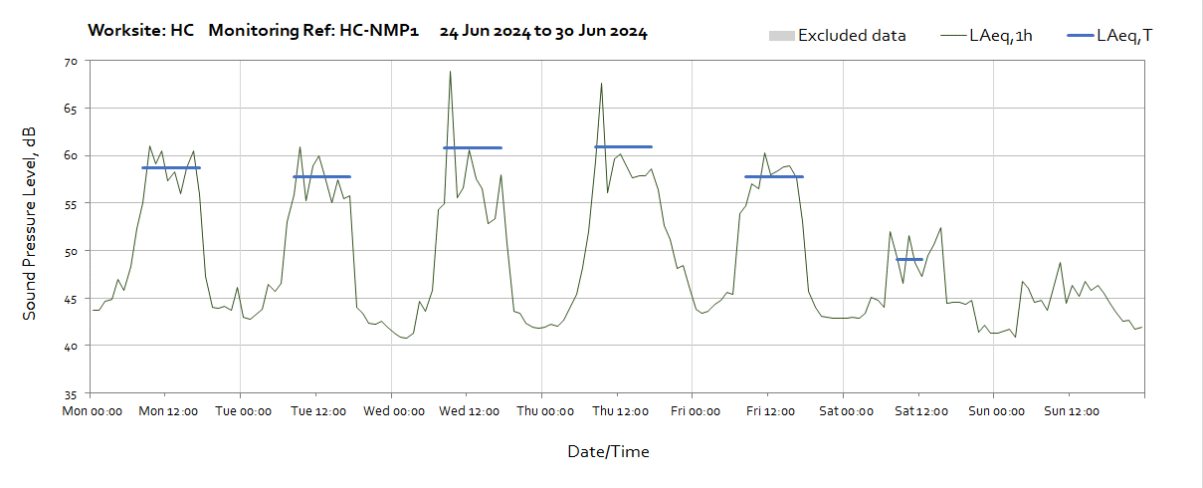
Date/Time



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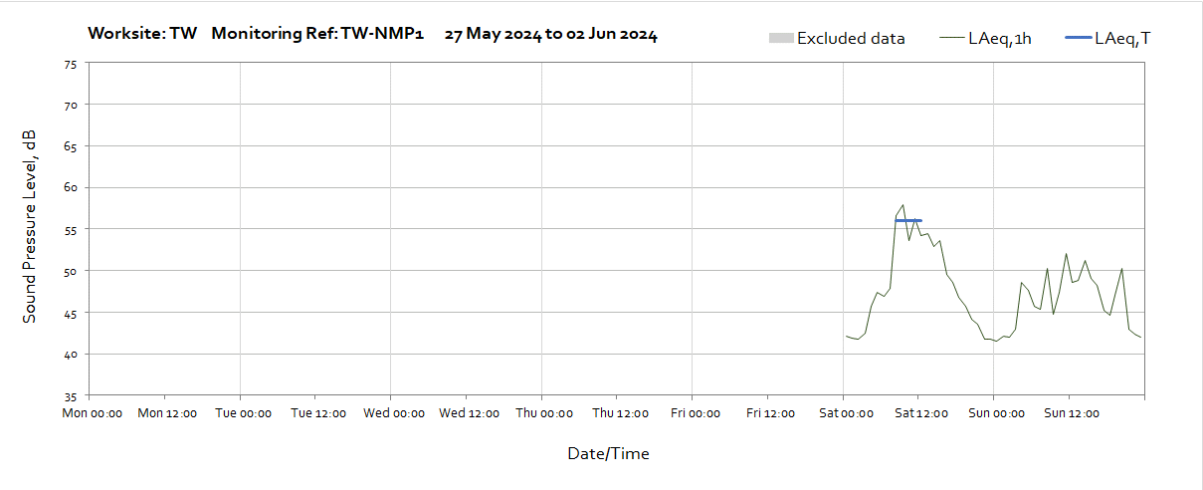

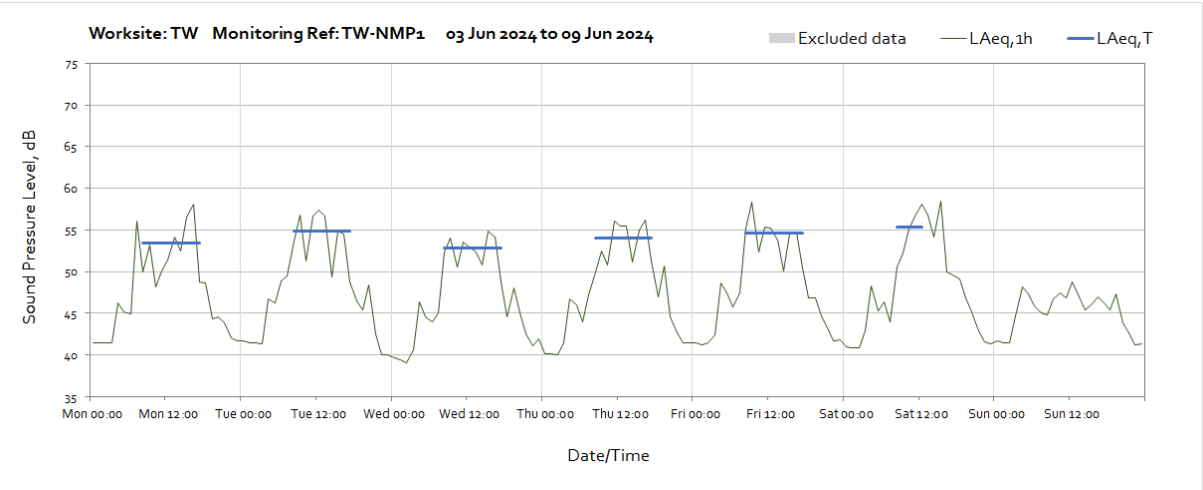

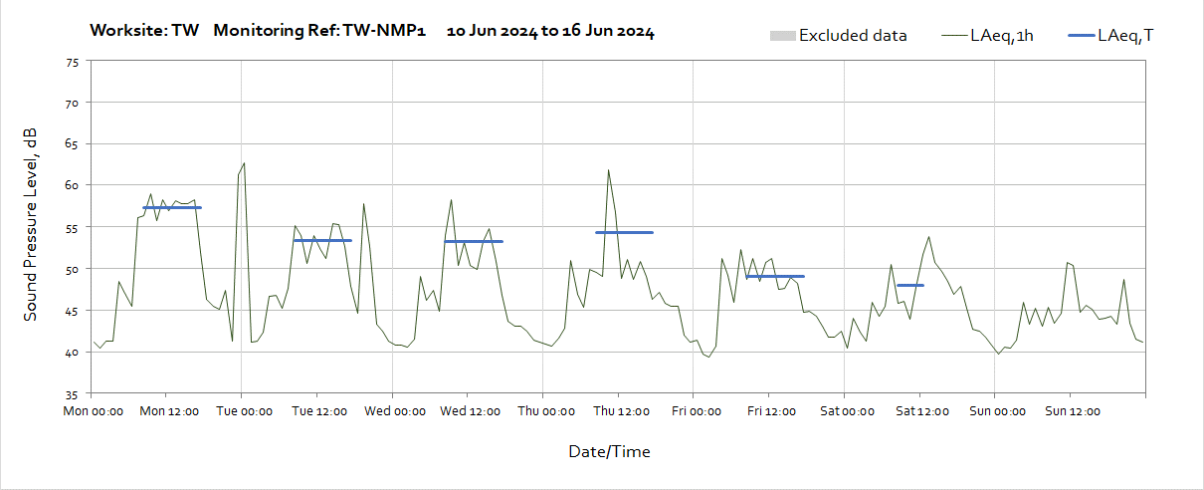
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LAeq,T
Sound Pressure Level, dB
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70
65
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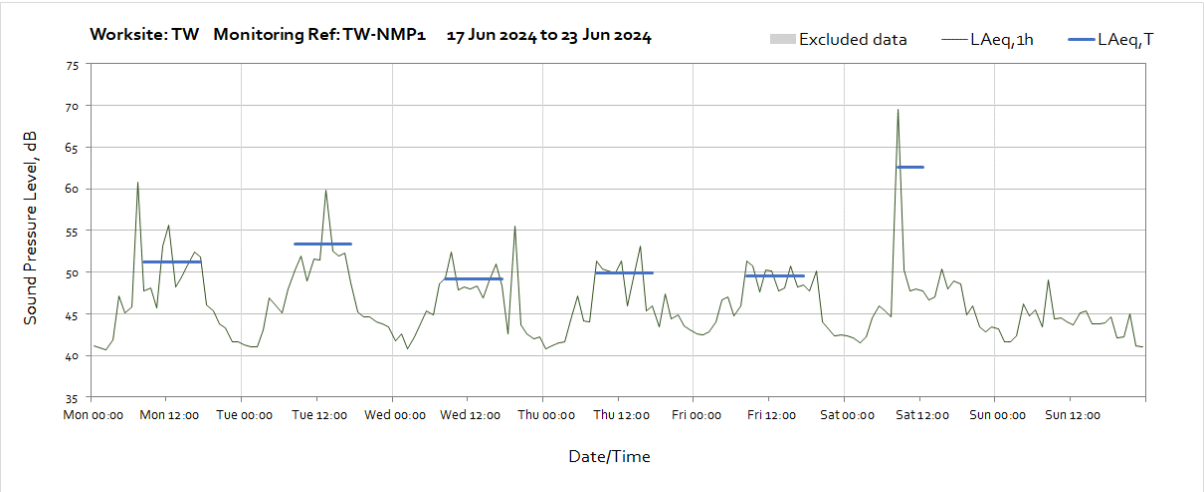
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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Excluded data
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LAeq,T
Sound Pressure Level, dB
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70
65
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40
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Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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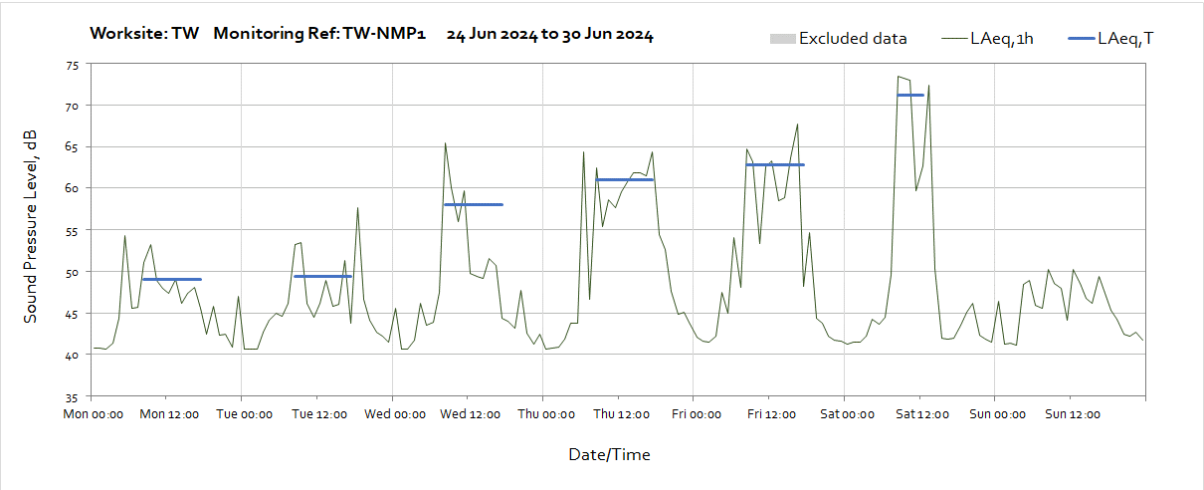
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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70
65
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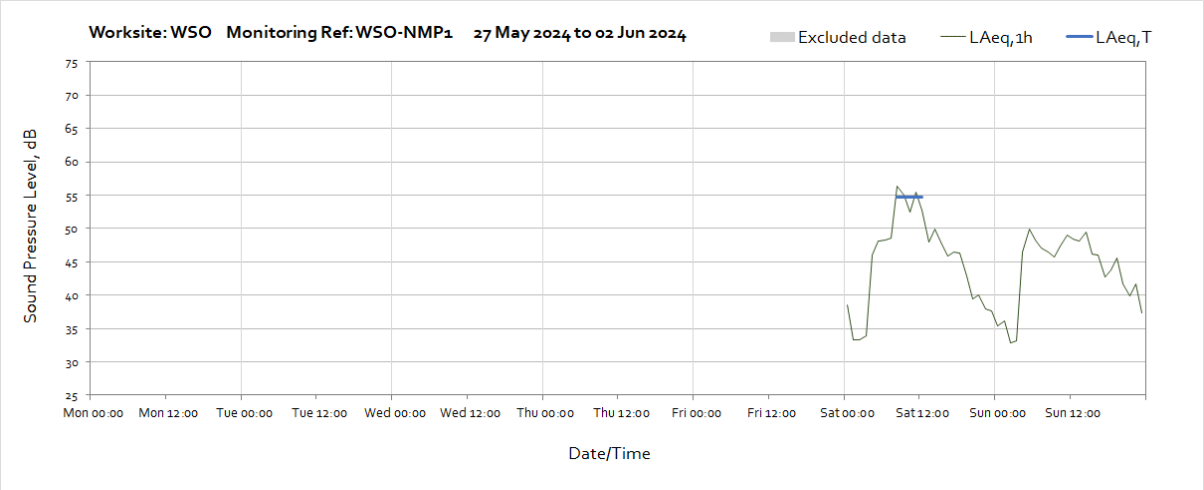
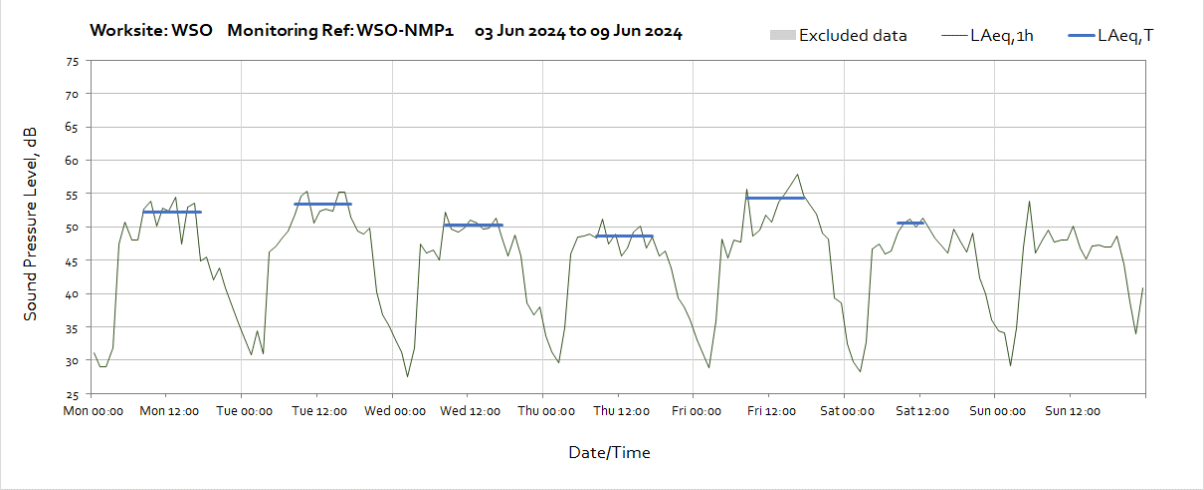
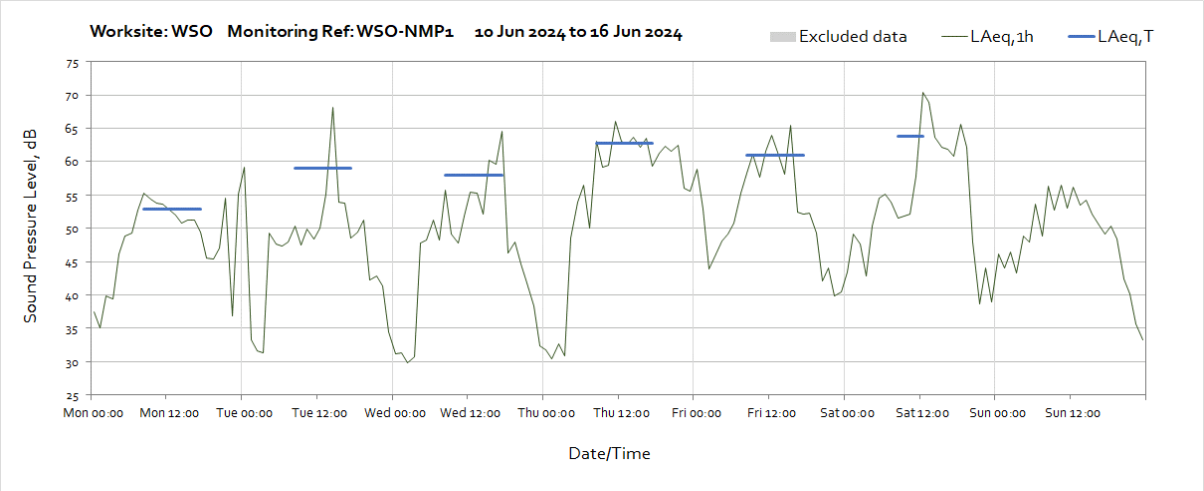
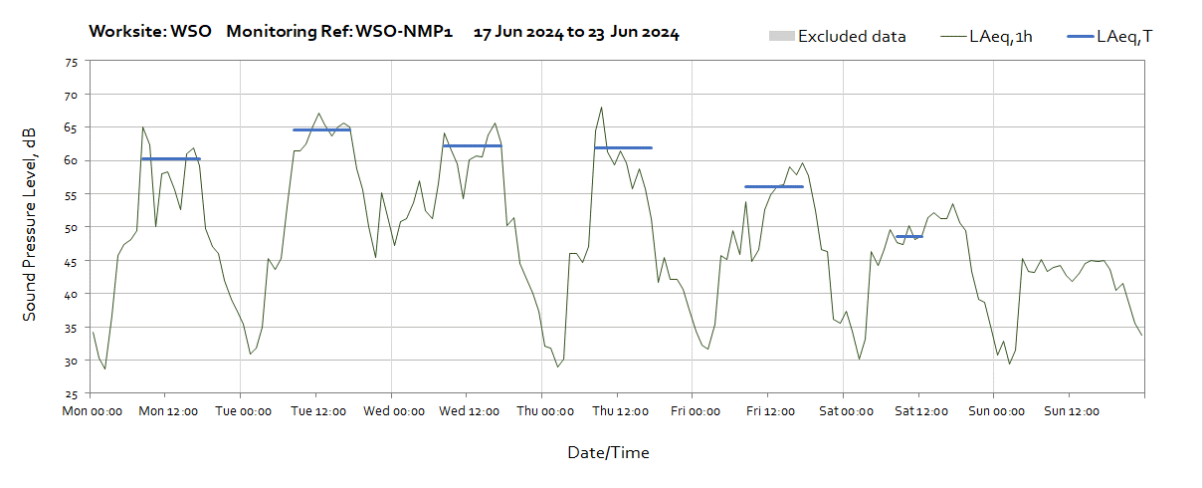
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

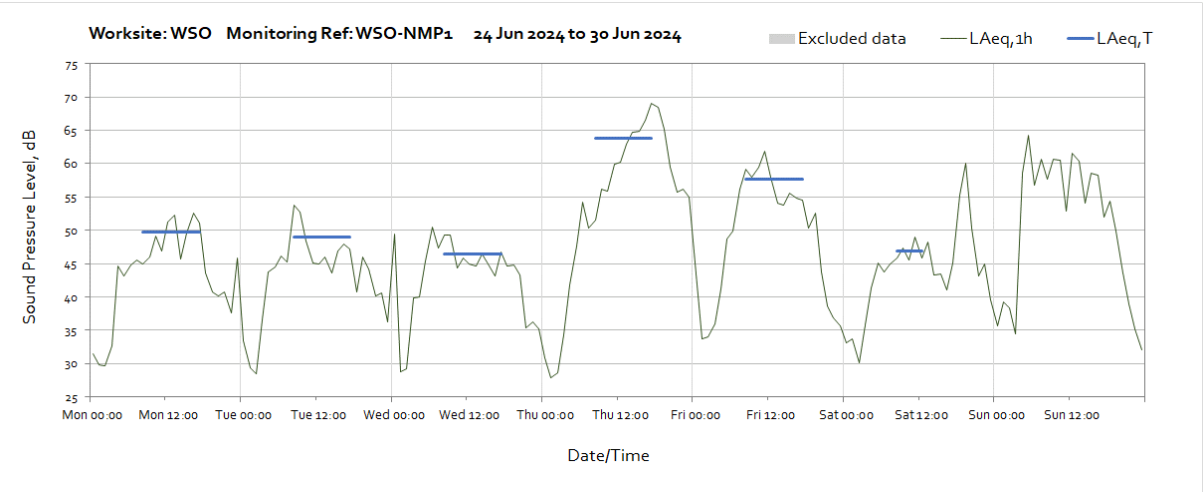
Worksite: WSO – Monitoring Ref: WSO-NMP1



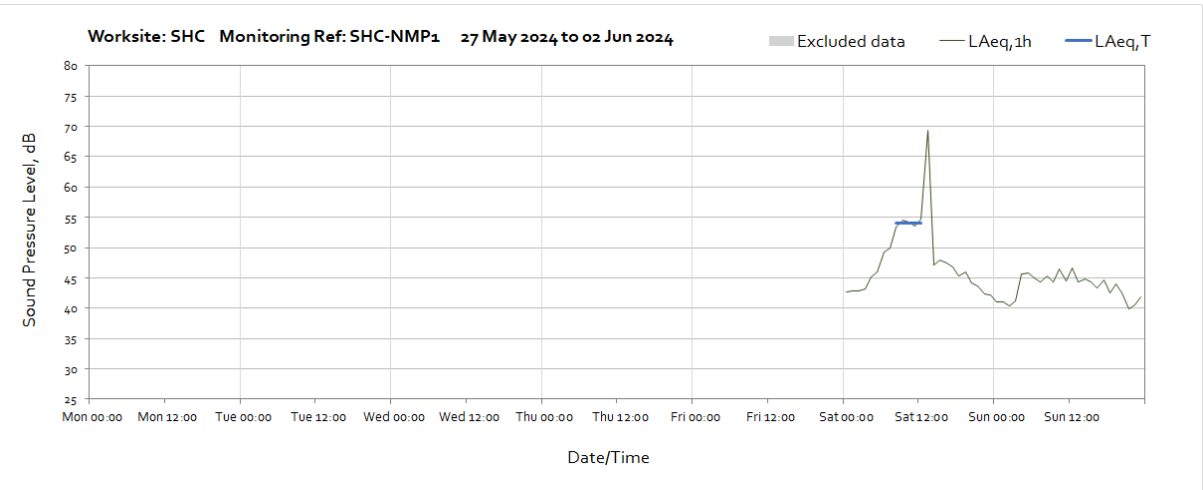


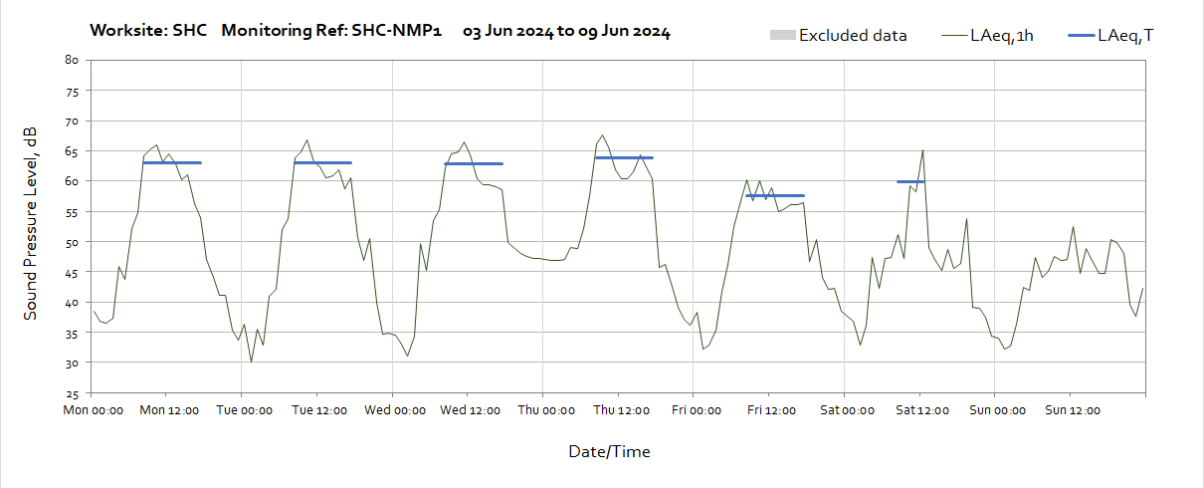






Worksite: CAL – Monitoring Ref: SHC-NMP1




Worksite: SHC Monitoring Ref: SHC-NMP1 03 Jun 2024 to 09 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
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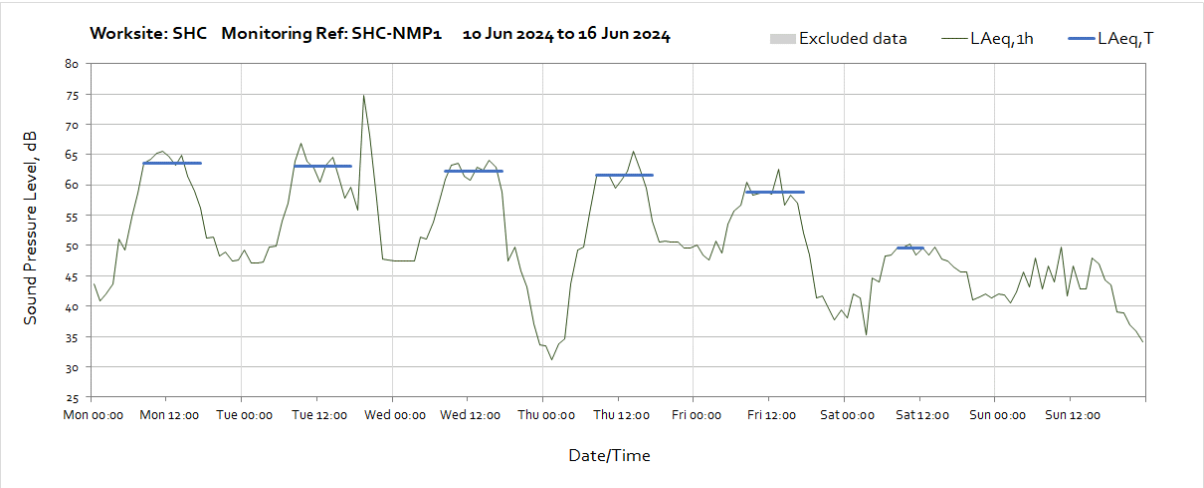
Date/Time


Worksite: SHC Monitoring Ref: SHC-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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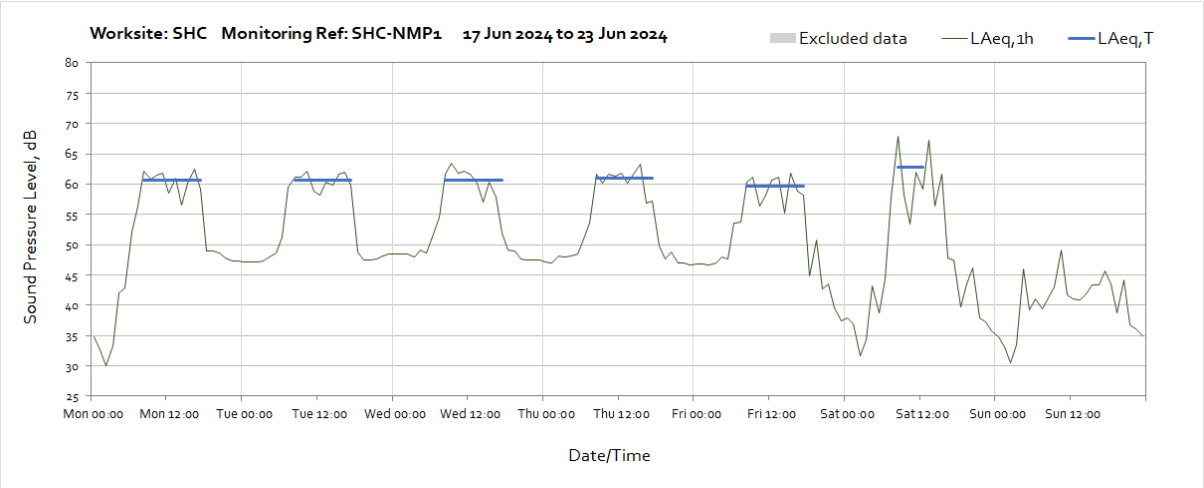
Worksite: SHC Monitoring Ref: SHC-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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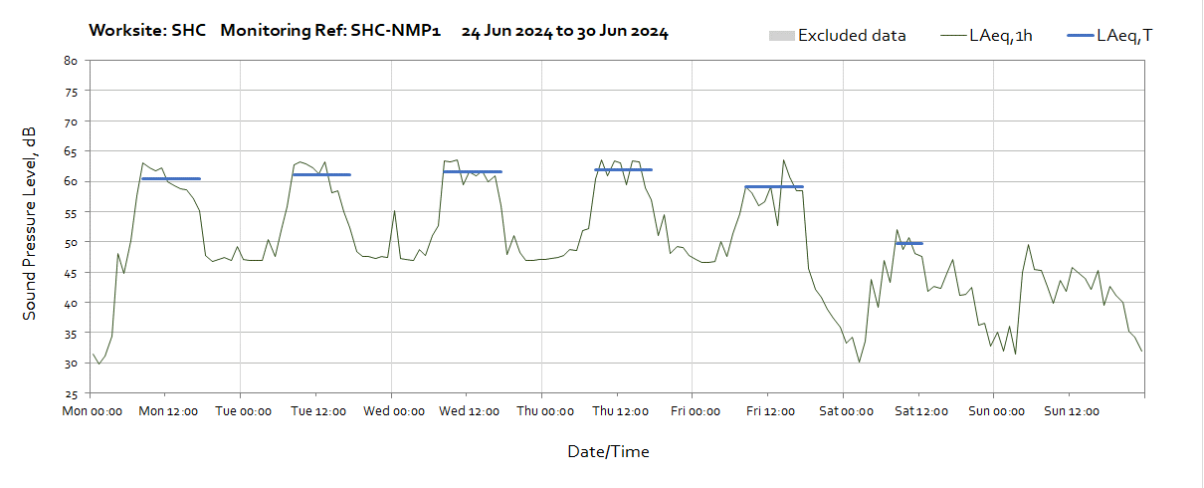
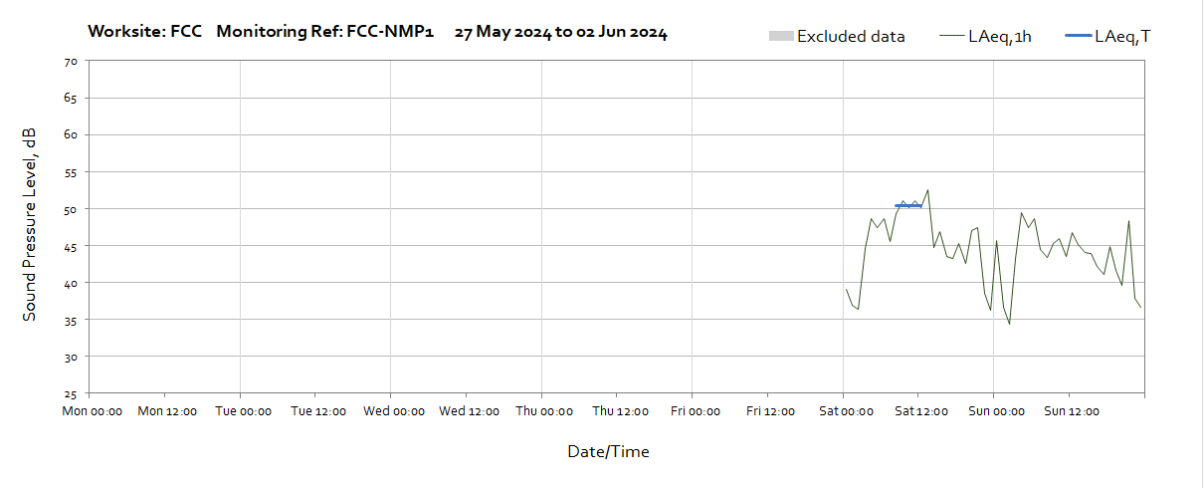
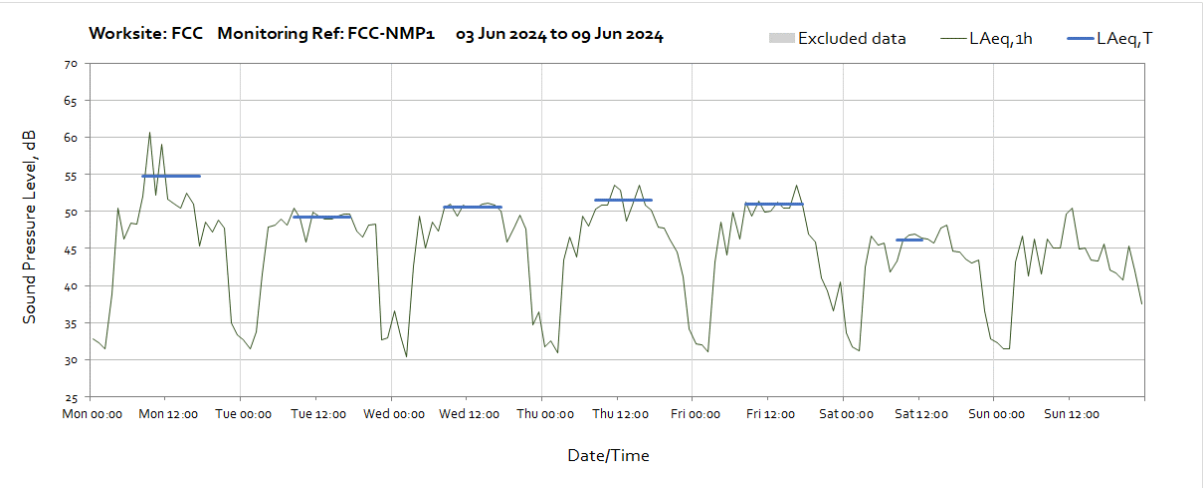
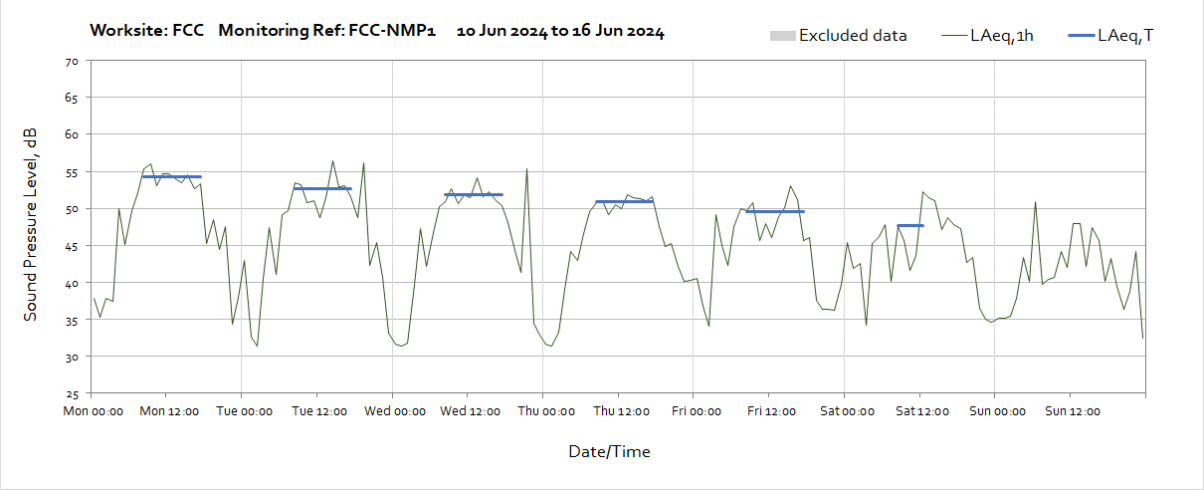
Date/Time



Worksite: CAL – Monitoring Re: FCC-NMP1






Worksite: FCC Monitoring Ref: FCC-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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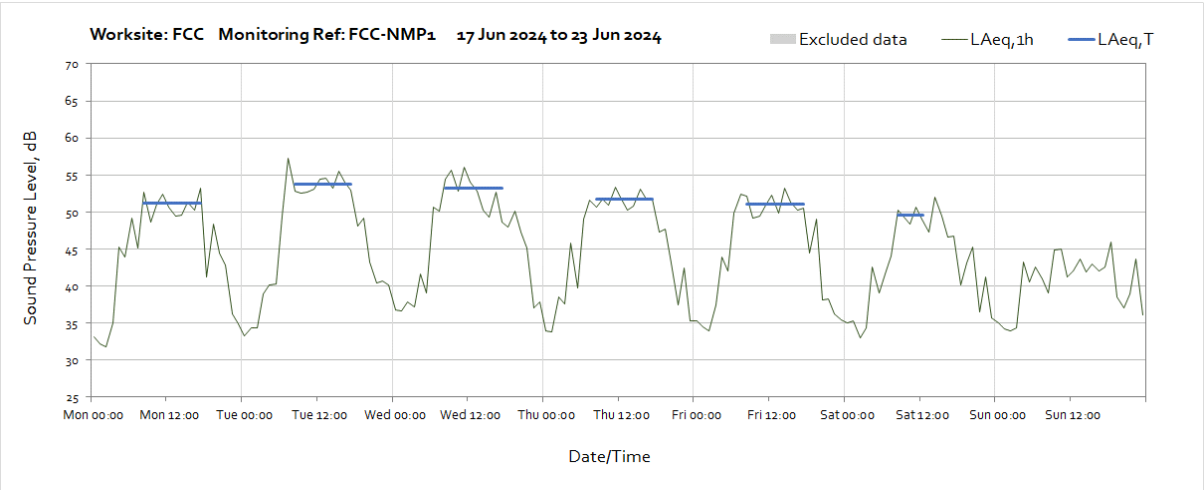
Date/Time


Worksite: FCC Monitoring Ref: FCC-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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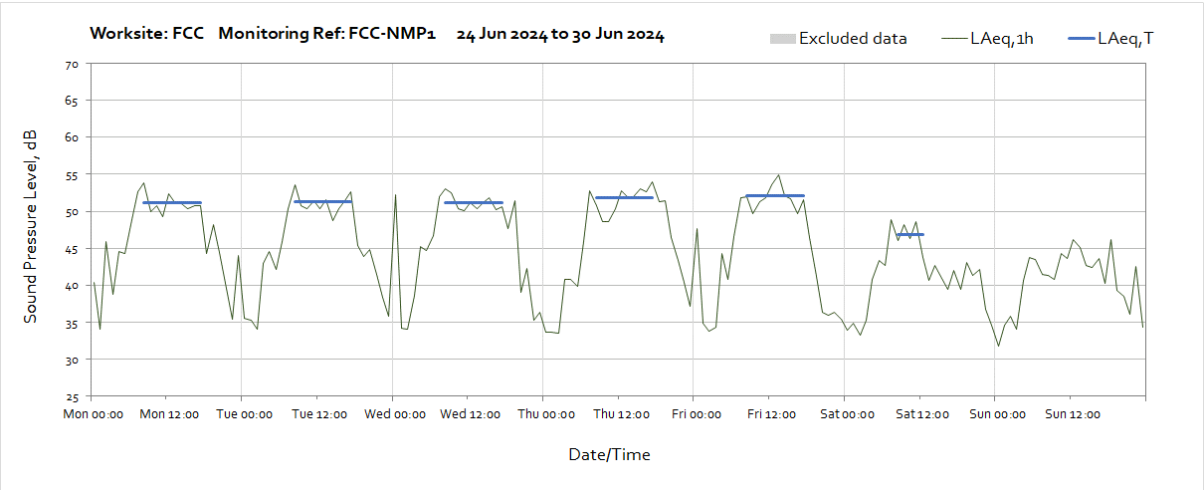
Date/Time


Worksite: FCC Monitoring Ref: FCC-NMP1 24 Jun 2024 to 30 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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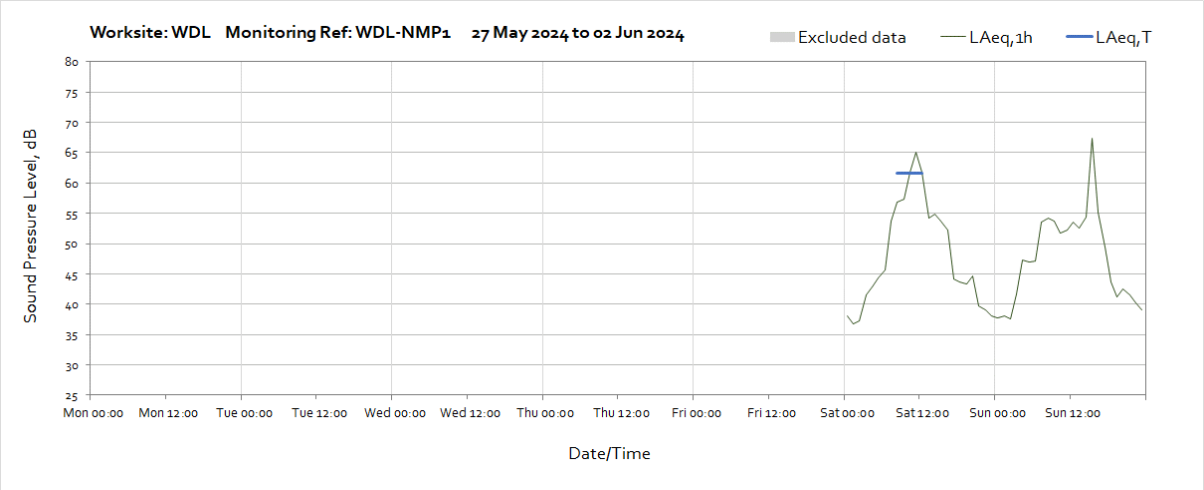
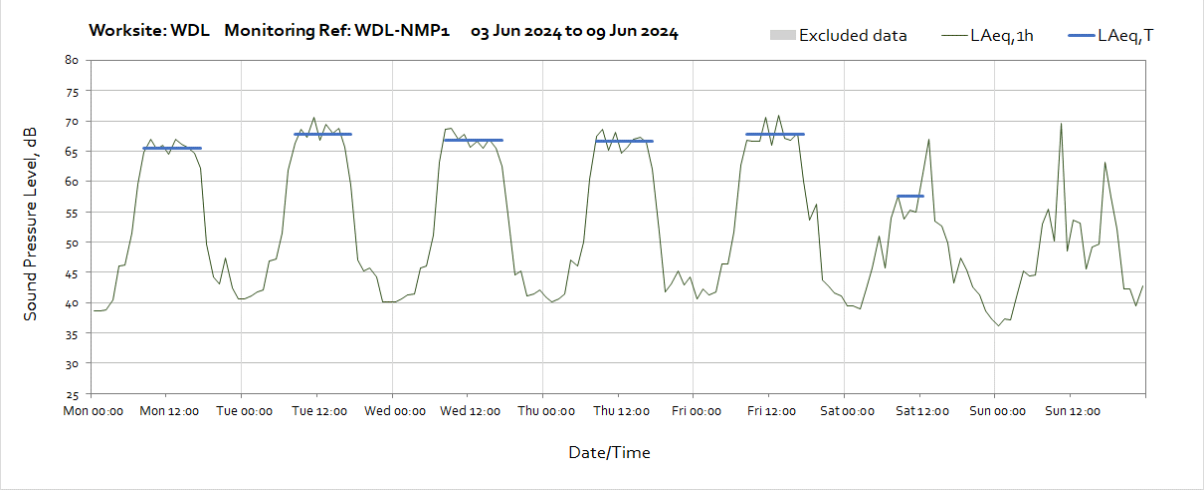
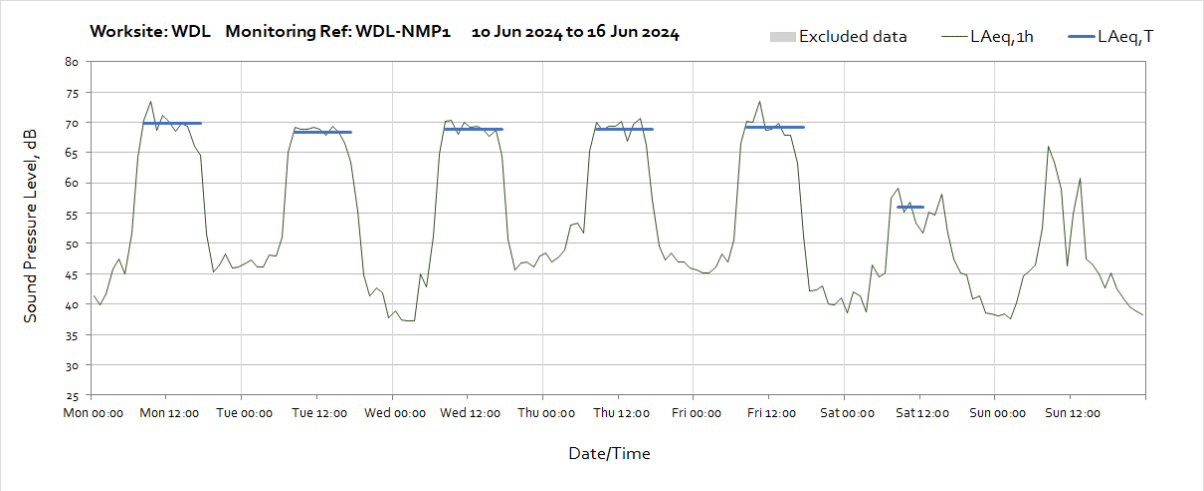
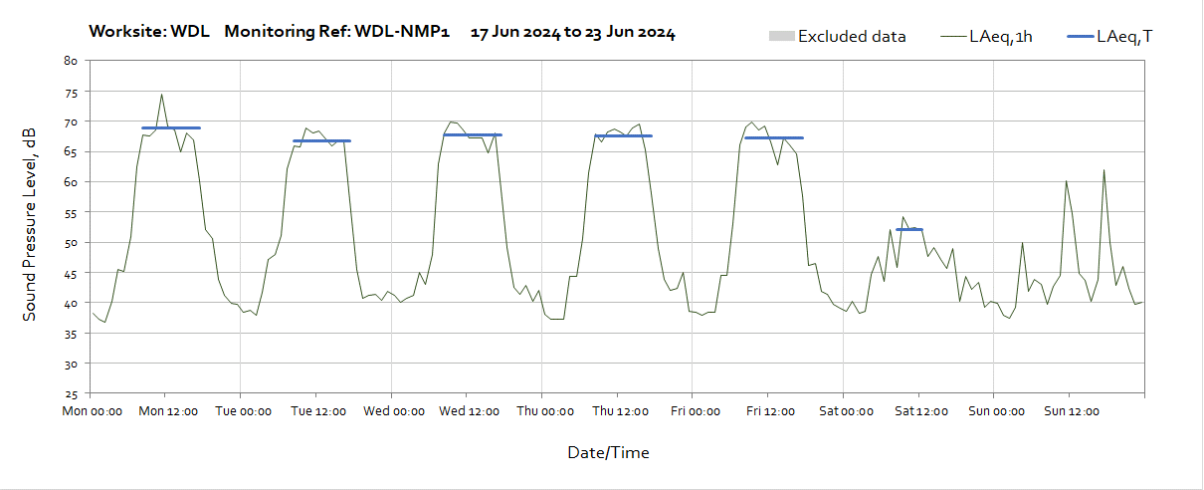
Date/Time

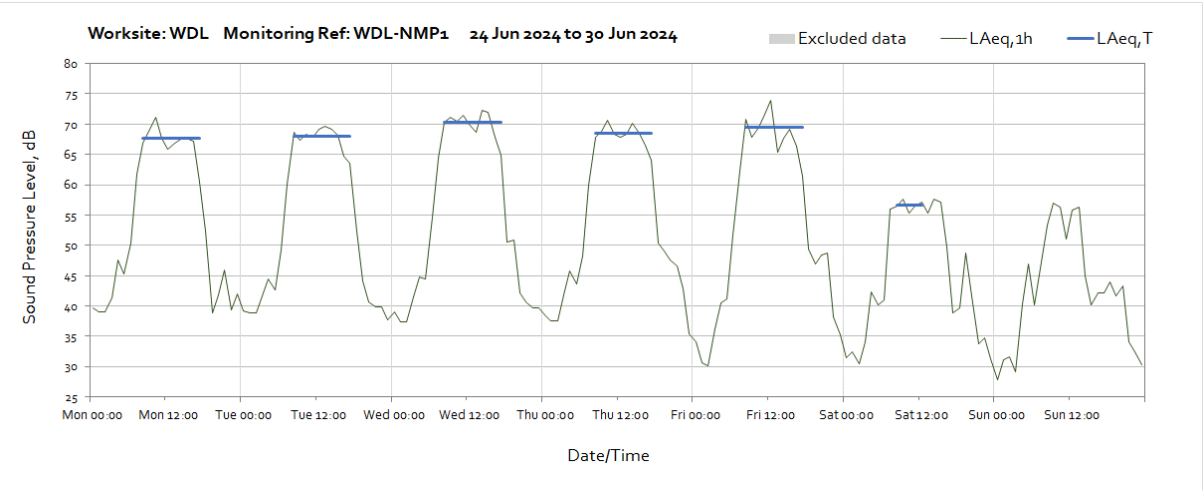
Worksite: WDL – Monitoring Ref: WDL-NMP1



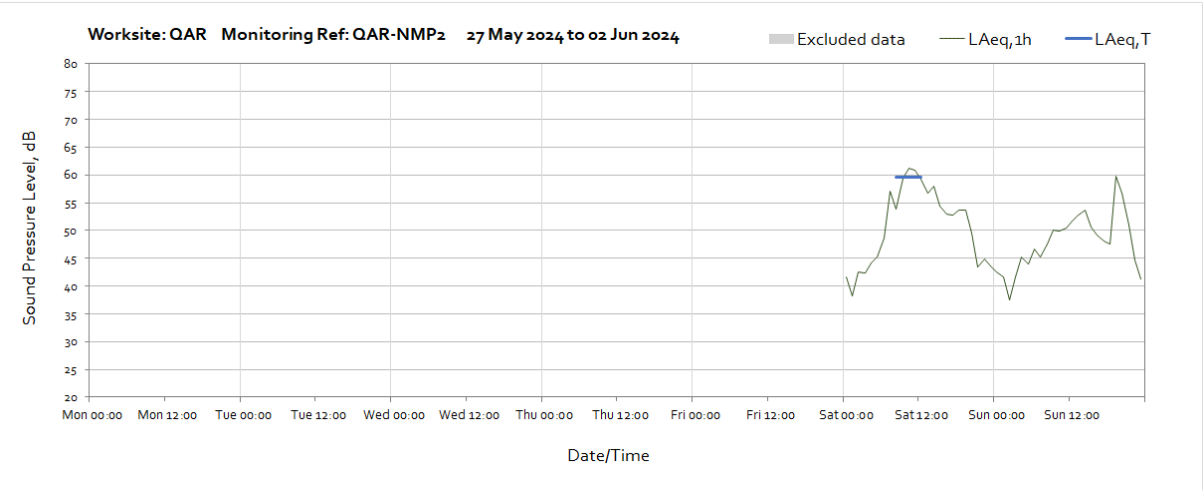


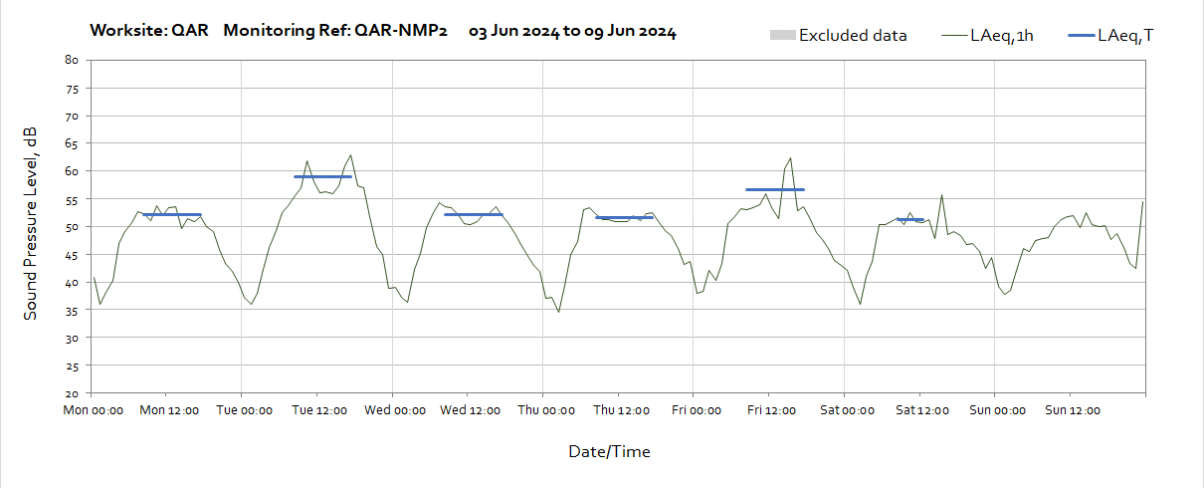






Worksite: QAR – Monitoring Ref: QAR-NMP2




Worksite: QAR Monitoring Ref: QAR-NMP2 03 Jun 2024 to 09 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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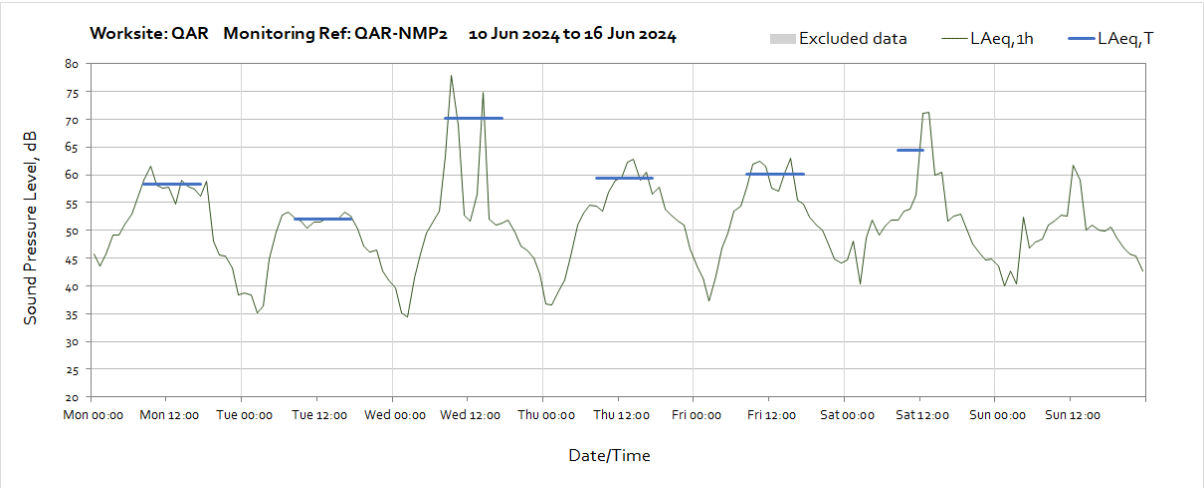
Date/Time


Worksite: QAR Monitoring Ref: QAR-NMP2 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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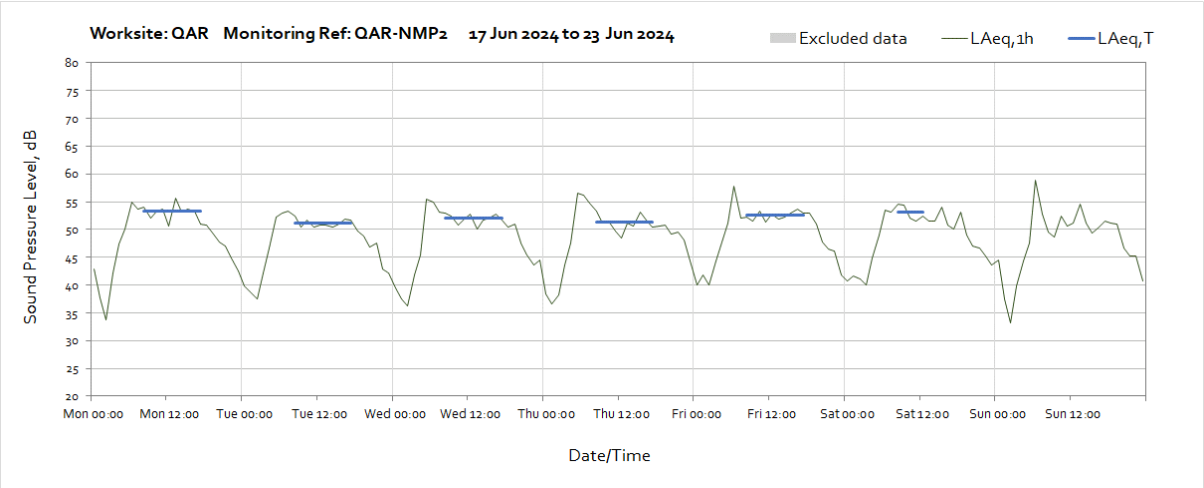
Date/Time


Worksite: QAR Monitoring Ref: QAR-NMP2 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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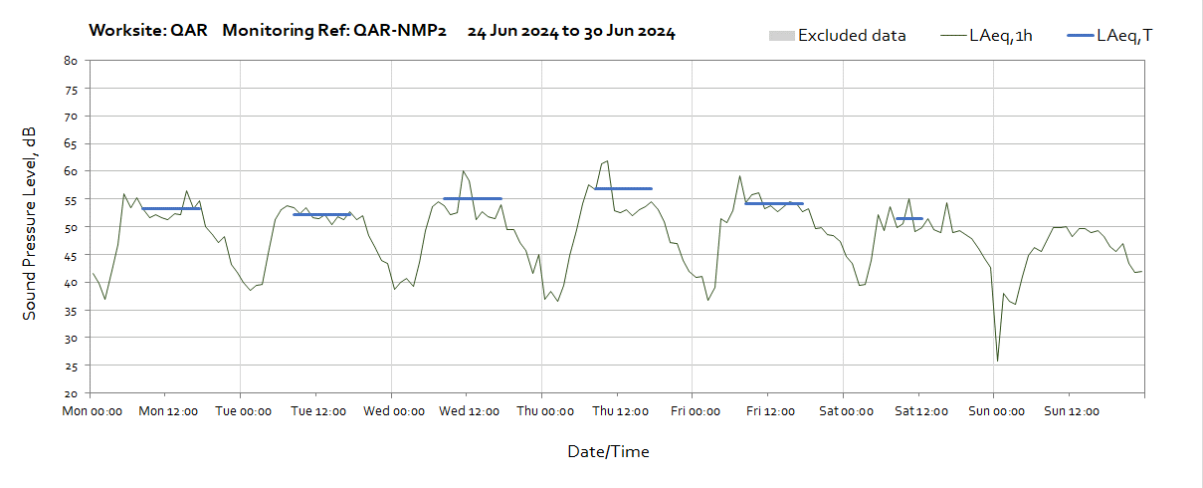
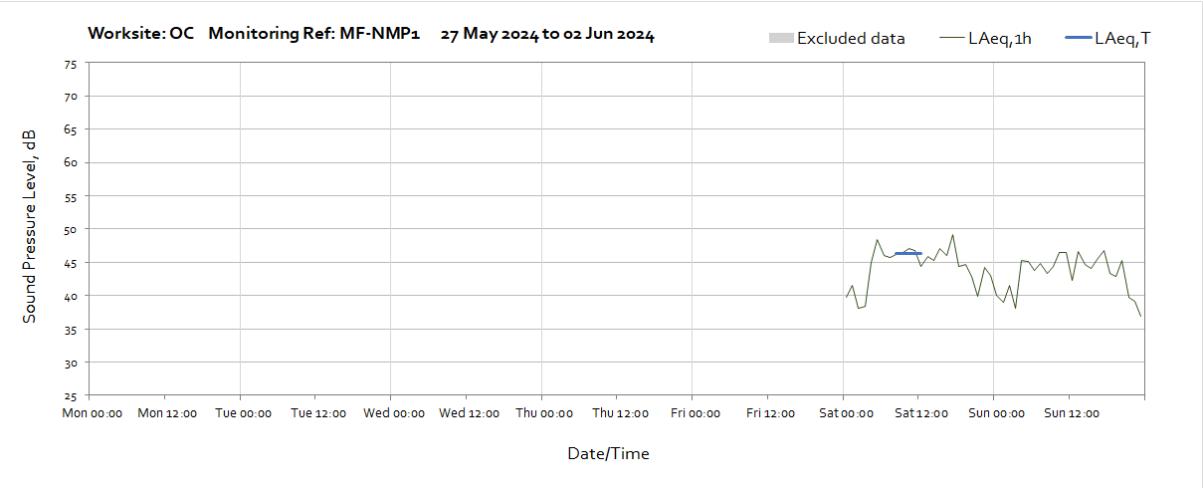
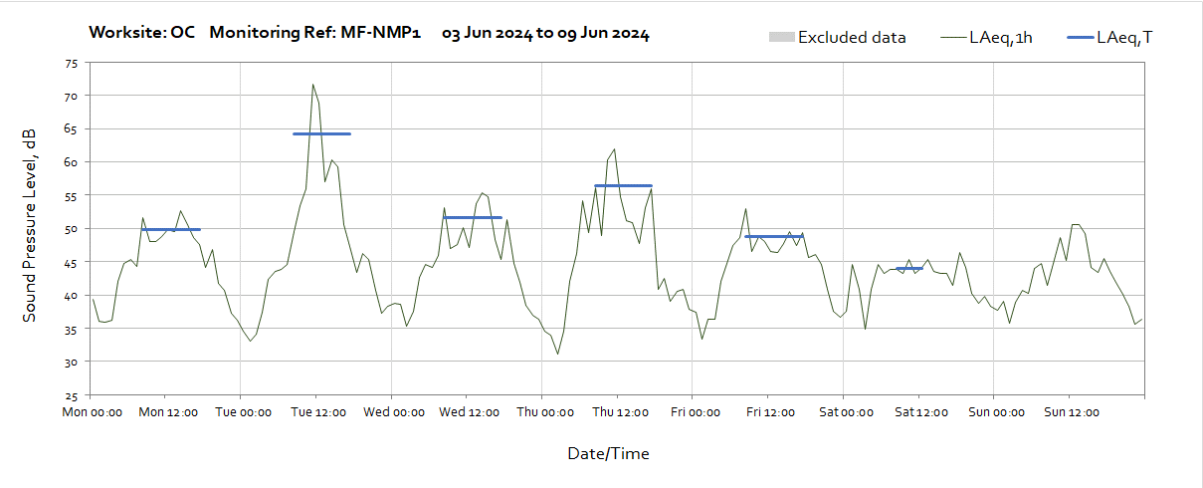
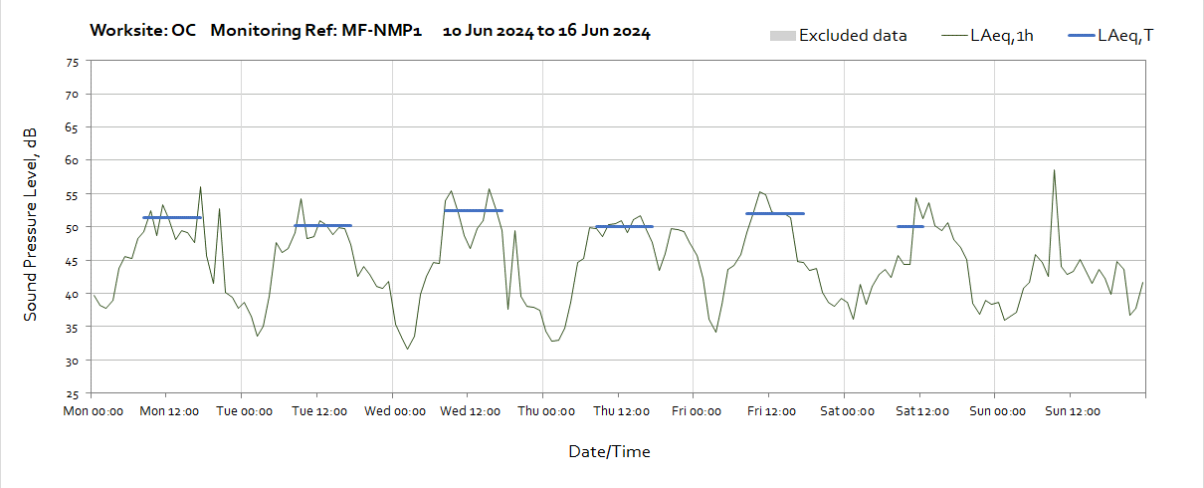


Worksite: OC – Monitoring Ref: MF-NMP1






Worksite: OC Monitoring Ref: MF-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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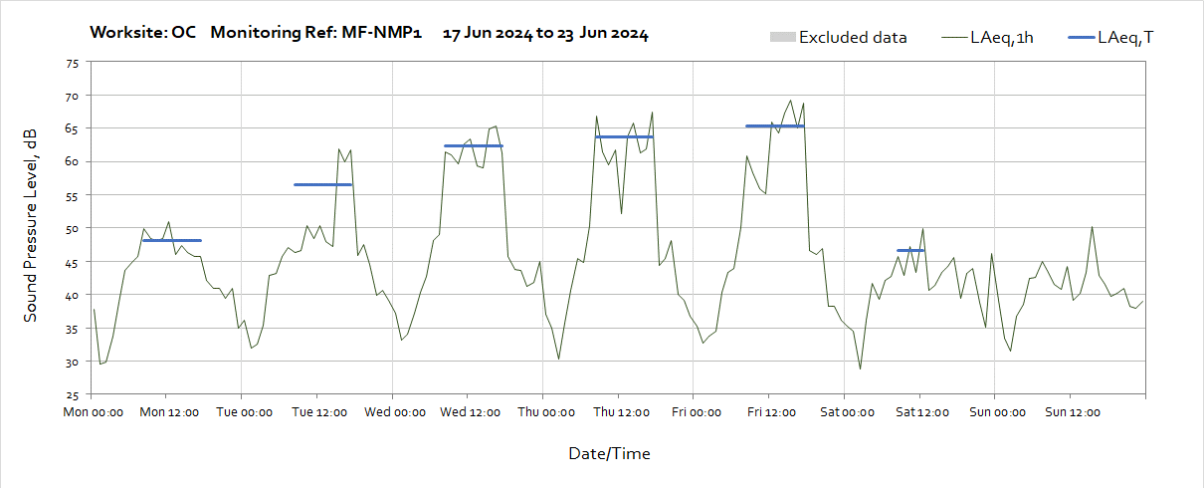
Worksite: OC Monitoring Ref: MF-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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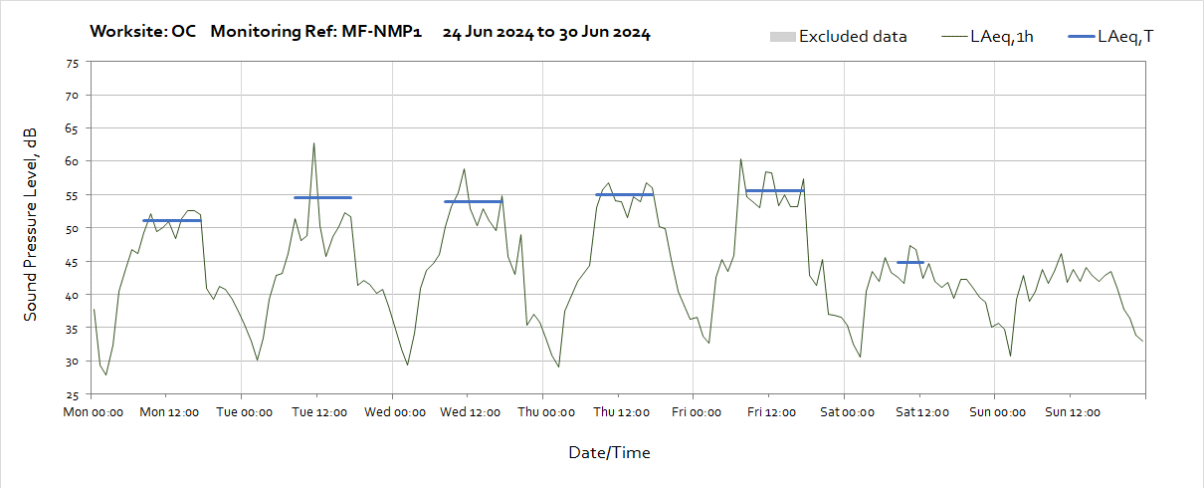
Date/Time


Worksite: OC Monitoring Ref: MF-NMP1 24 Jun 2024 to 30 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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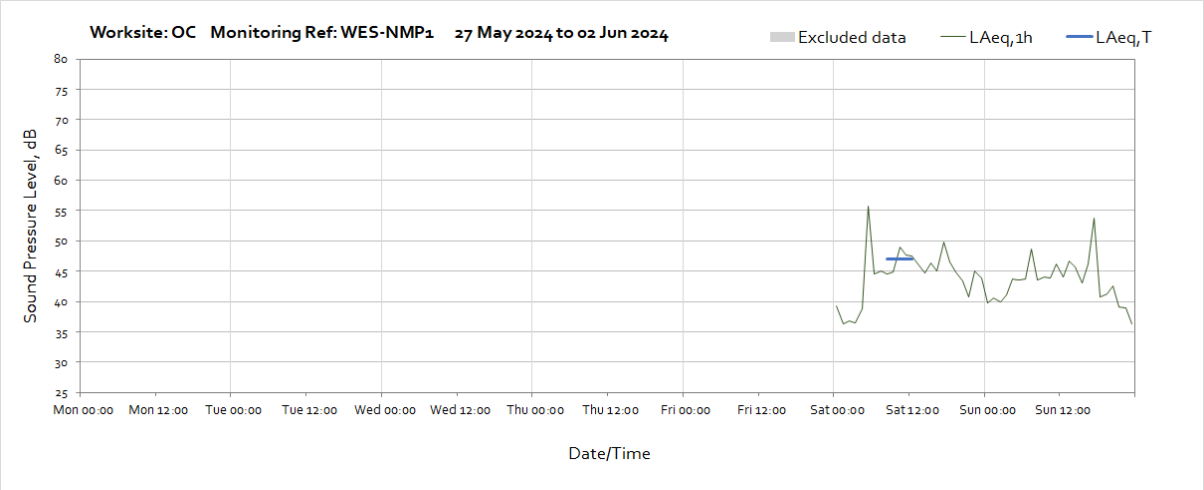
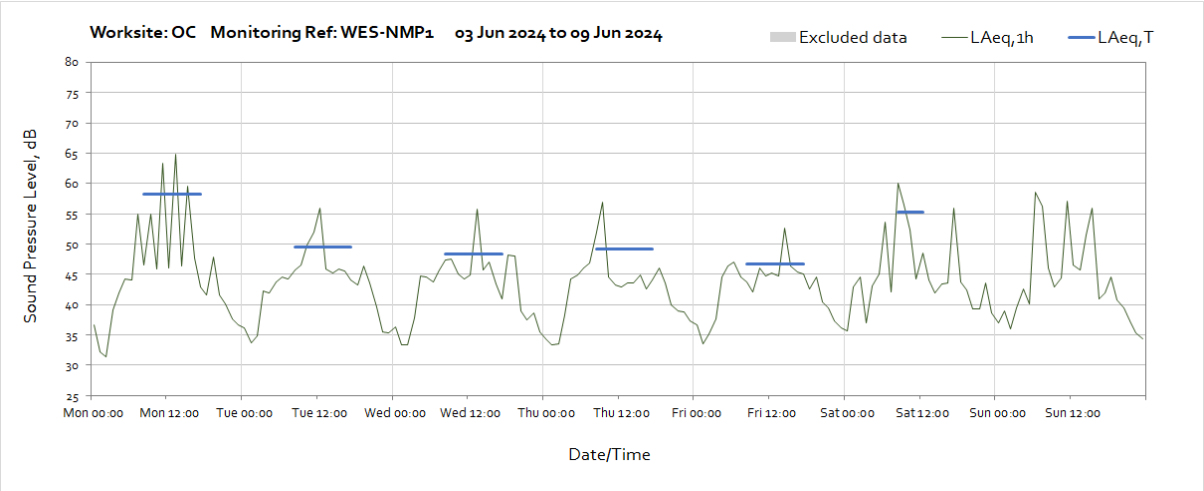
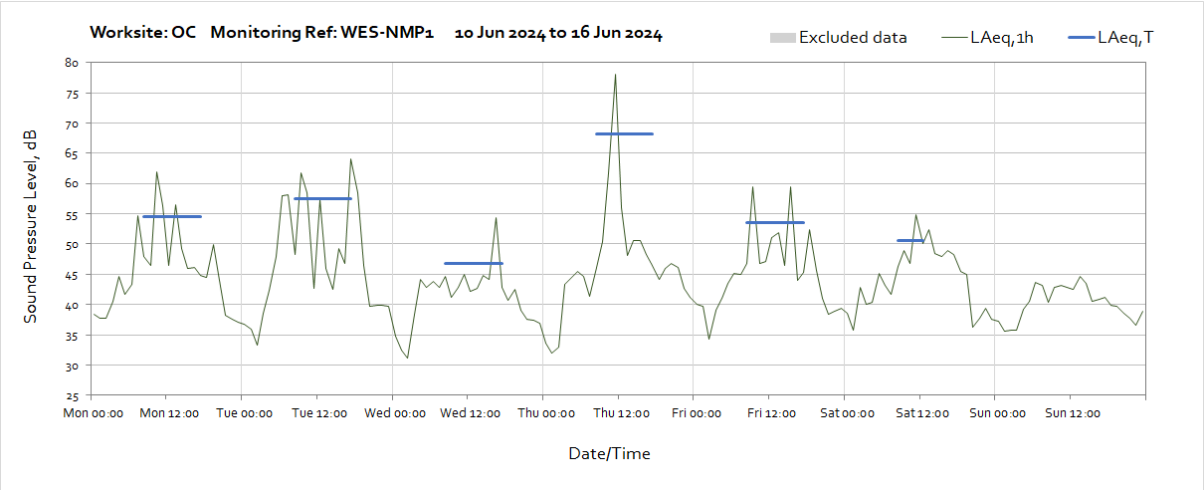
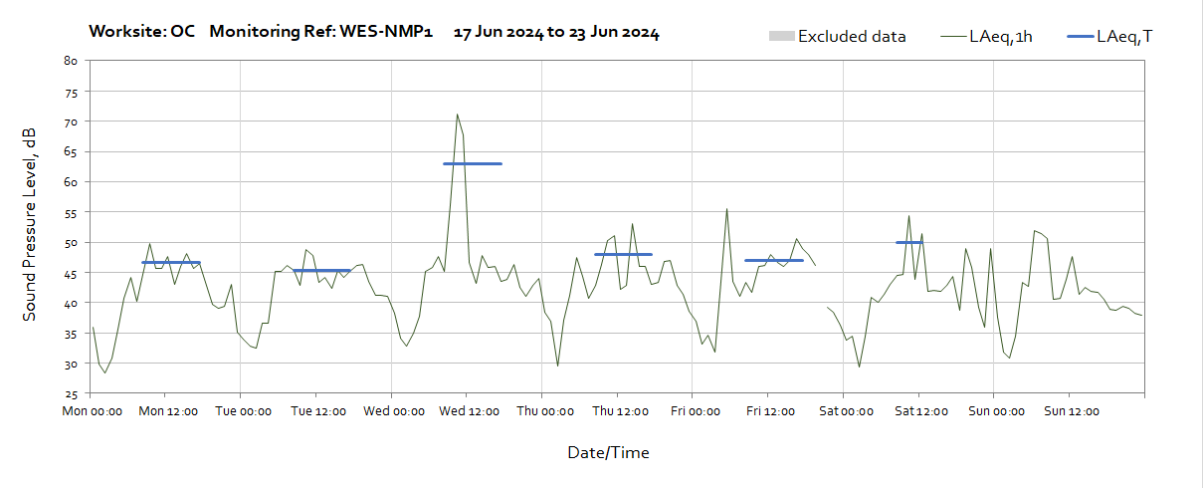
Worksite: OC – Monitoring Ref: WES-NMP1

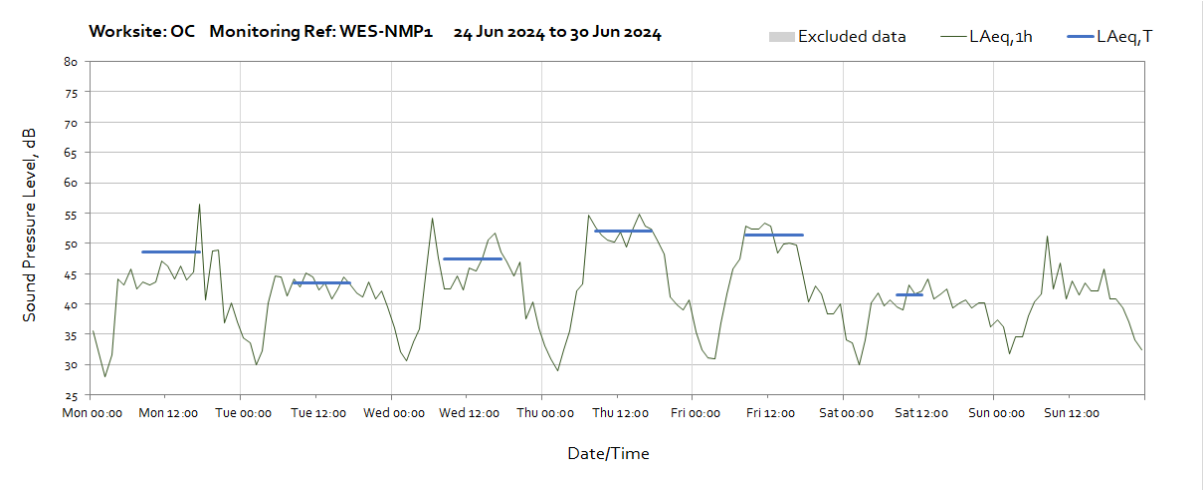




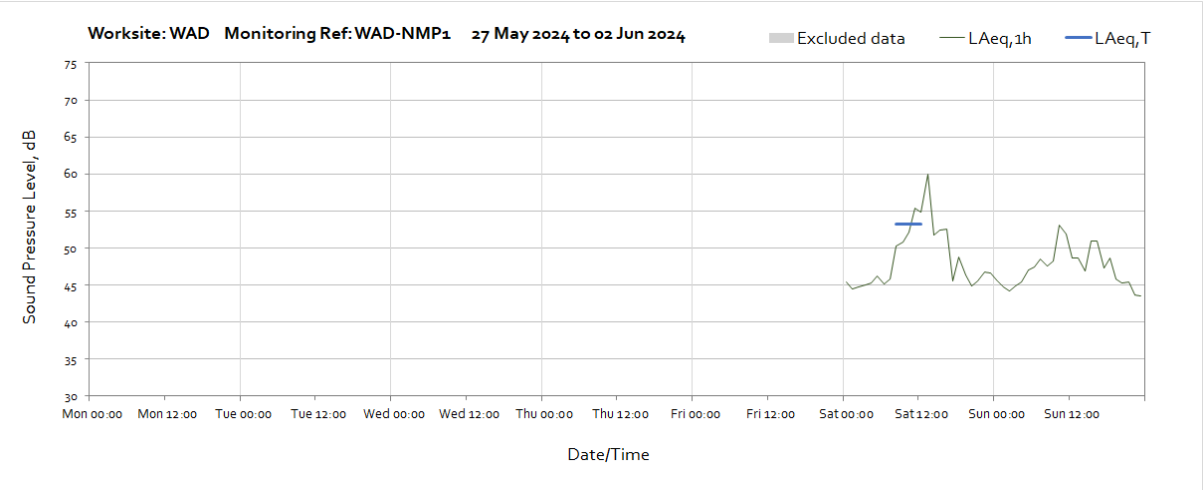


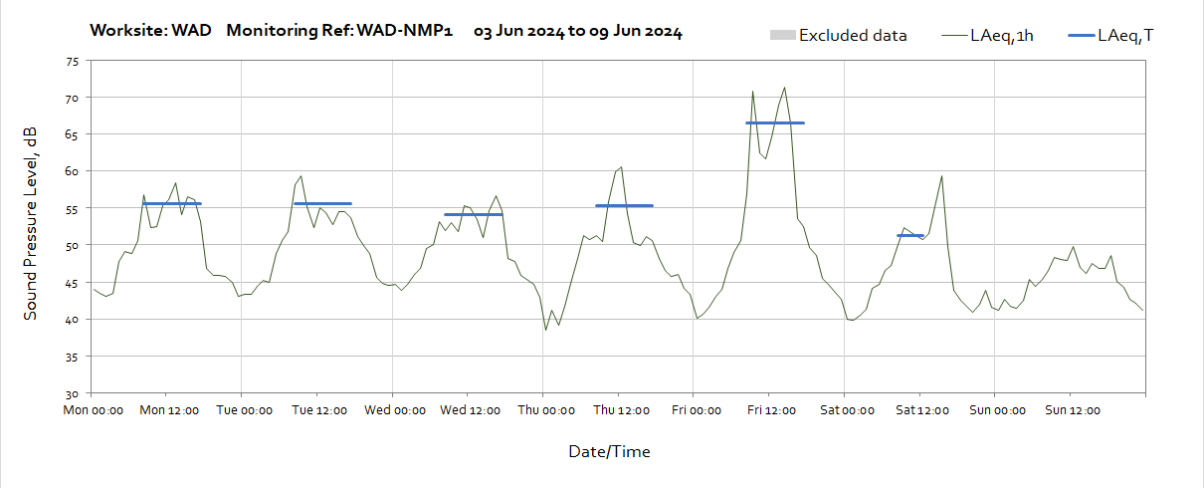


Note: Missing data between 20:00 and 21:00 on Friday 21st June is currently under investigation.



Worksite: WAD – Monitoring Ref: WAD-NMP1




Worksite: WAD Monitoring Ref: WAD-NMP1 03 Jun 2024 to 09 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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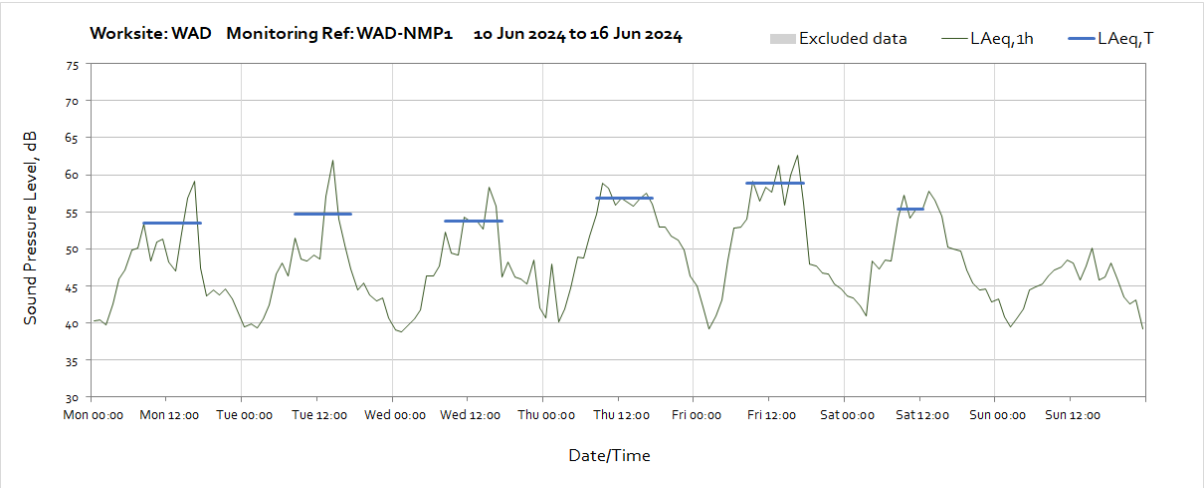
Date/Time


Worksite: WAD Monitoring Ref: WAD-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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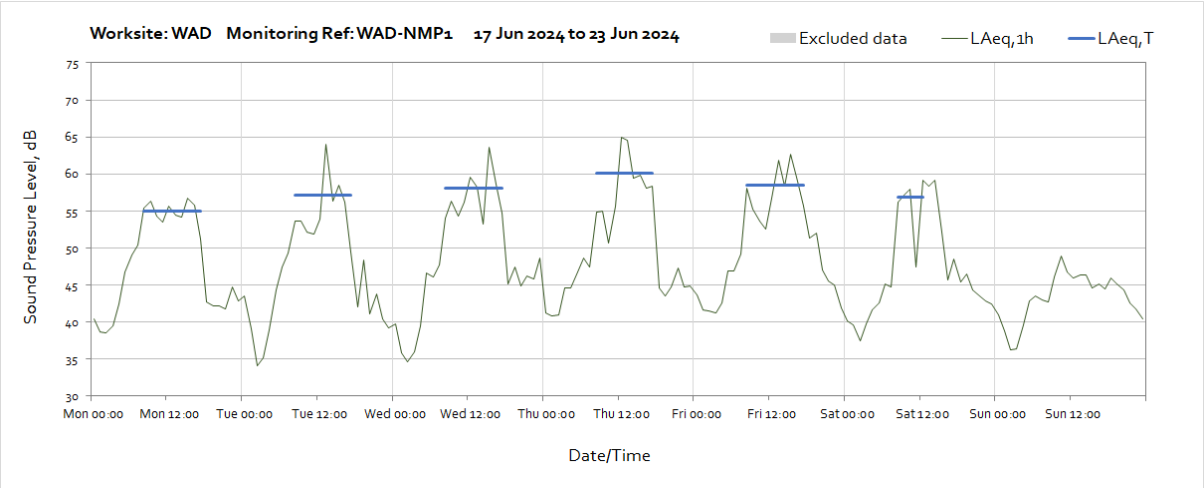
Date/Time


Worksite: WAD Monitoring Ref: WAD-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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Sound Pressure Level, dB
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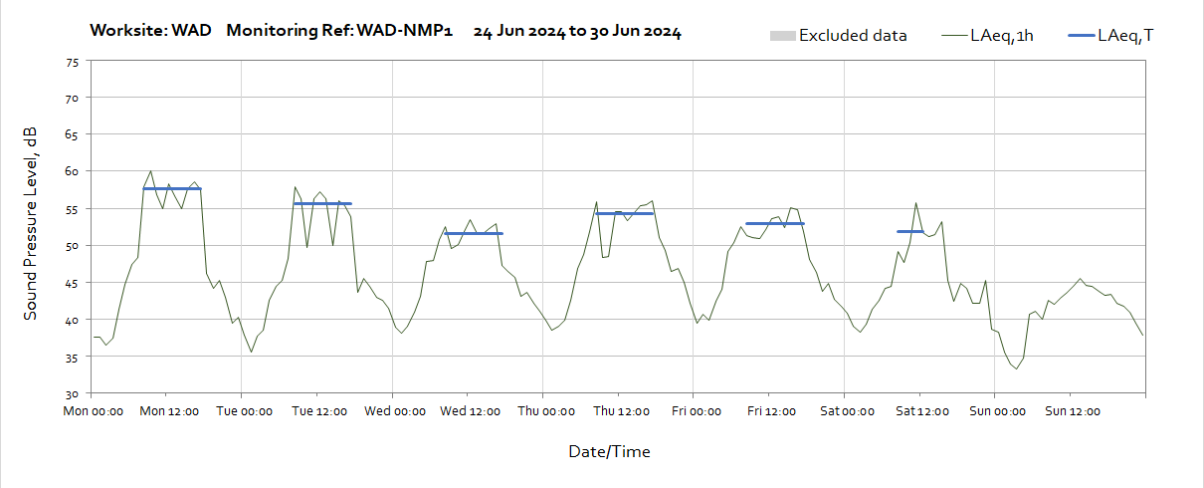
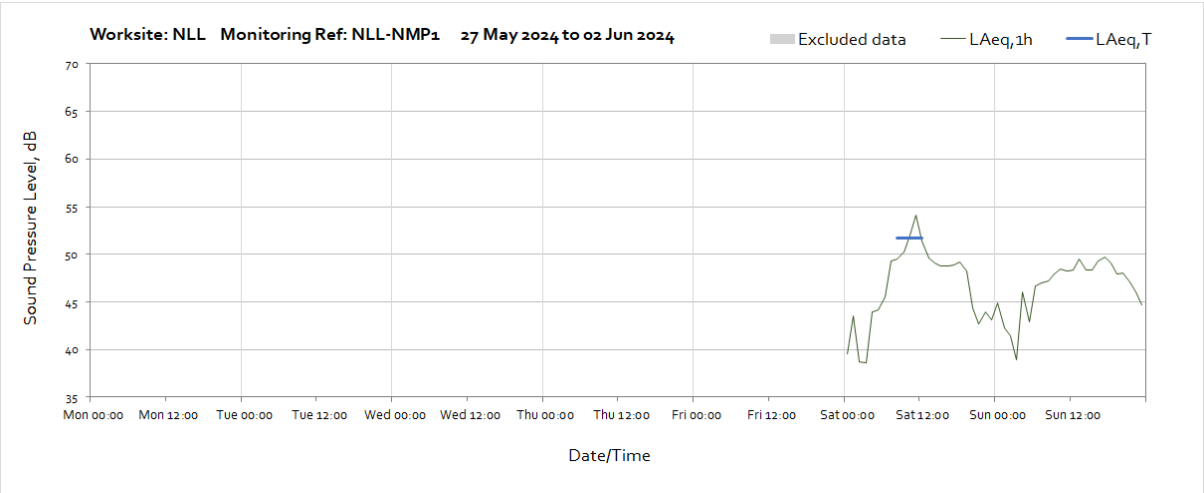
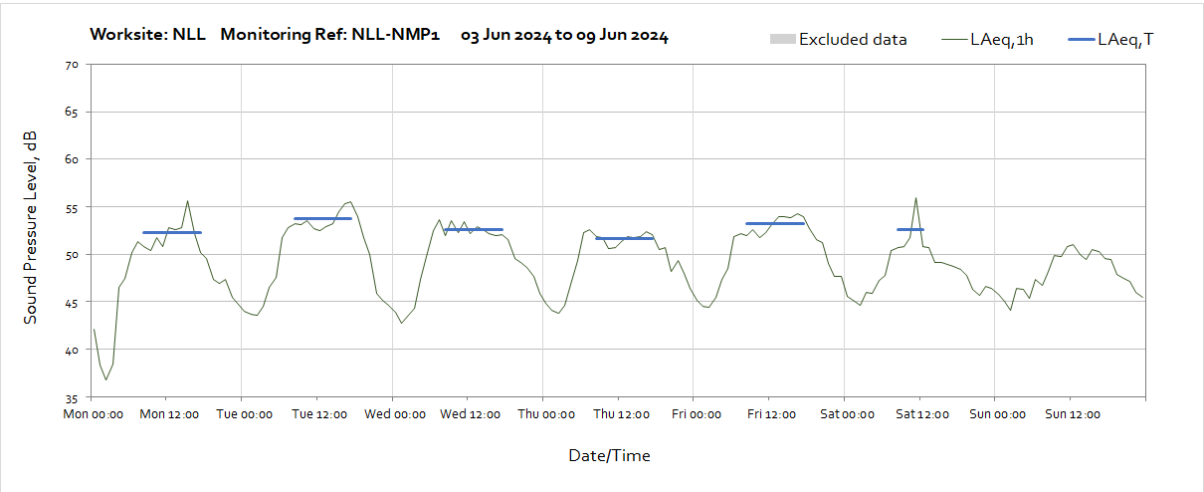
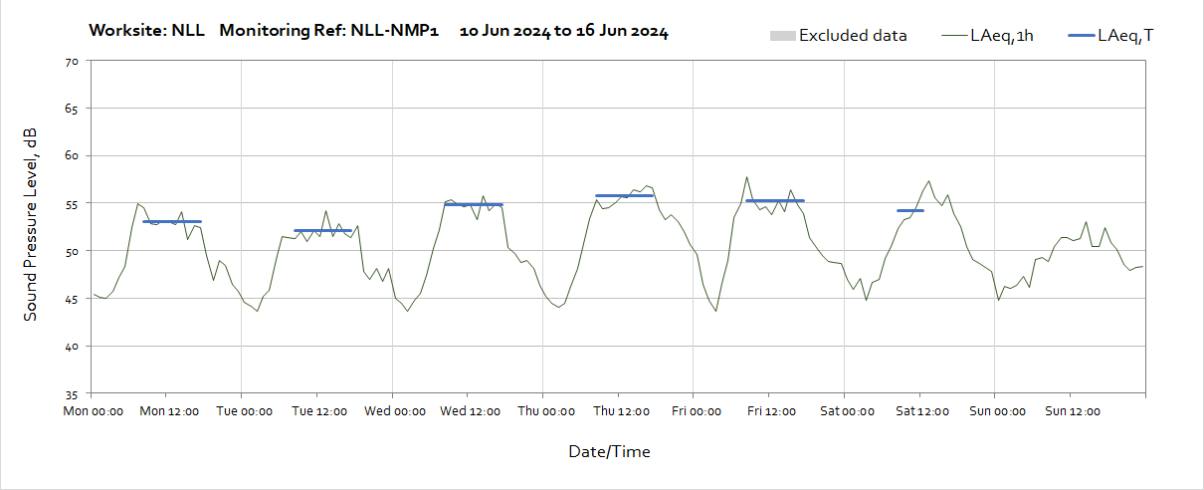


Worksite: NLL – Monitoring Ref: NLL-NMP1






Worksite: NLL Monitoring Ref: NLL-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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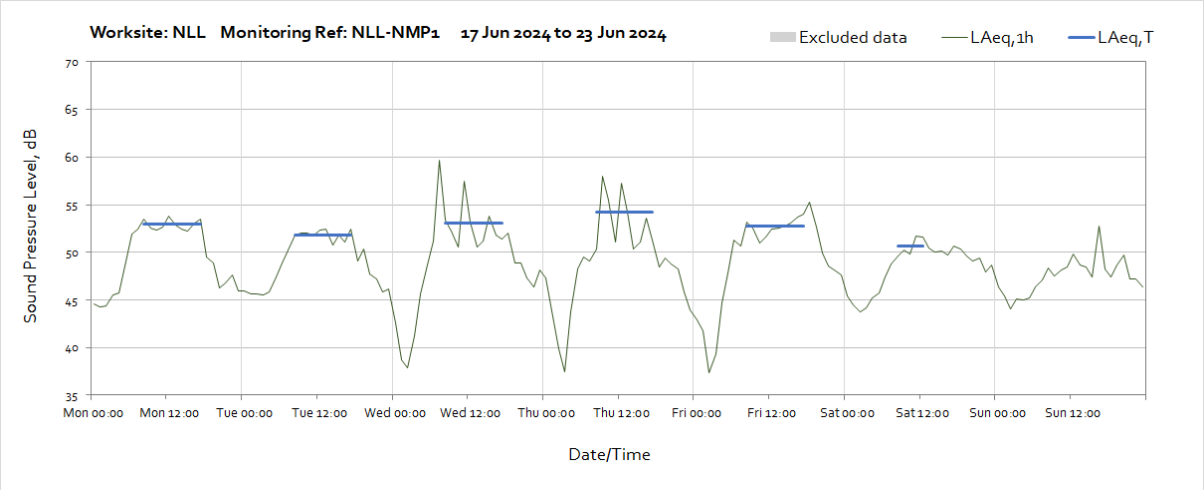
Date/Time


Worksite: NLL Monitoring Ref: NLL-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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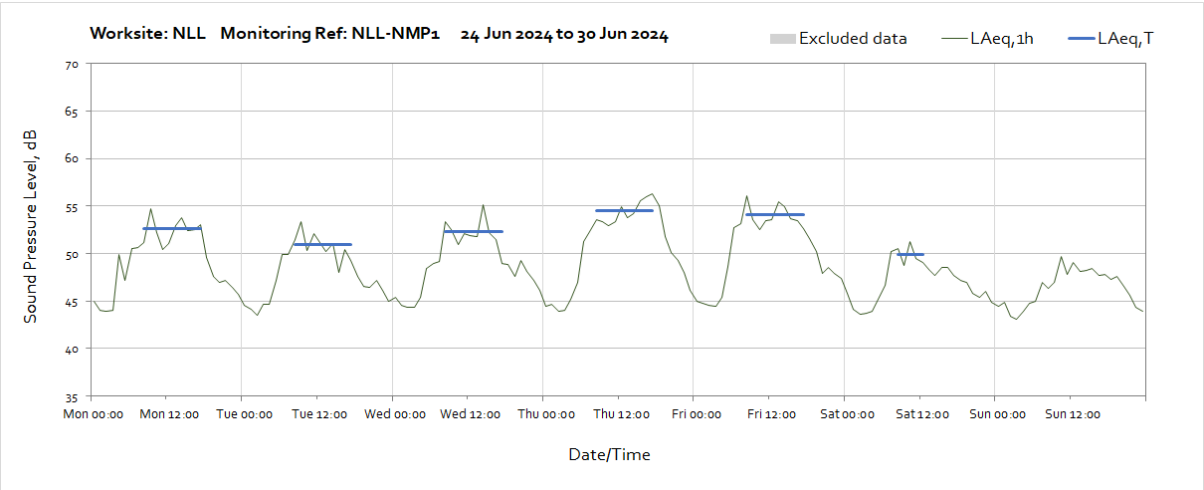
Date/Time


Worksite: NLL Monitoring Ref: NLL-NMP1 24 Jun 2024 to 30 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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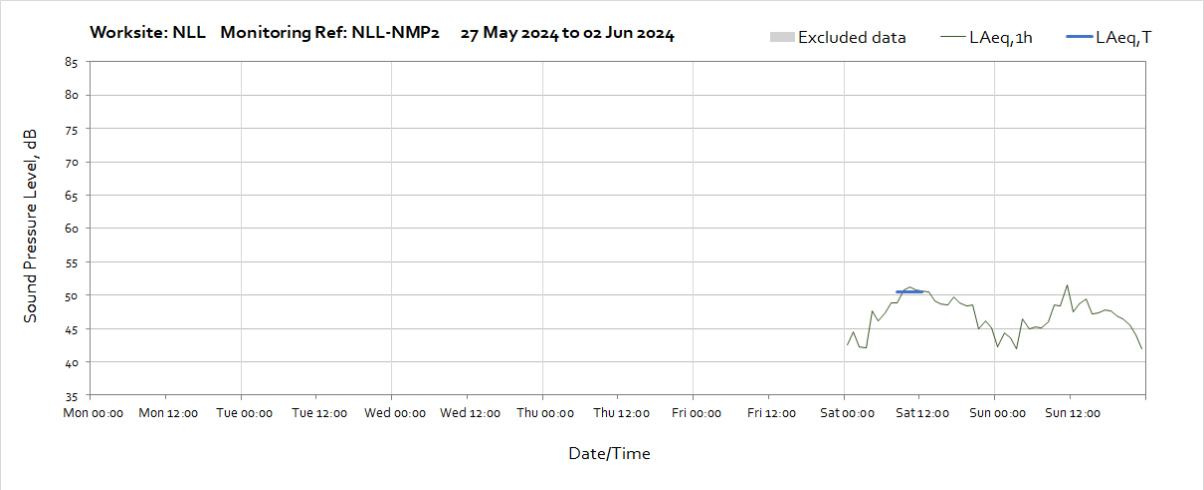
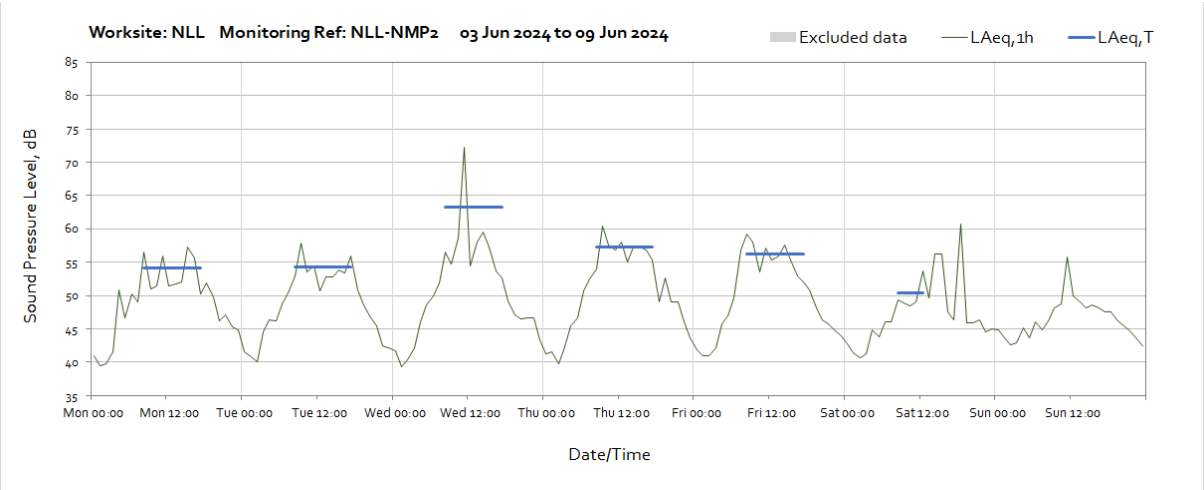
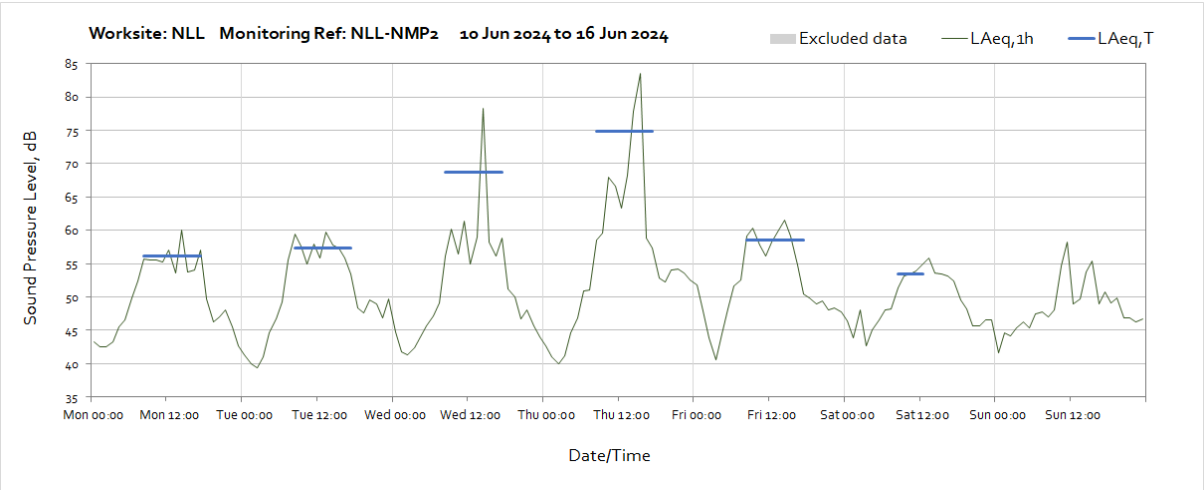
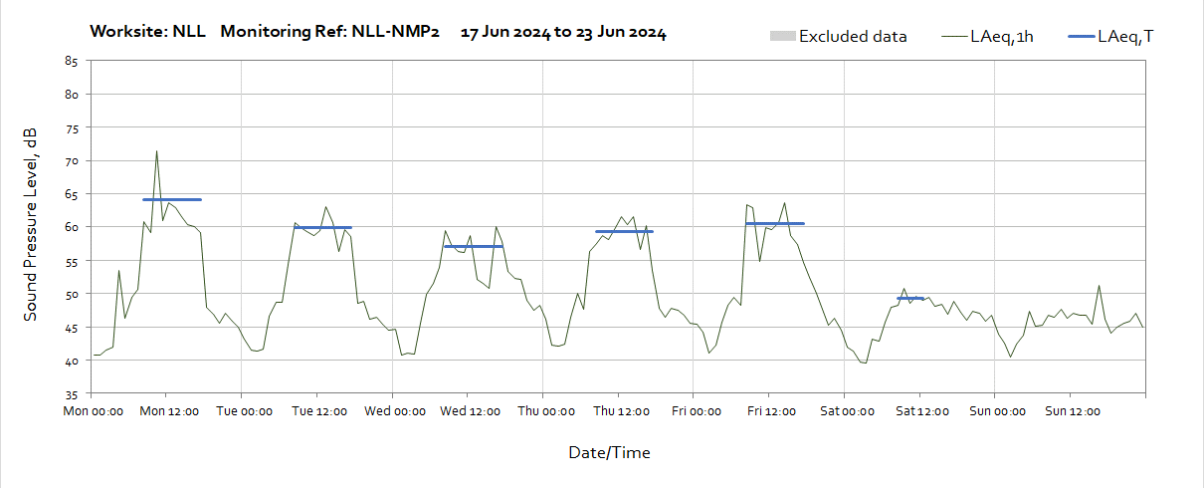
Date/Time

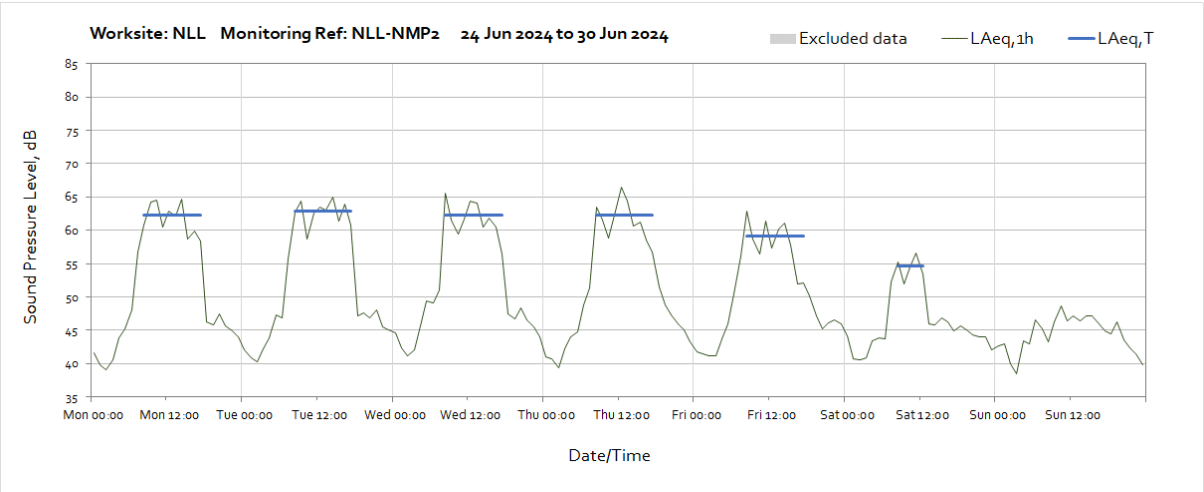
Worksite: NLL – Monitoring Ref: NLL-NMP2



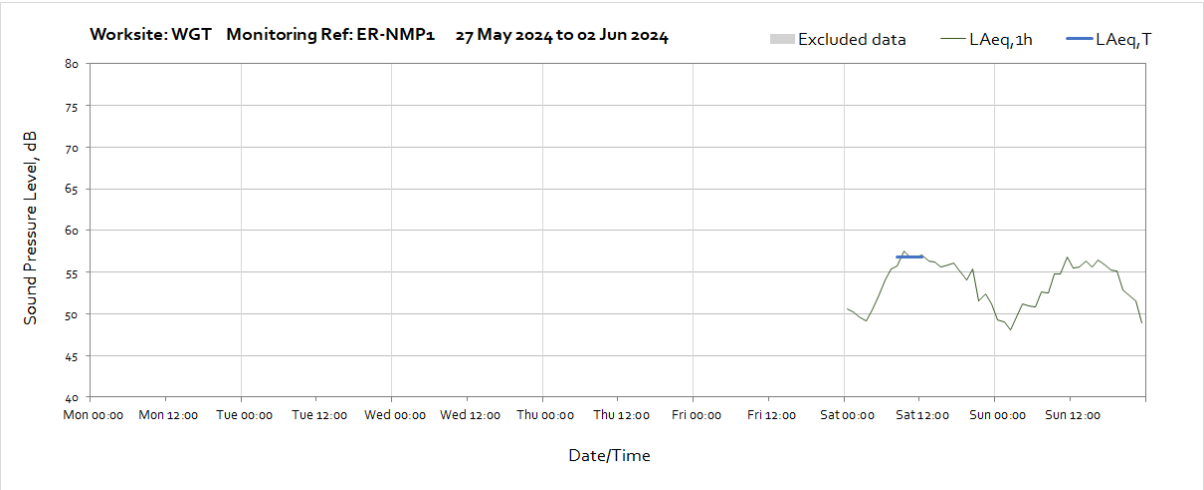


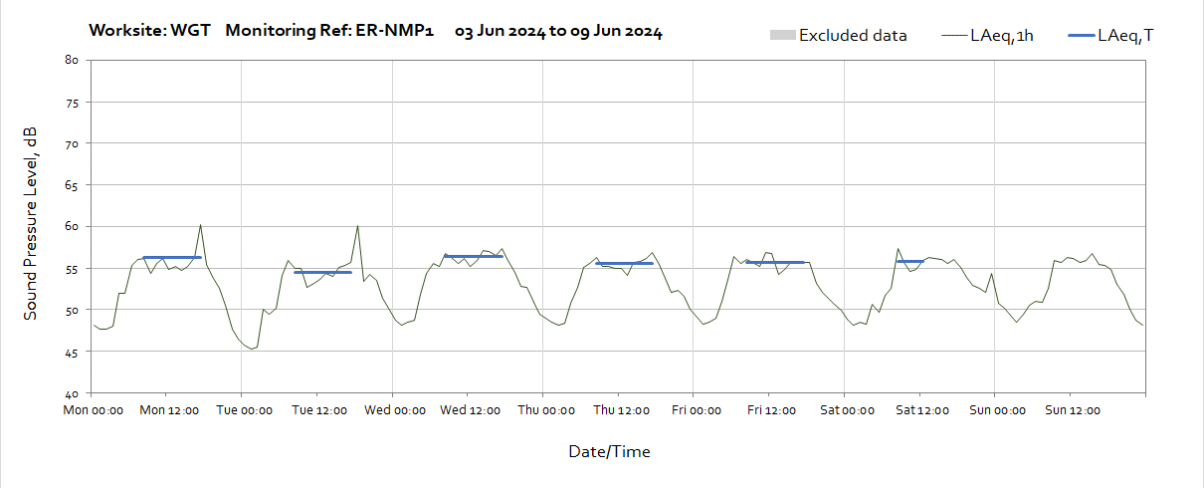






Worksite: WGT – Monitoring Ref: ER-NMP1




Worksite: WGT Monitoring Ref: ER-NMP1 03 Jun 2024 to 09 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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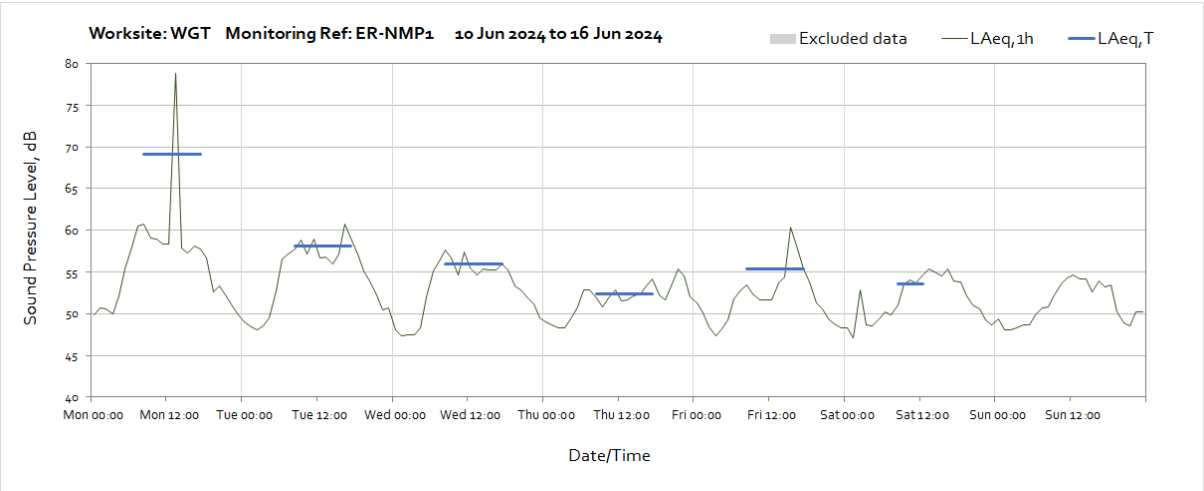
Date/Time


Worksite: WGT Monitoring Ref: ER-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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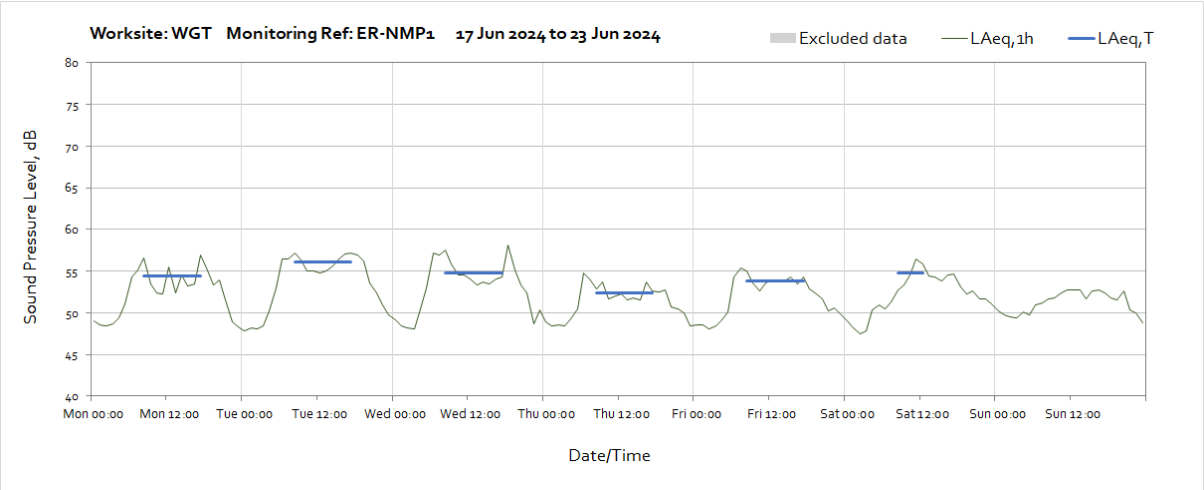
Date/Time


Worksite: WGT Monitoring Ref: ER-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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Mon 00:00
Mon 12:00
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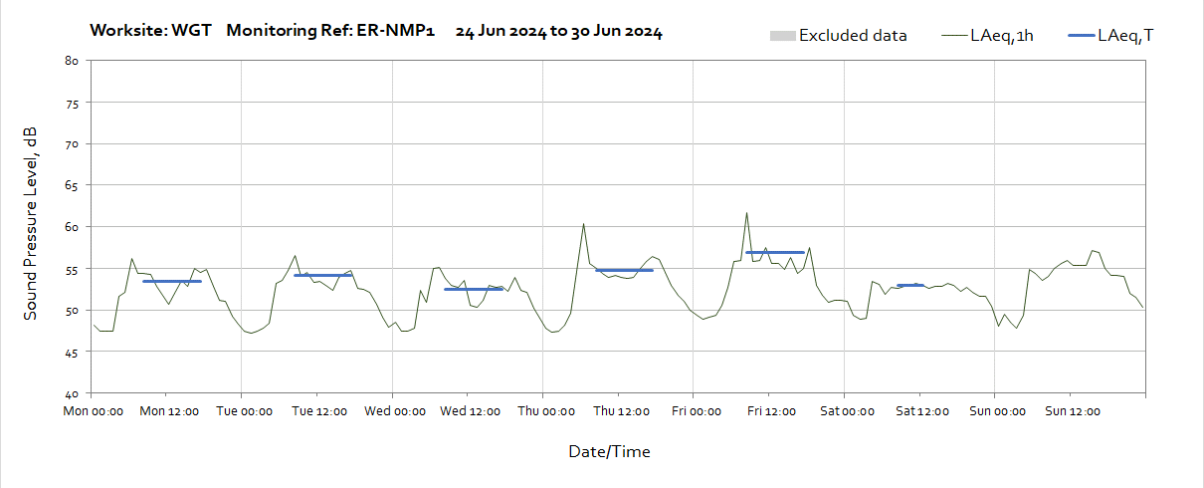
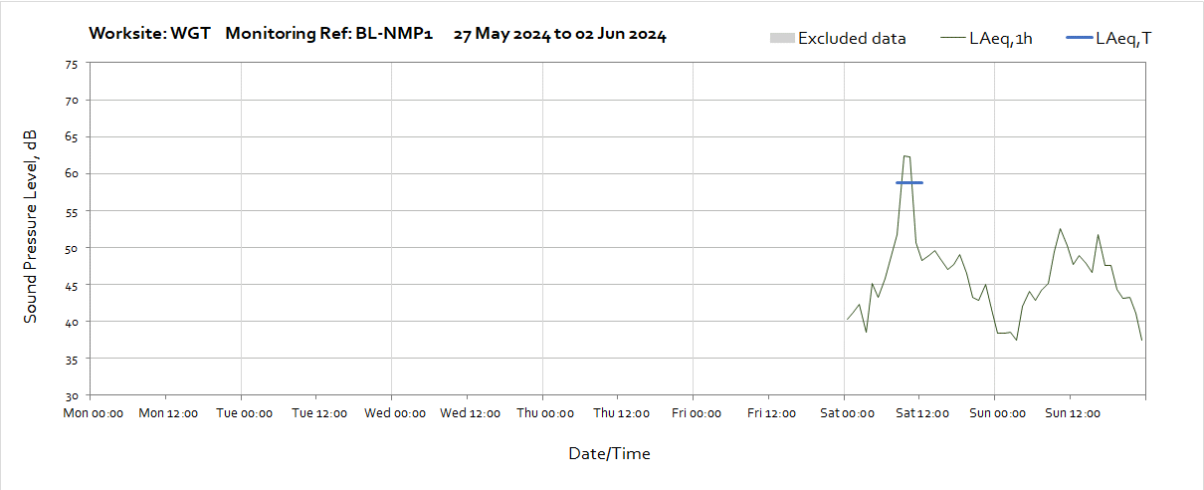
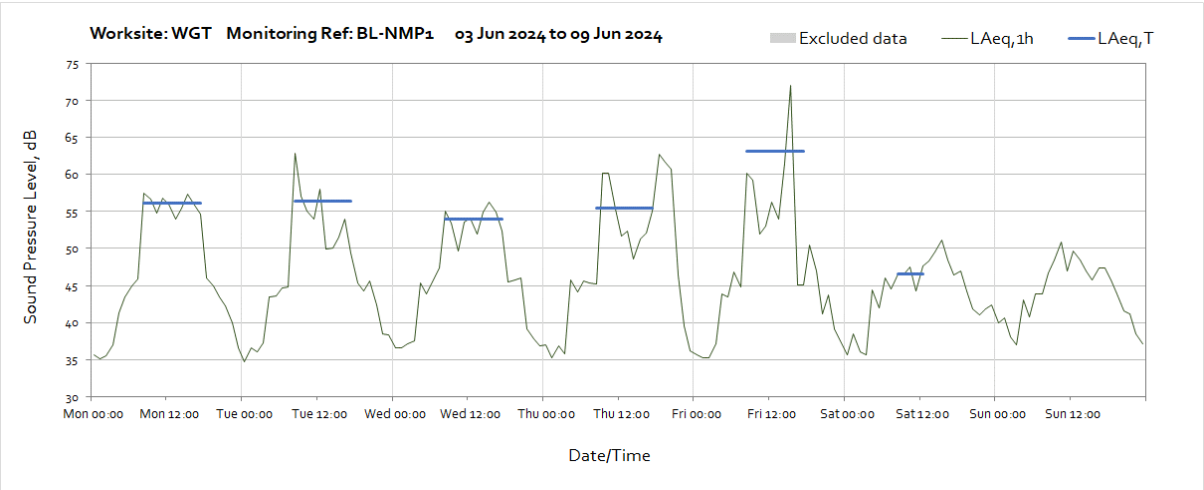
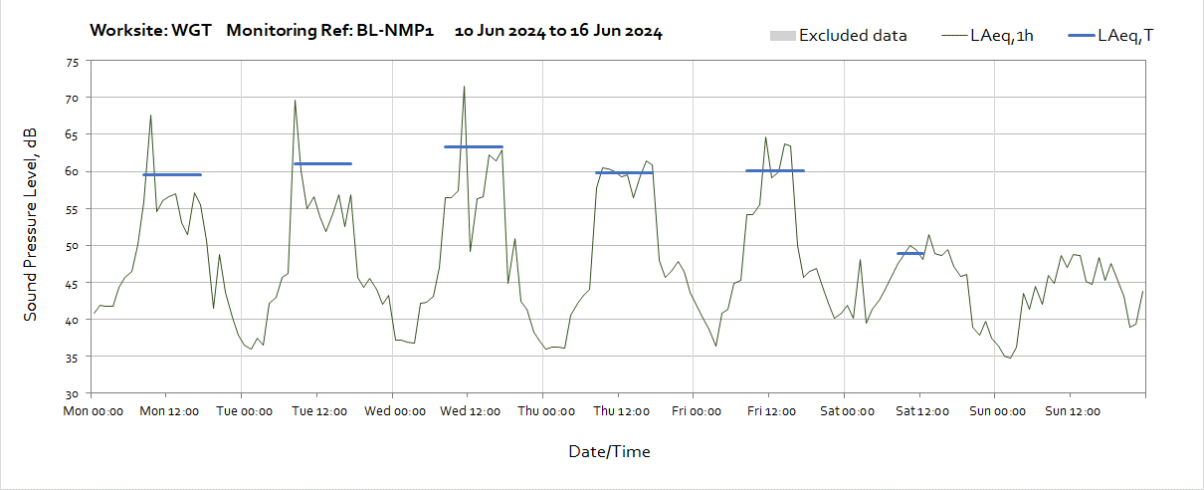
Date/Time



Worksite: WGT – Monitoring Ref: BL-NMP1






Worksite: WGT Monitoring Ref: BL-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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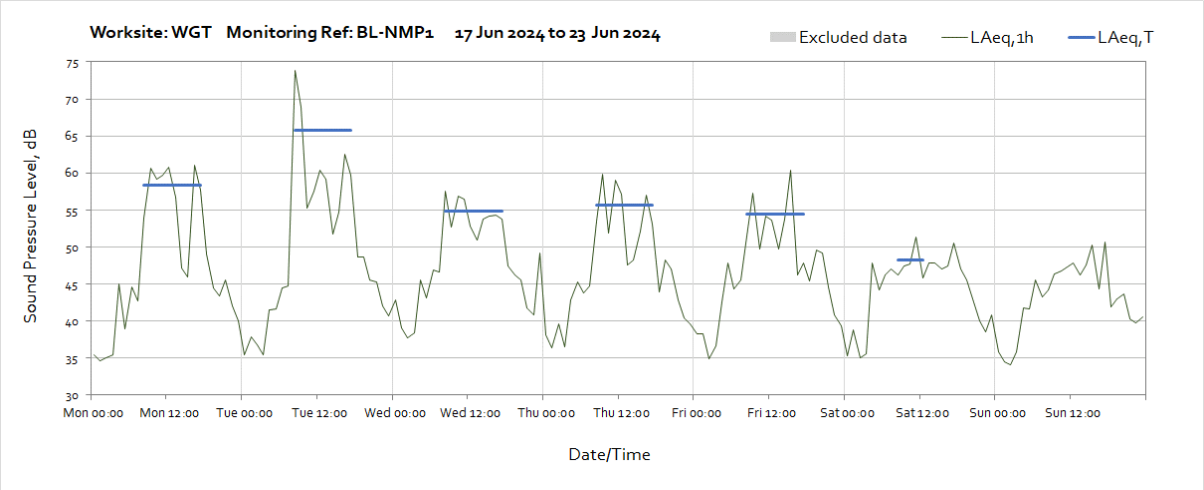
Date/Time


Worksite: WGT Monitoring Ref: BL-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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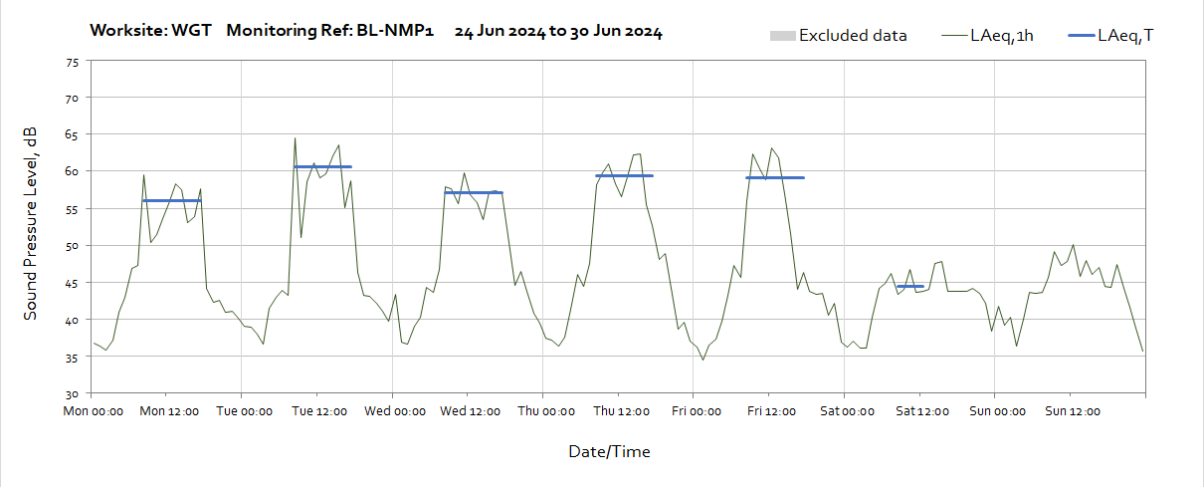
Date/Time


Worksite: WGT Monitoring Ref: BL-NMP1 24 Jun 2024 to 30 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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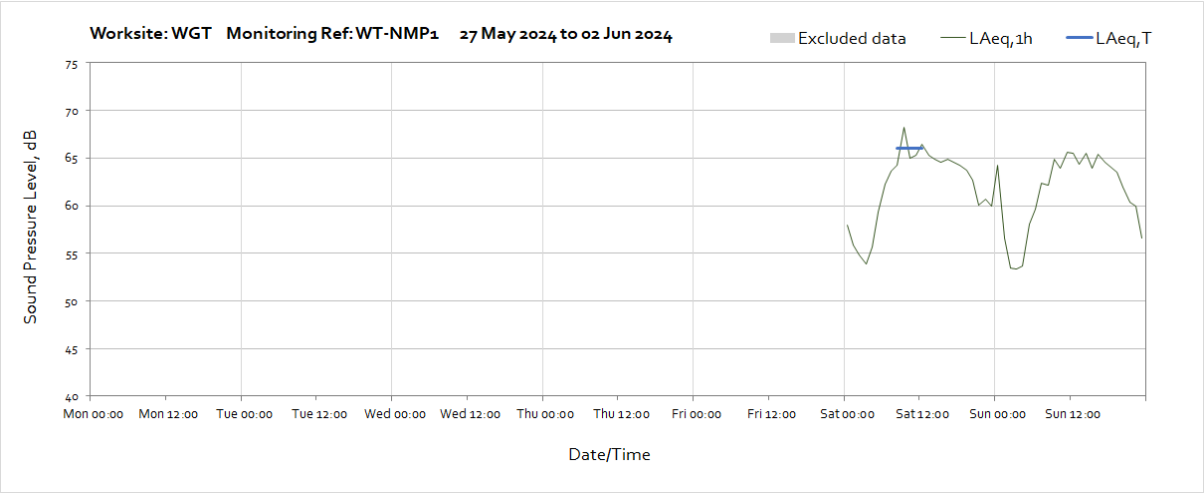
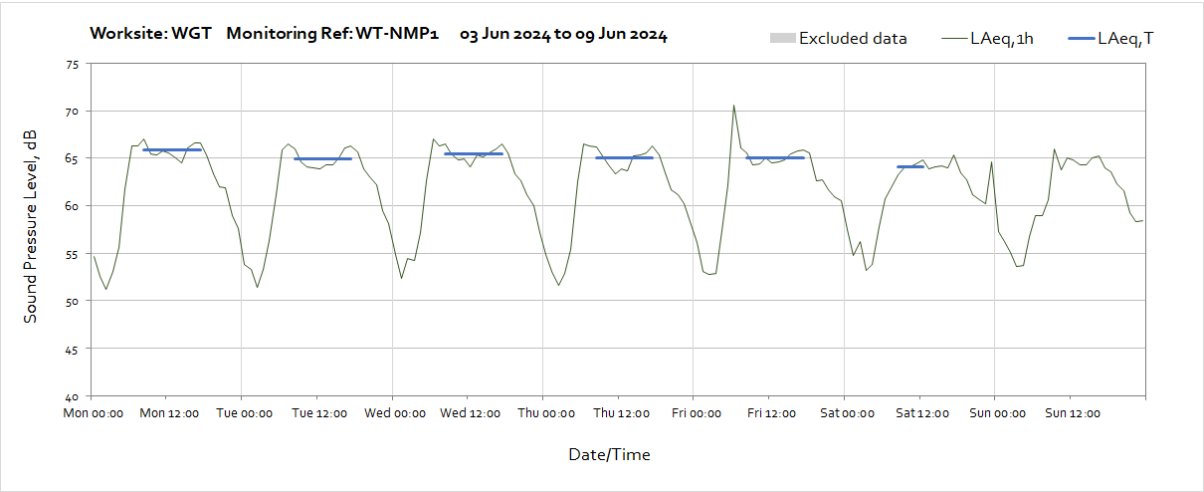
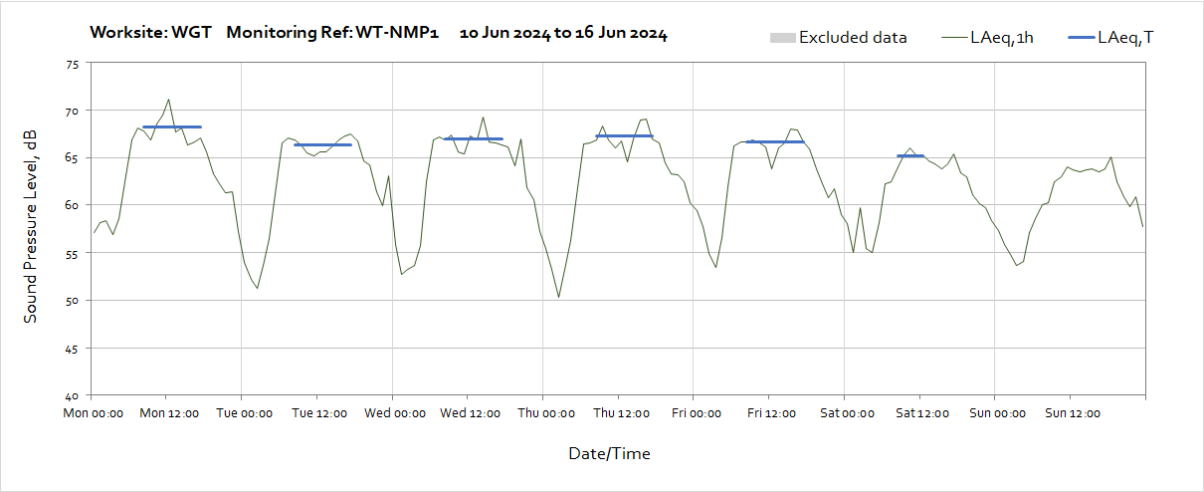
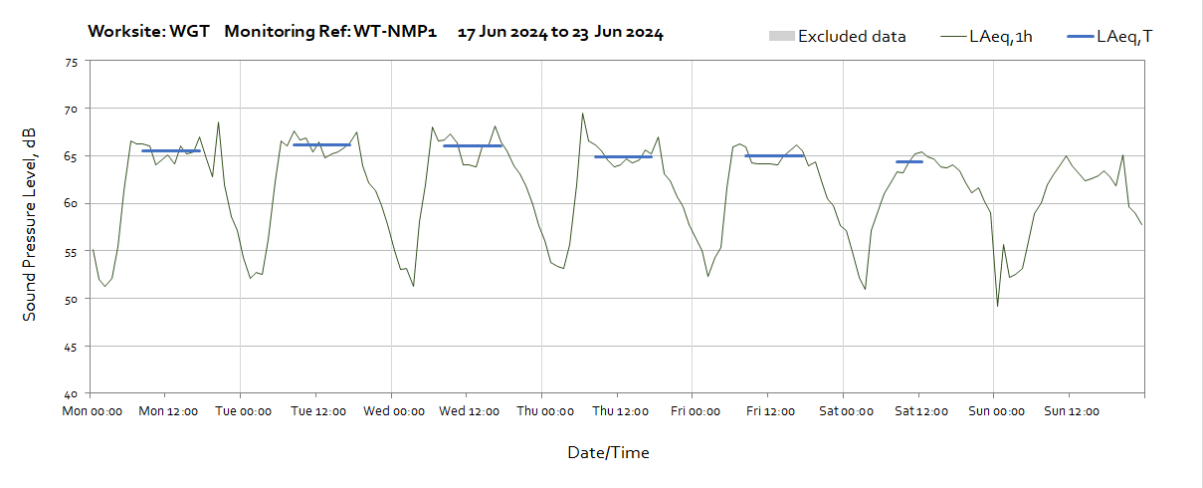
Date/Time

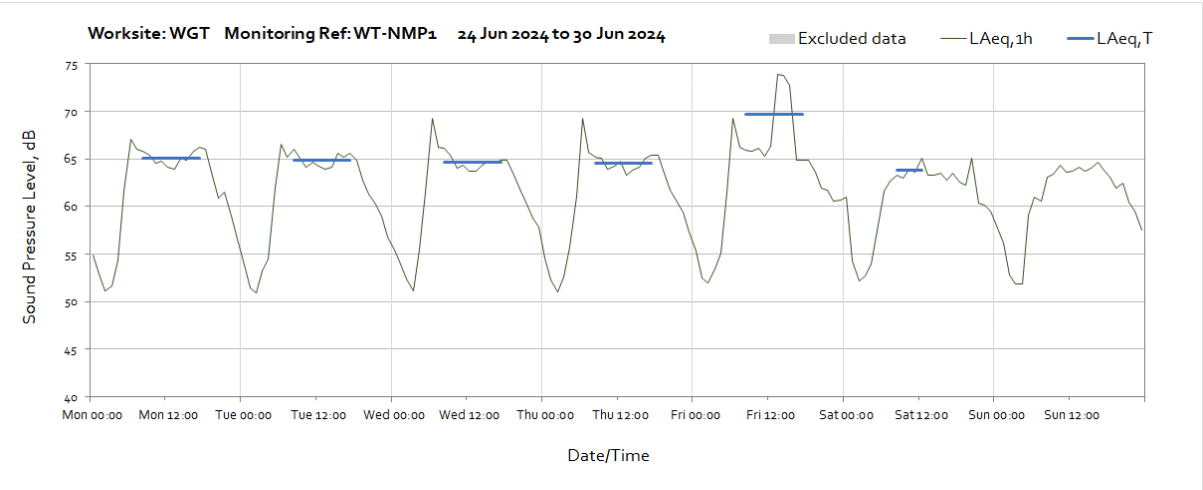
Worksite: WGT – Monitoring Ref: WT-NMP1



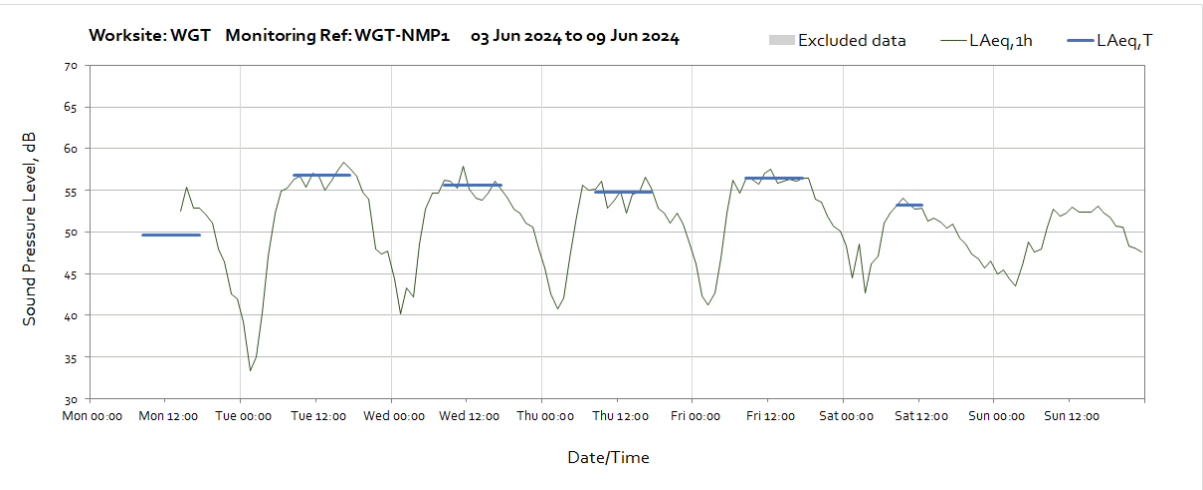




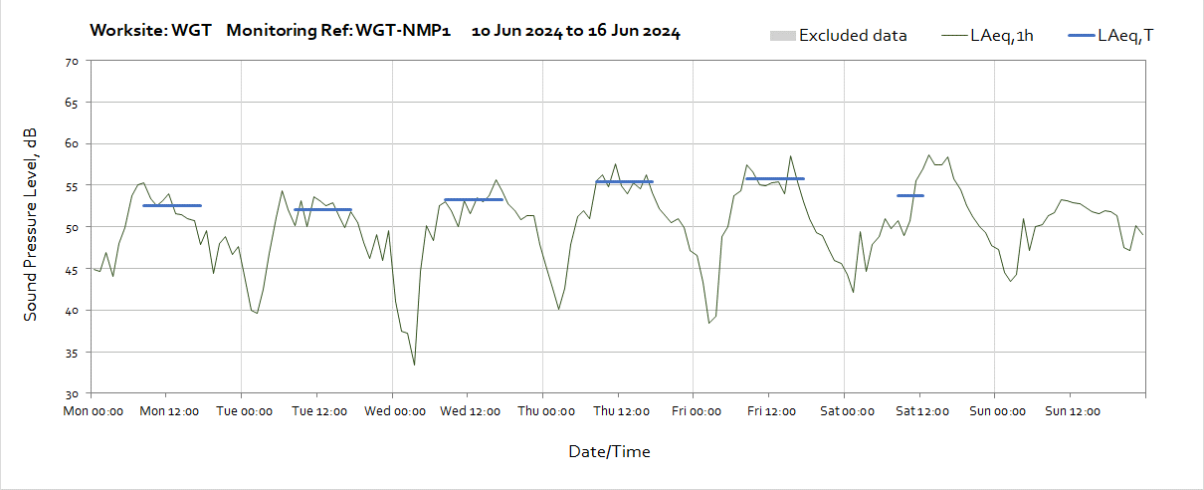




Worksite: WGT – Monitoring Ref: WGT-NMP1



Note: Monitor was installed at 14:00 on Monday 3rd June.


Worksite: WGT Monitoring Ref: WGT-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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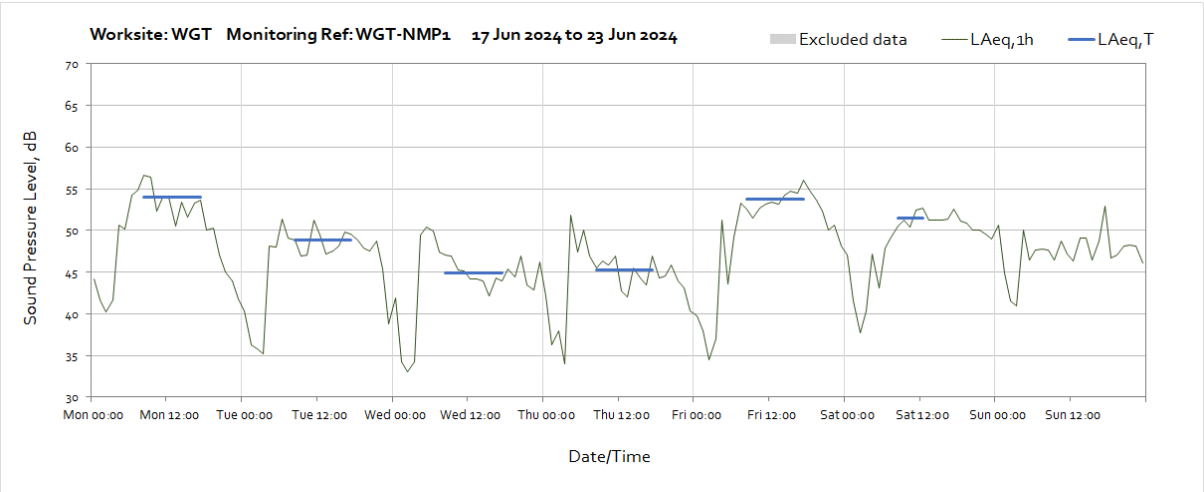
Date/Time


Worksite: WGT Monitoring Ref: WGT-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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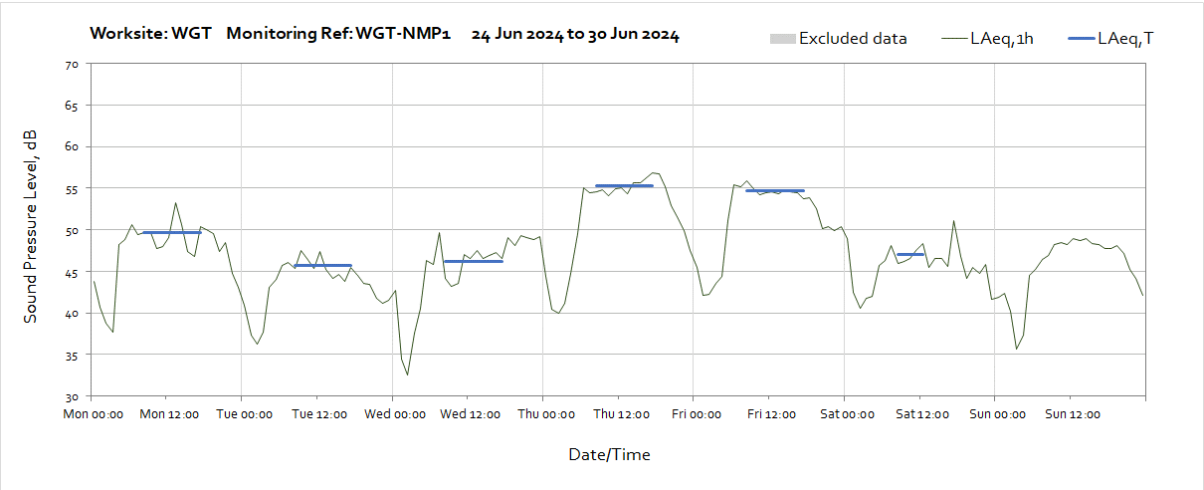
Date/Time


Worksite: WGT Monitoring Ref: WGT-NMP1 24 Jun 2024 to 30 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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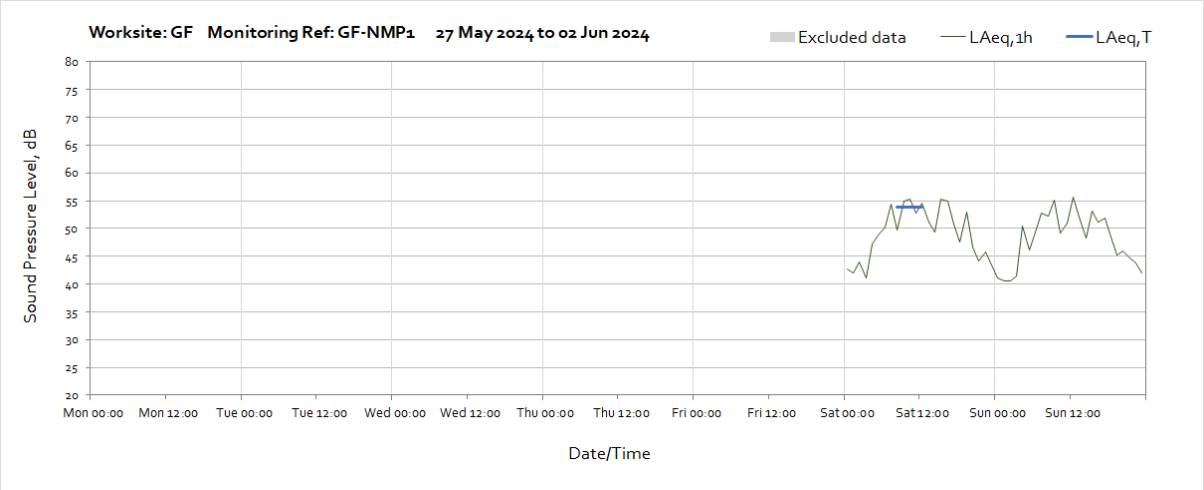
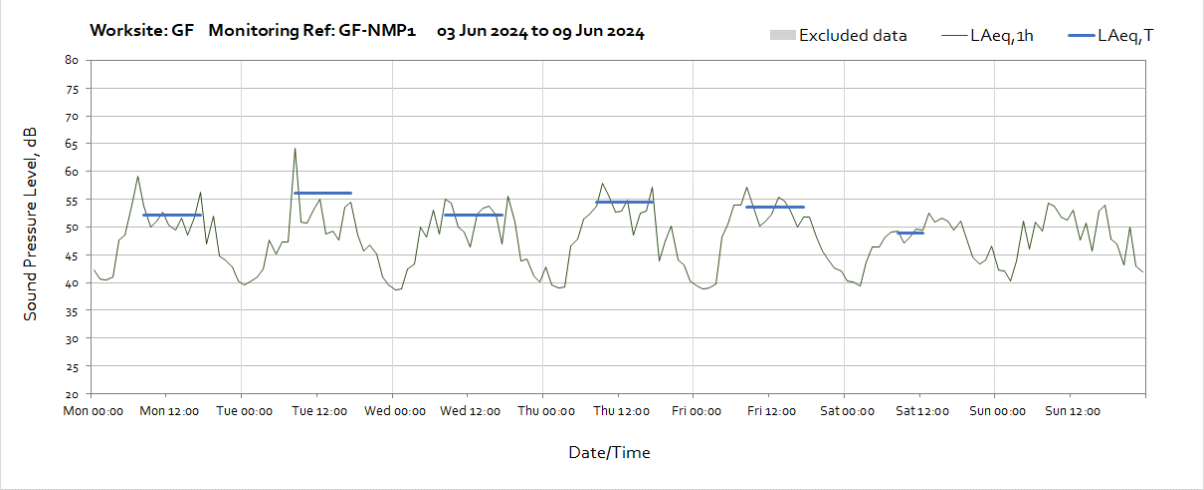
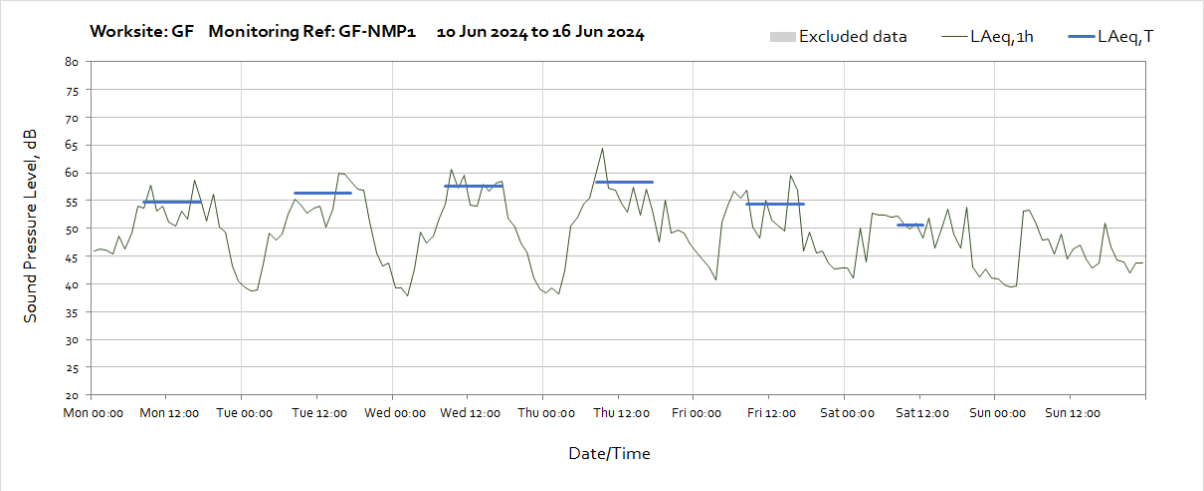
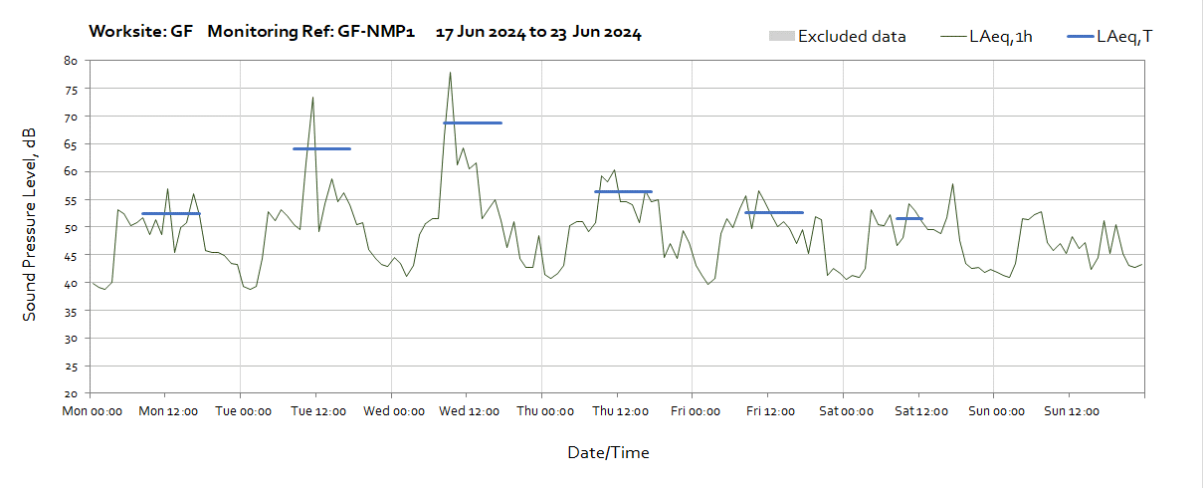
Date/Time

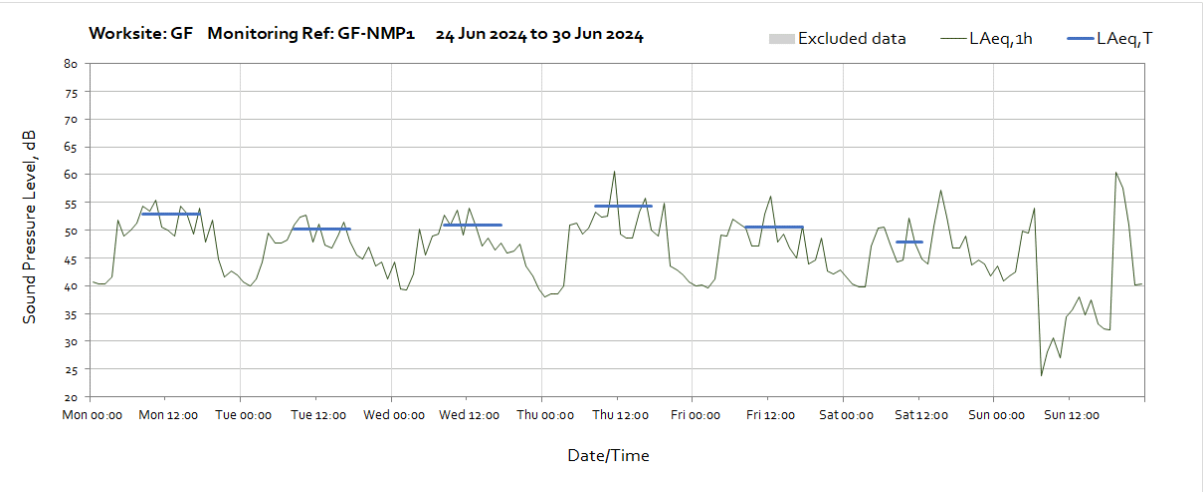
Worksite: GF – Monitoring Ref: GF-NMP1



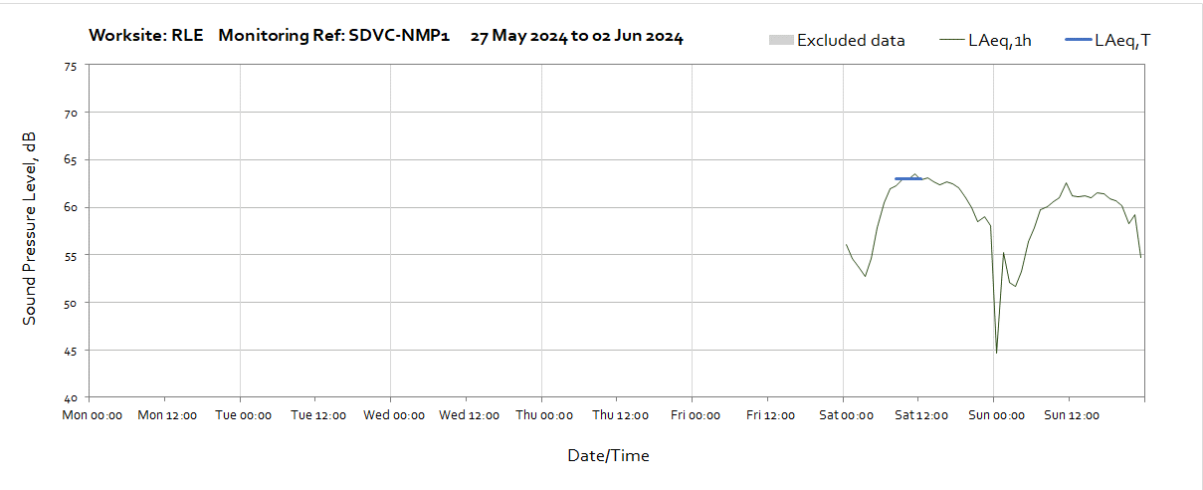


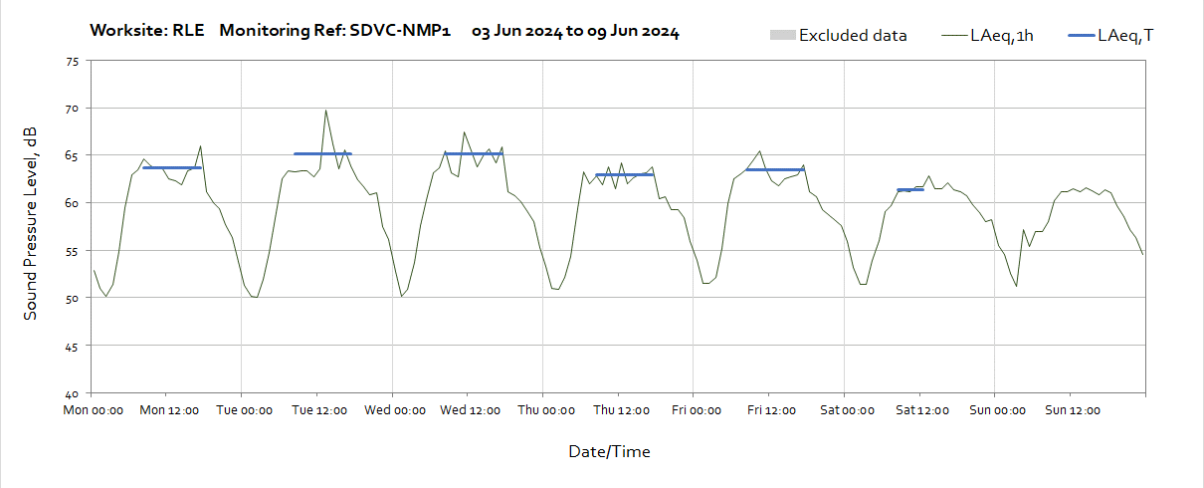






Worksite: RLE – Monitoring Ref: SDVC-NMP1




Worksite: RLE Monitoring Ref: SDVC-NMP1 03 Jun 2024 to 09 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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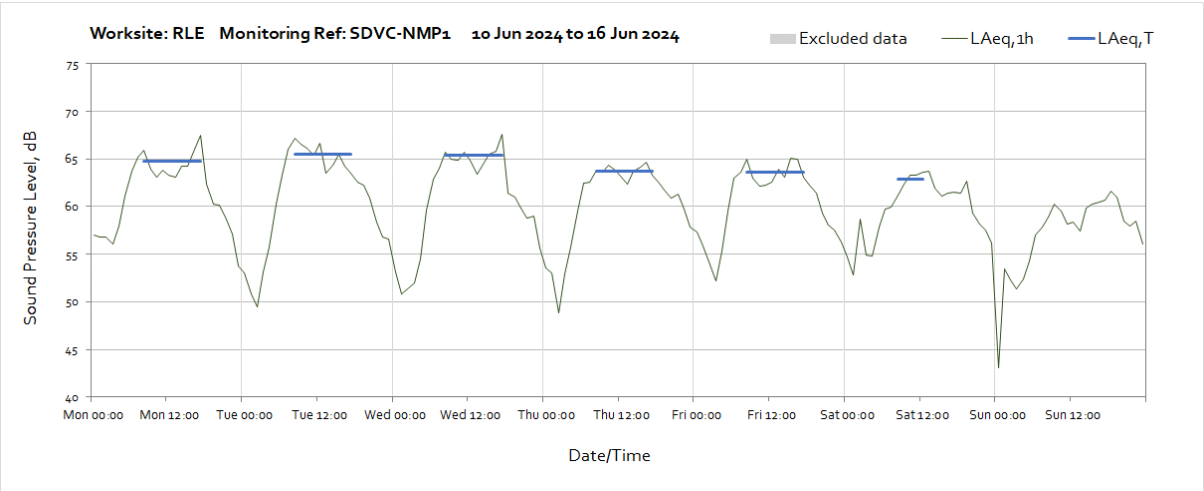
Date/Time


Worksite: RLE Monitoring Ref: SDVC-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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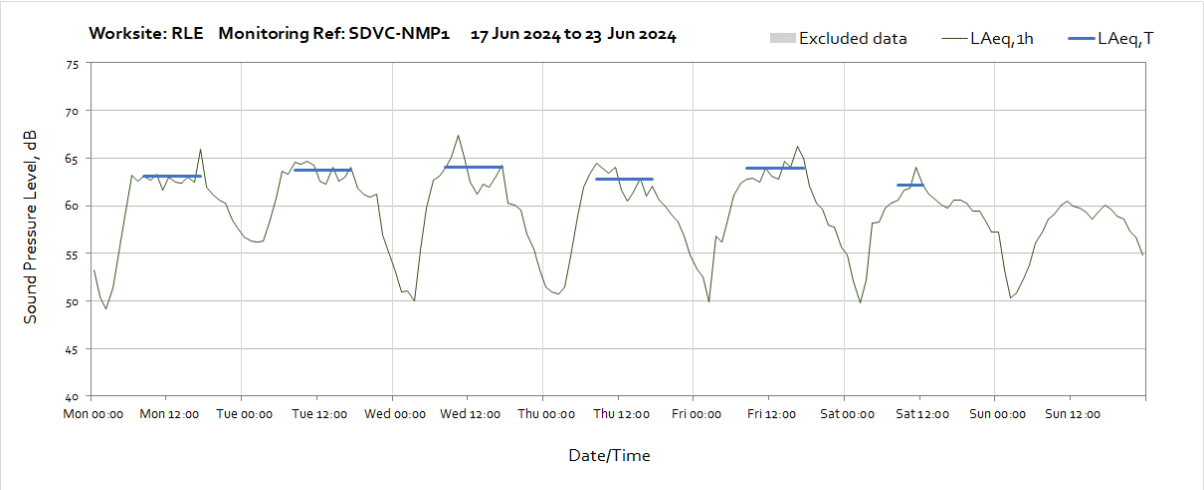
Worksite: RLE Monitoring Ref: SDVC-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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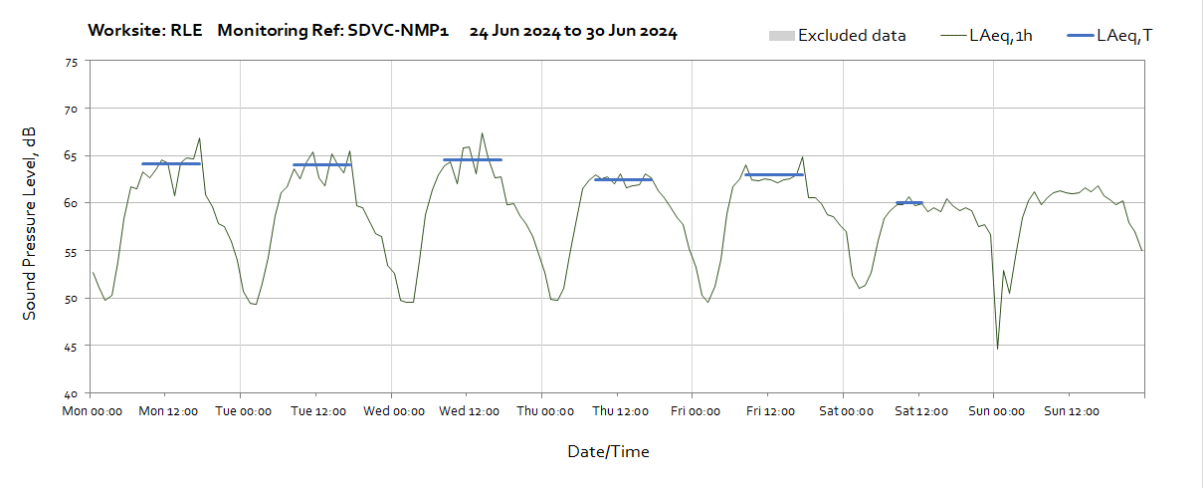
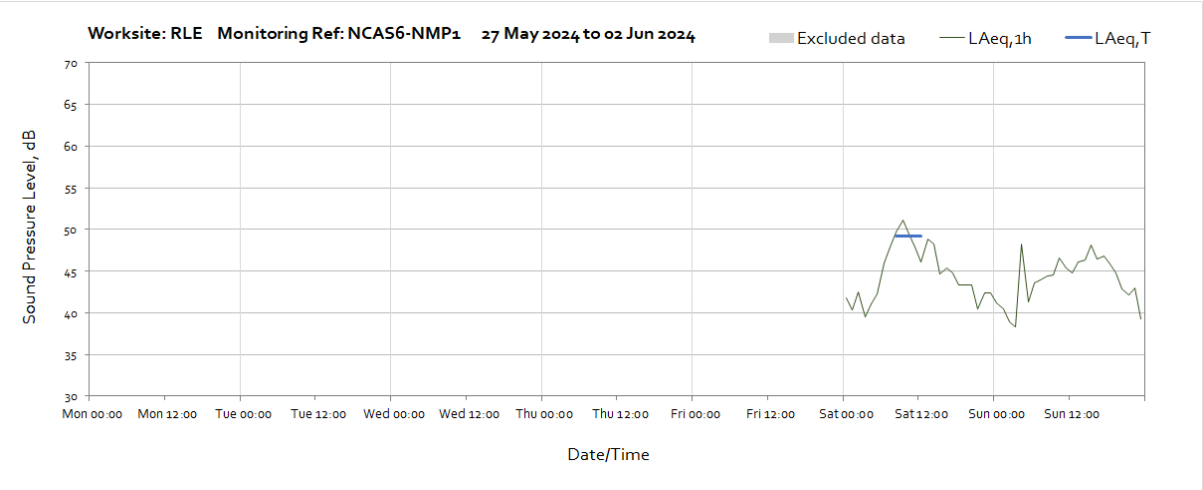
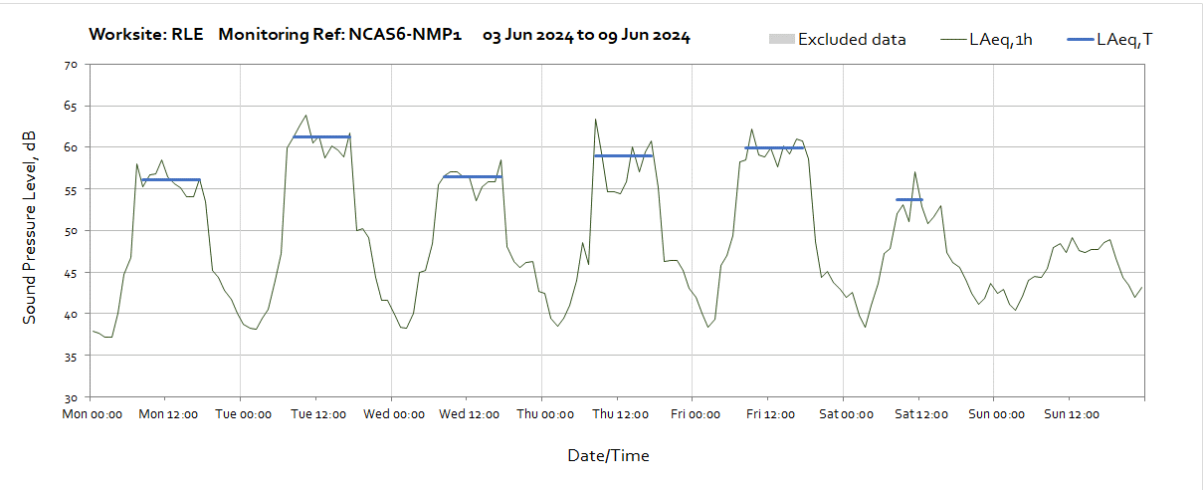
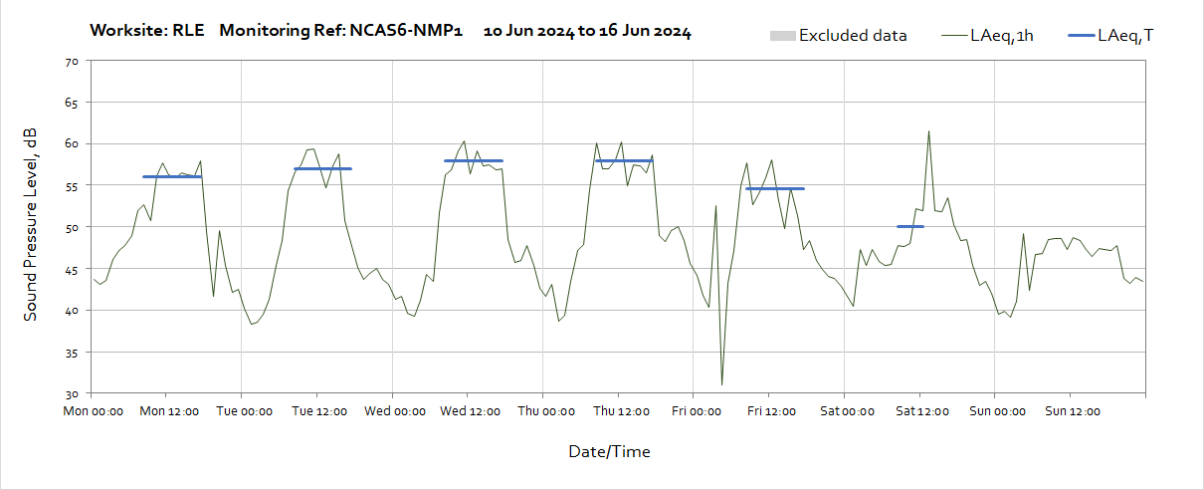


Worksite: RLE – Monitoring Ref: NCAS6-NMP1






Worksite: RLE Monitoring Ref: NCAS6-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
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LAeq,T
Sound Pressure Level, dB
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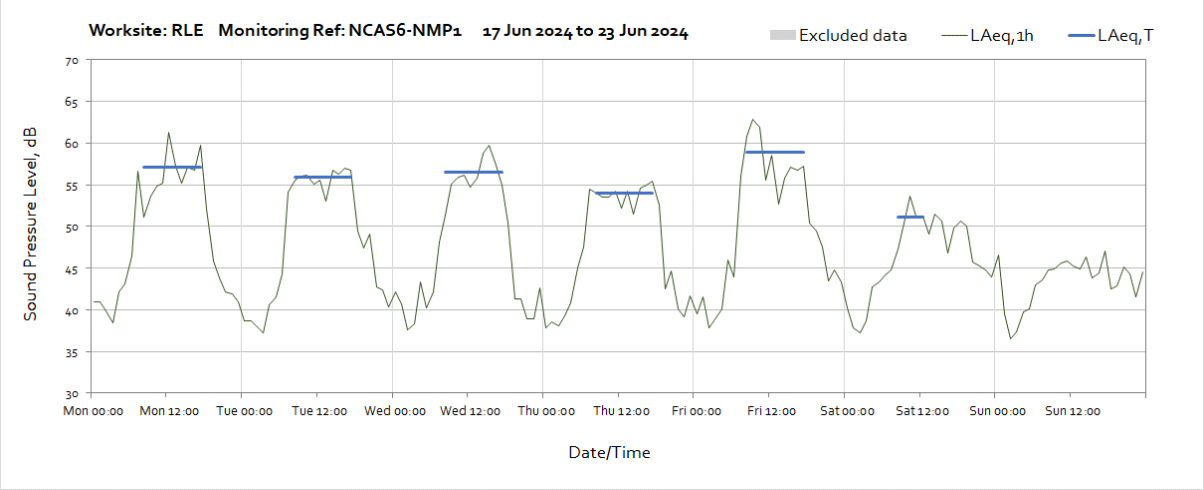
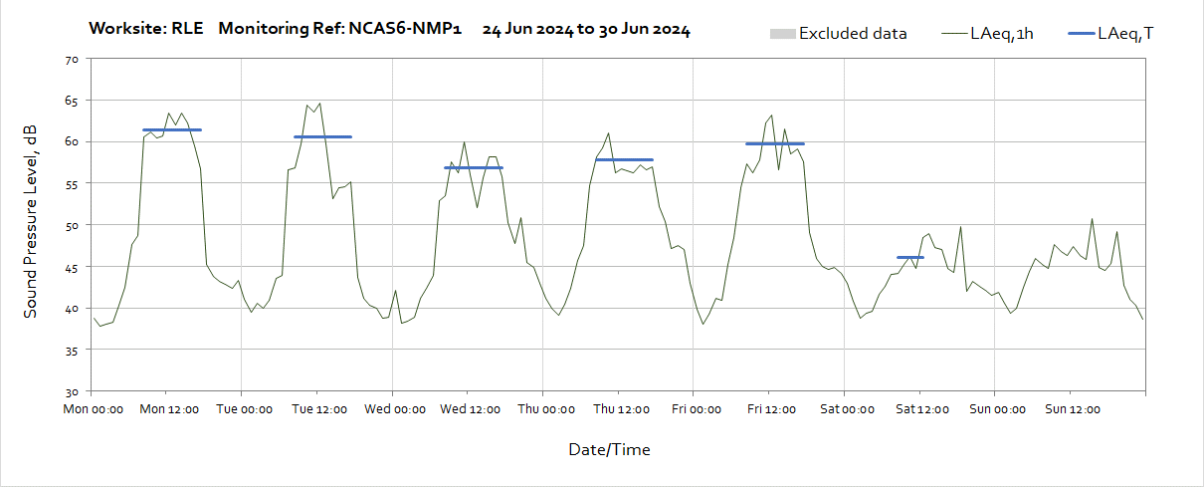
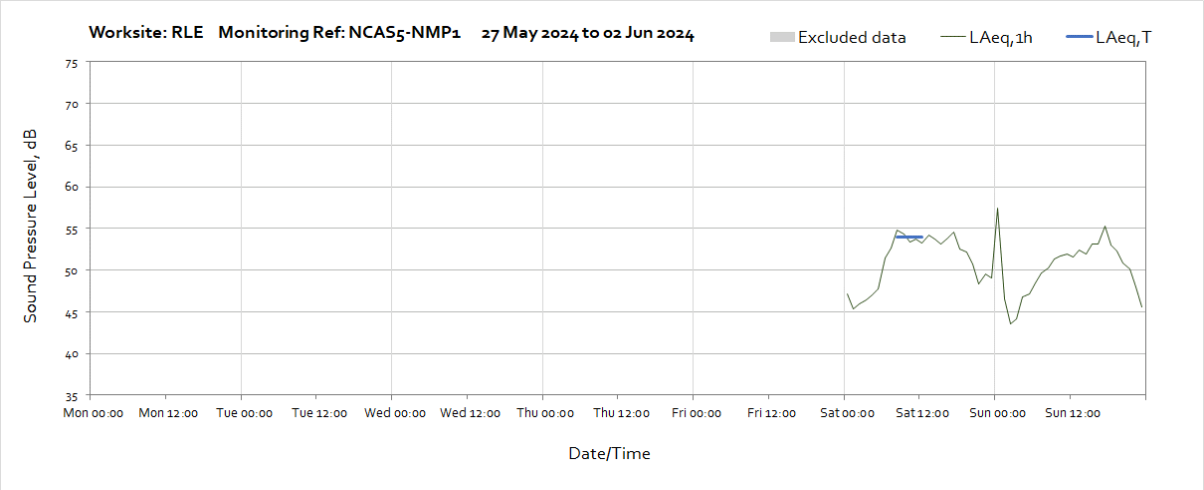
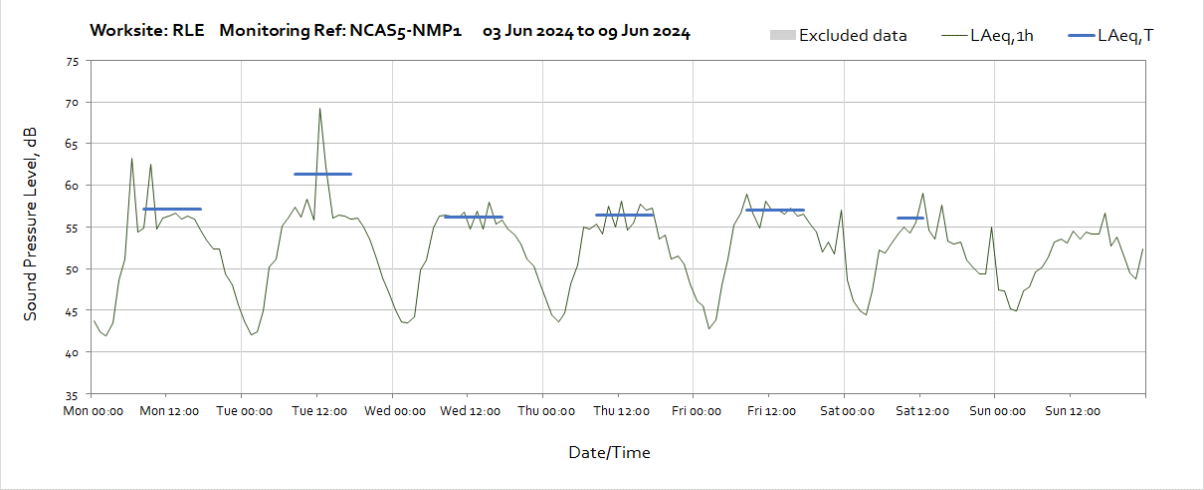
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

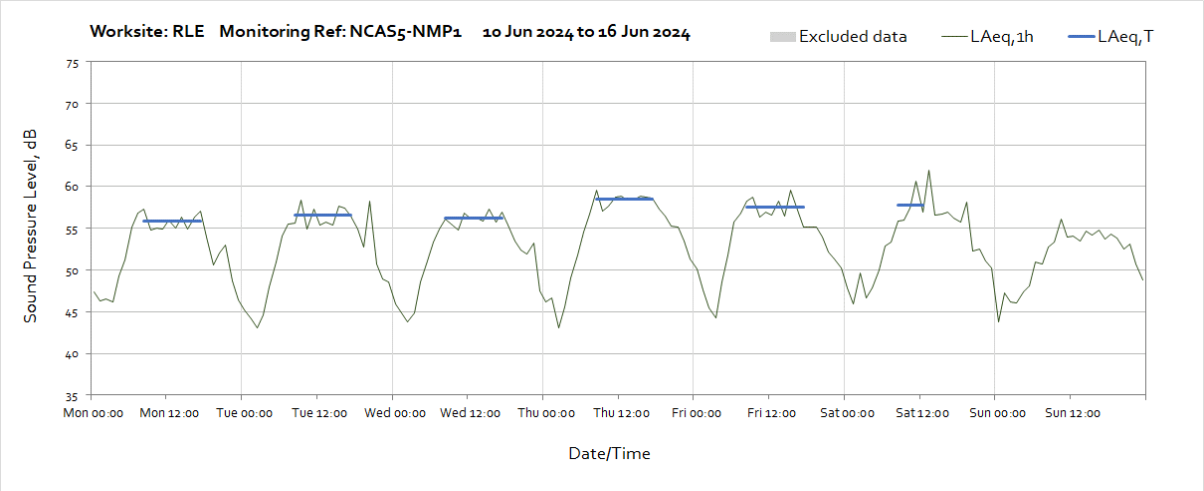

Worksite: RLE Monitoring Ref: NCAS6-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

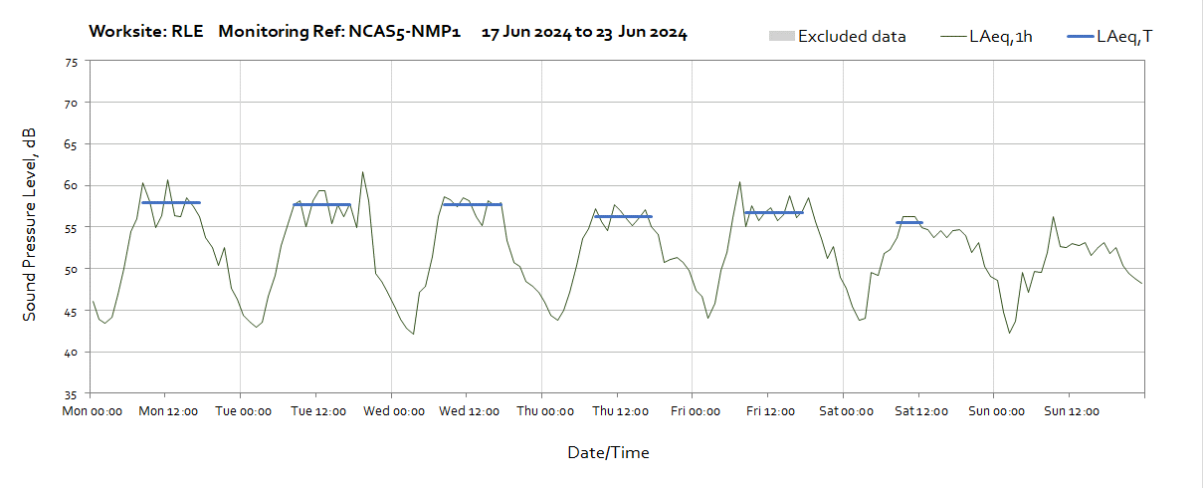

Worksite: RLE Monitoring Ref: NCAS6-NMP1 24 Jun 2024 to 30 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

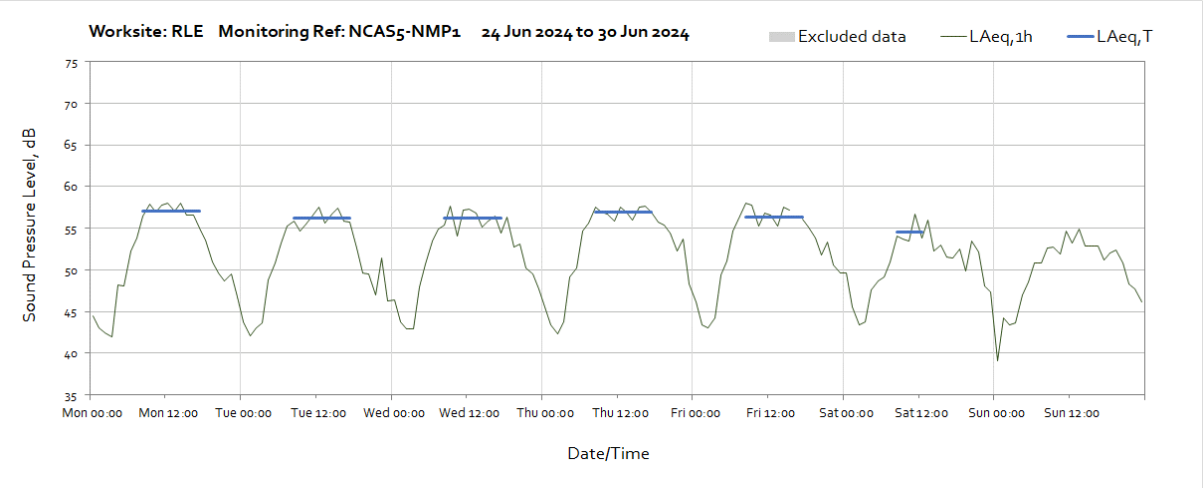
Worksite: RLE – Monitoring Ref: NCAS5-NMP1





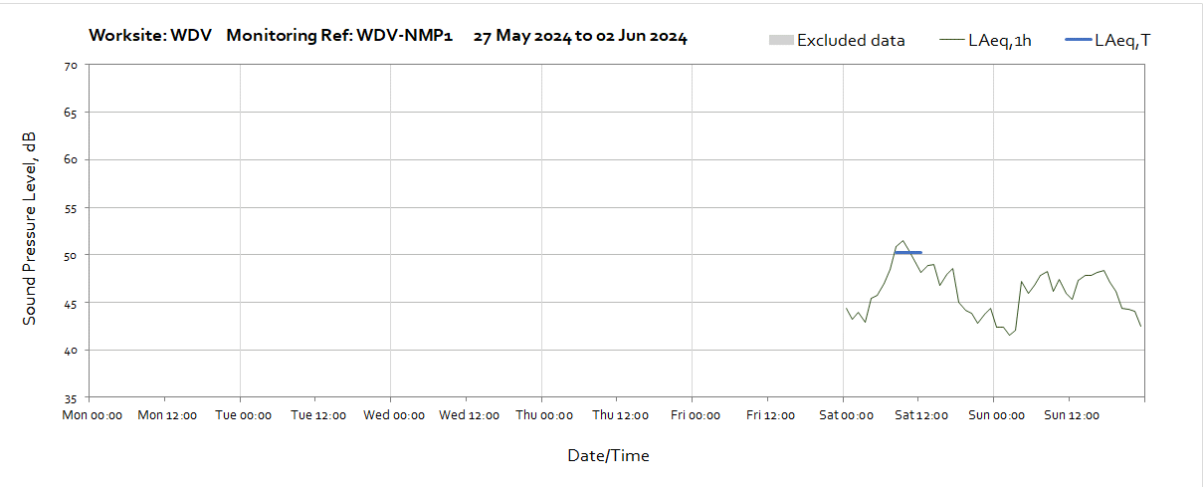


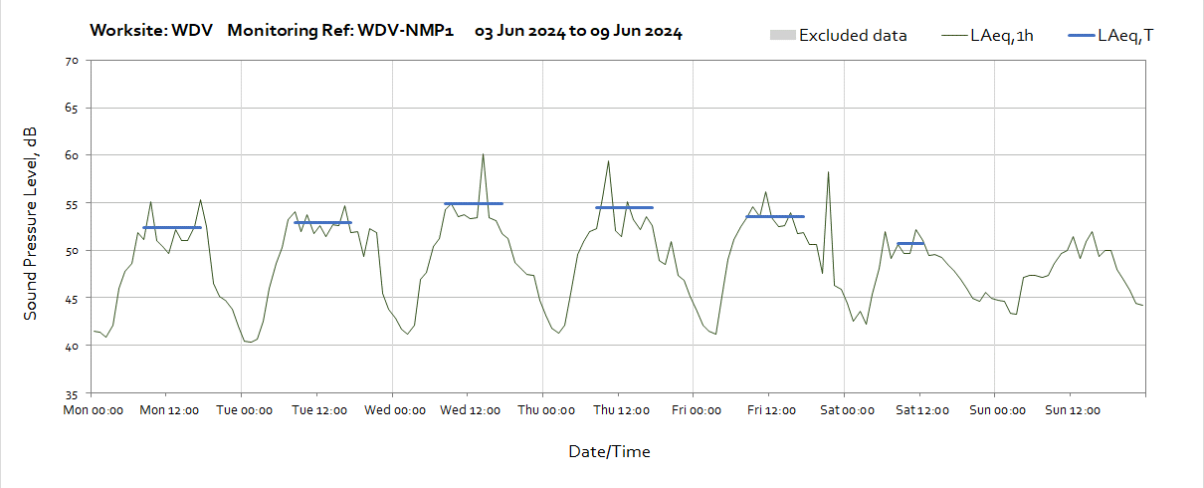


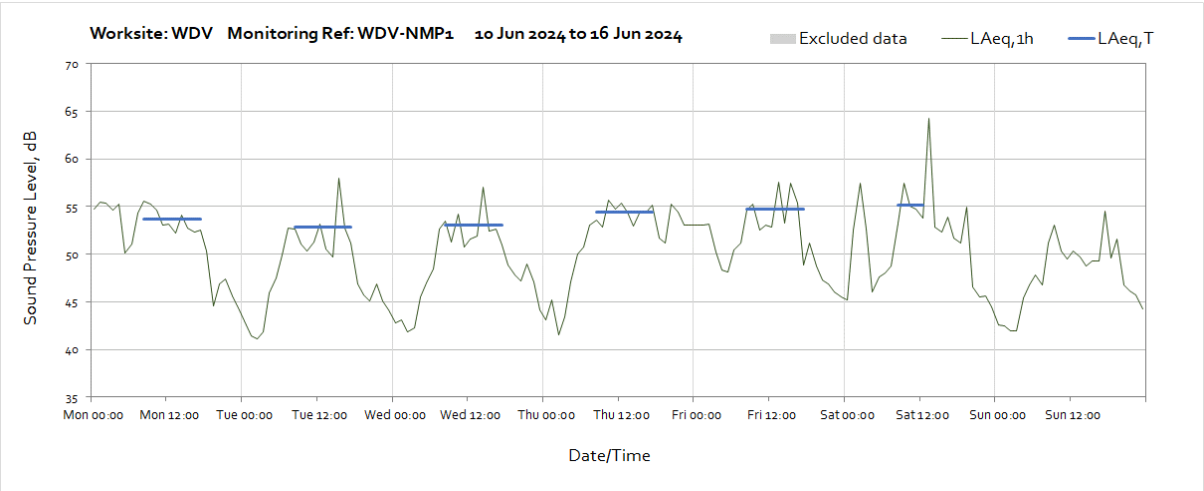


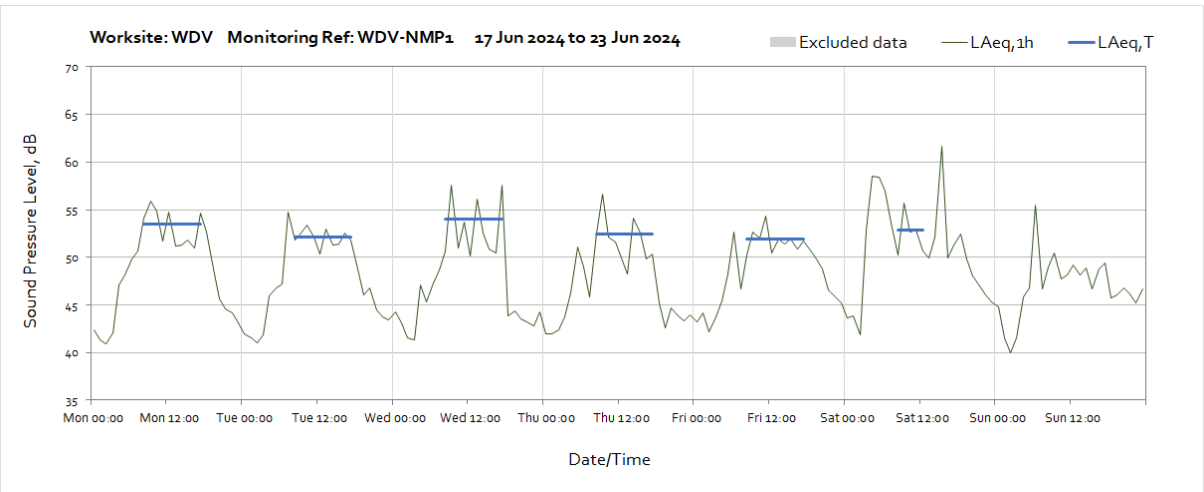
Note: Missing data between 16:00 and 17:00 on Friday 28th June was due to remote monitor maintenance.

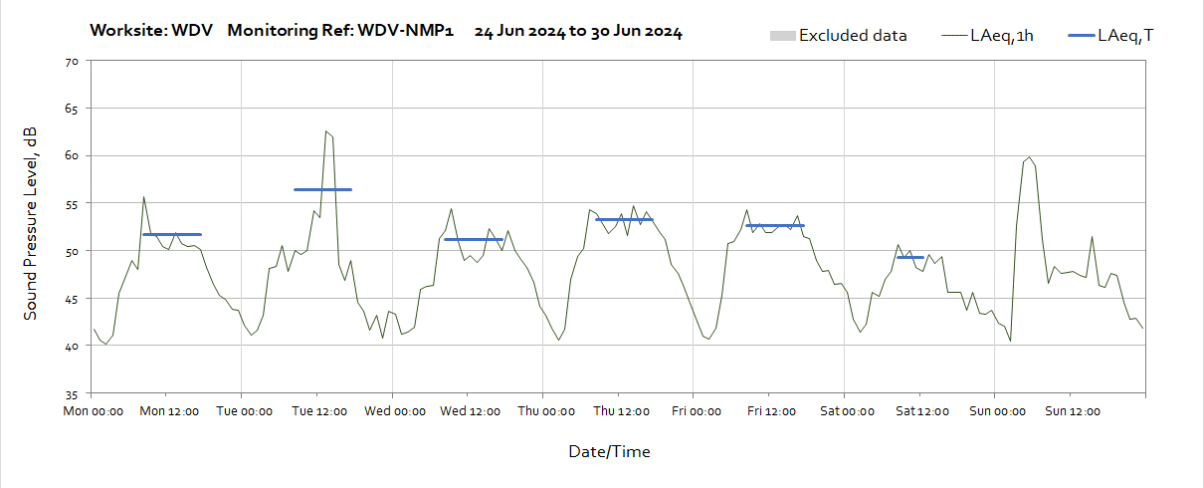
Worksite: WDV – Monitoring Ref: WDV-NMP1



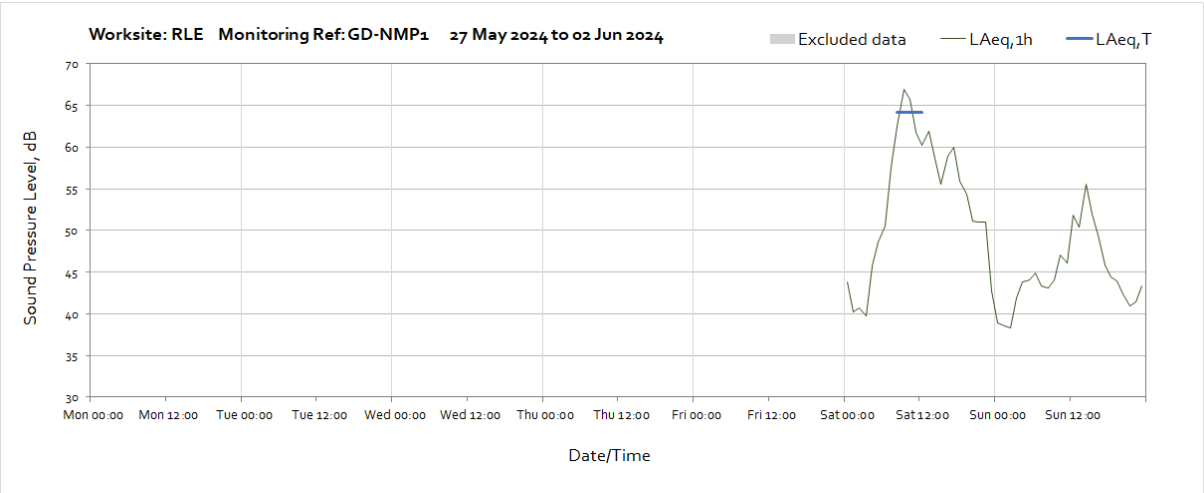

Worksite: WDV Monitoring Ref: WDV-NMP1 03 Jun 2024 to 09 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

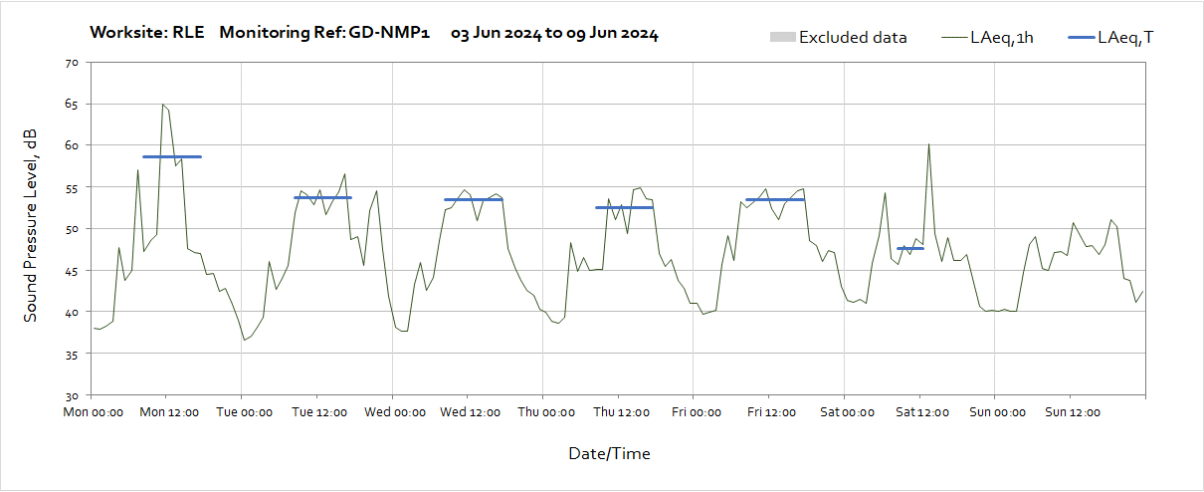

Worksite: WDV Monitoring Ref: WDV-NMP1 10 Jun 2024 to 16 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

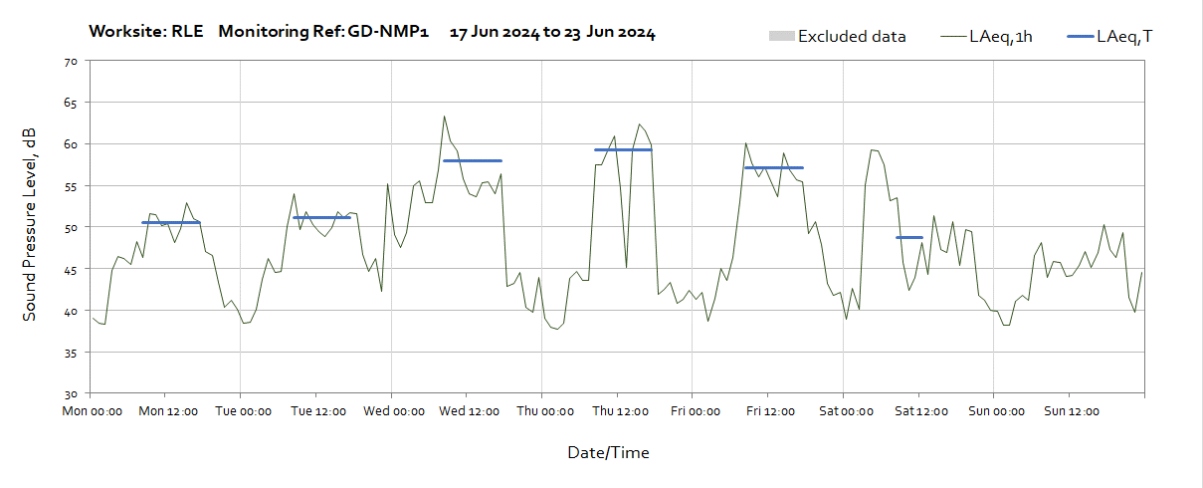

Worksite: WDV Monitoring Ref: WDV-NMP1 17 Jun 2024 to 23 Jun 2024
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

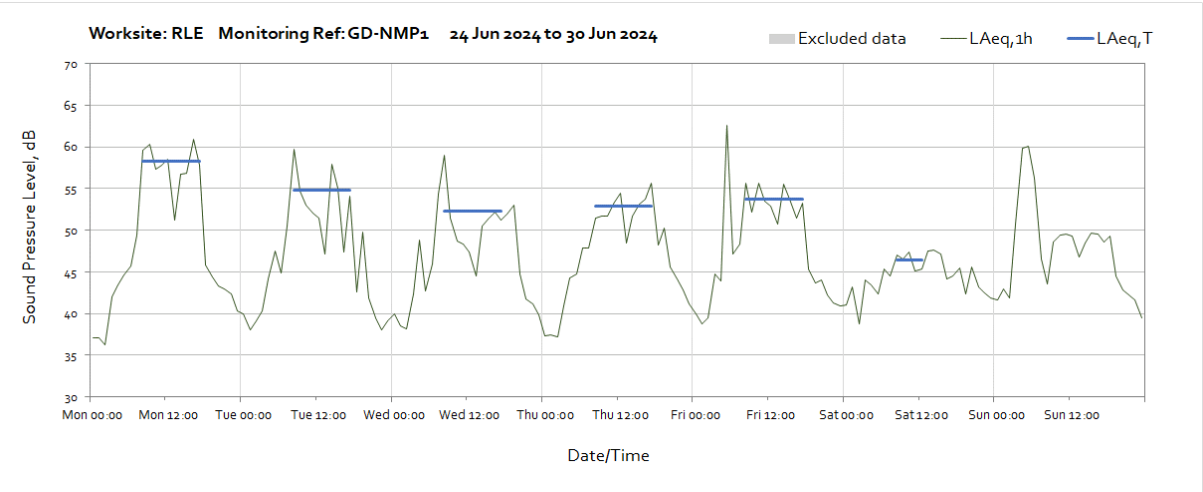


Worksite: LL – Monitoring Ref: GD-NMP1

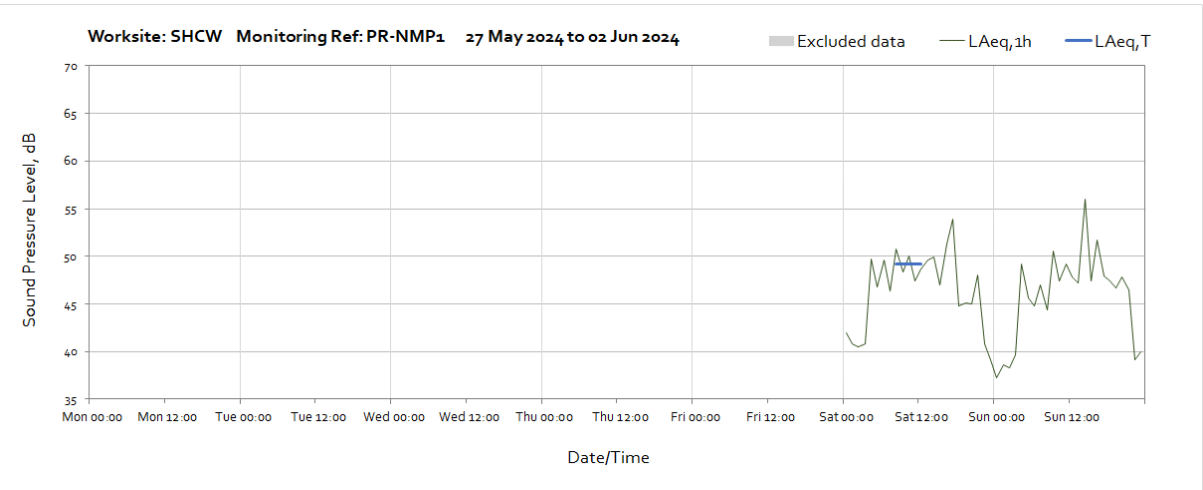


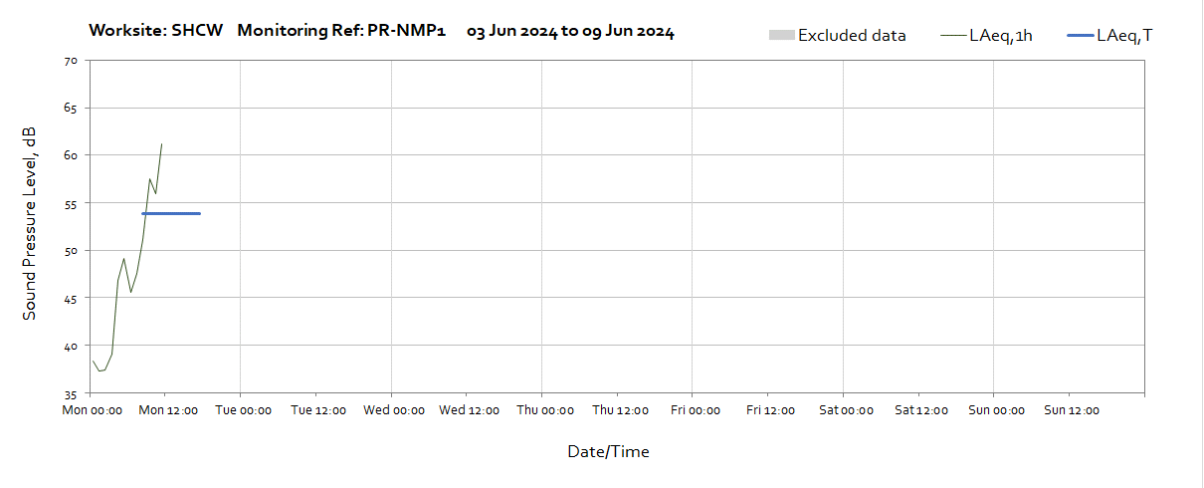






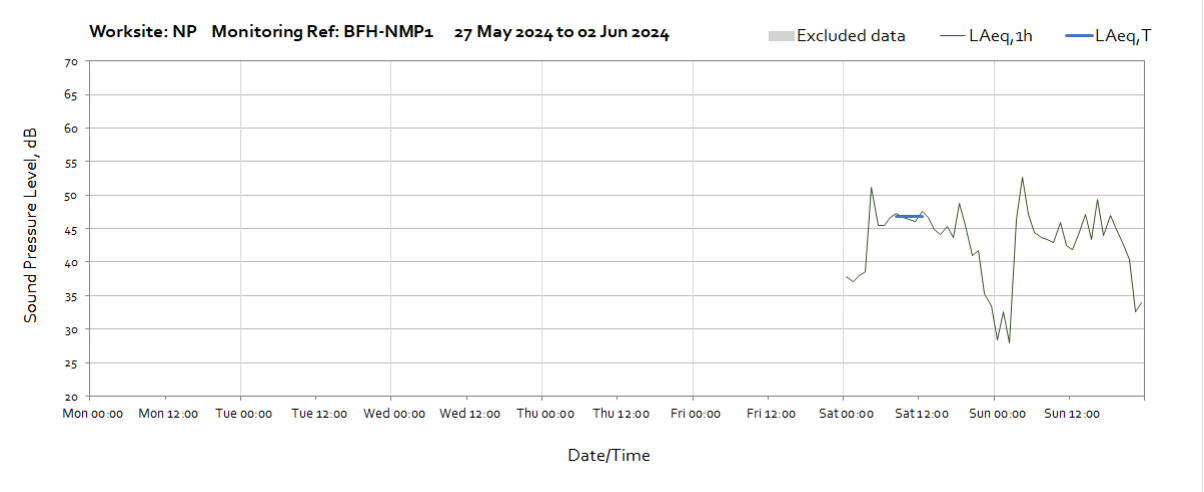
Worksite: SHCW – Monitoring Ref: PR-NMP1

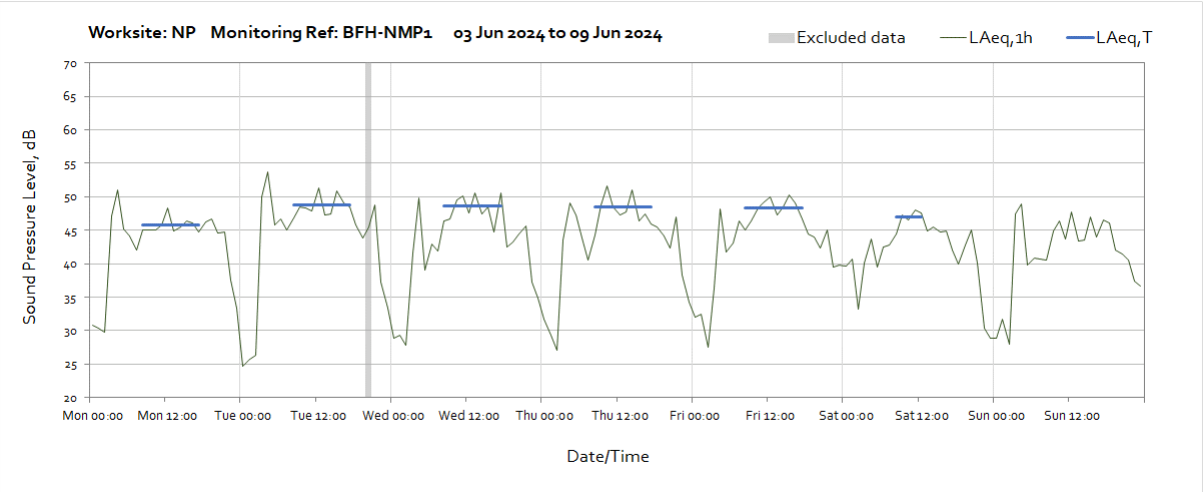


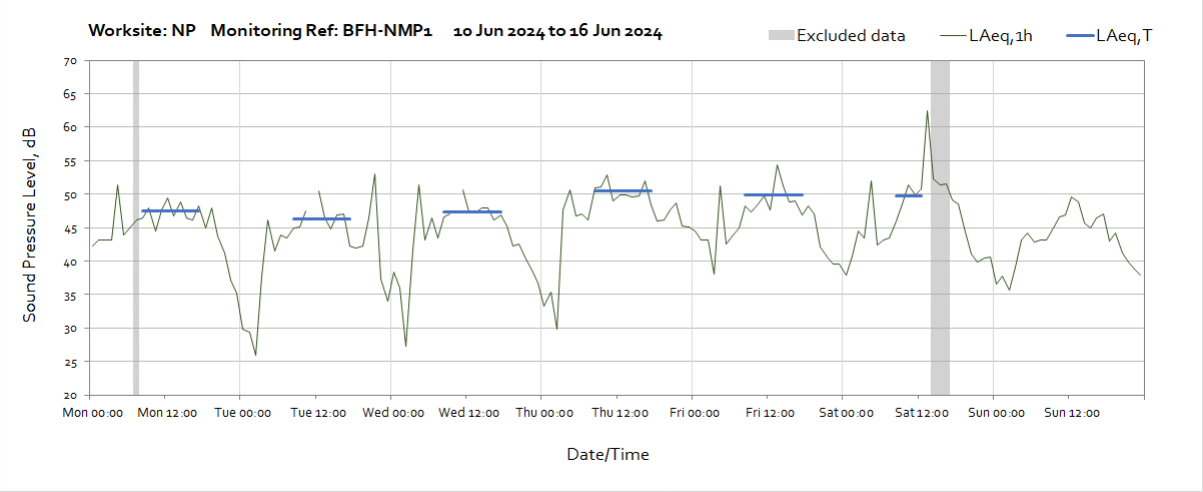


Note: Monitor was decommissioned at 12:00 on Monday 3rd June.

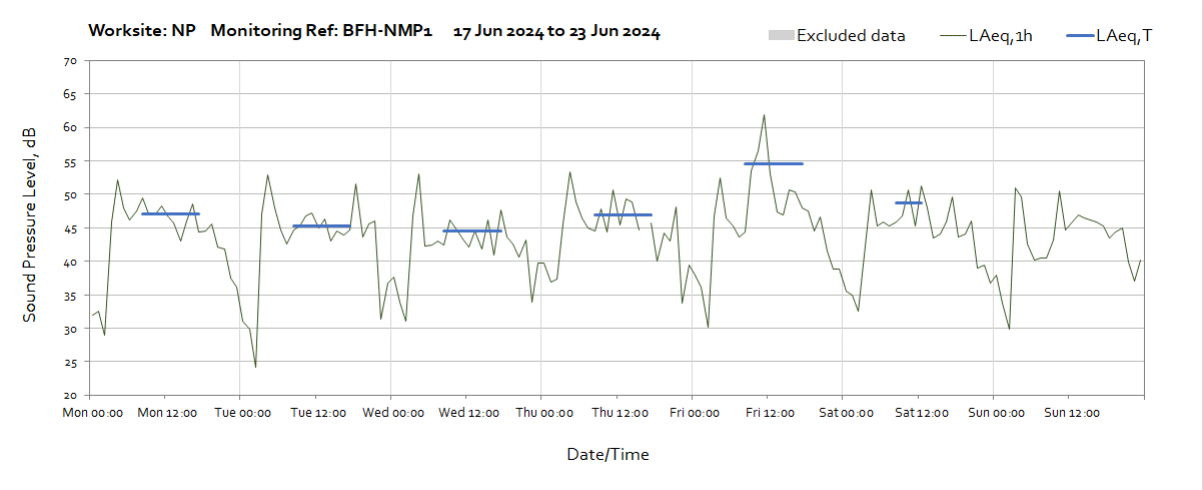
Worksite: NP – Monitoring Ref: BFH-NMP1



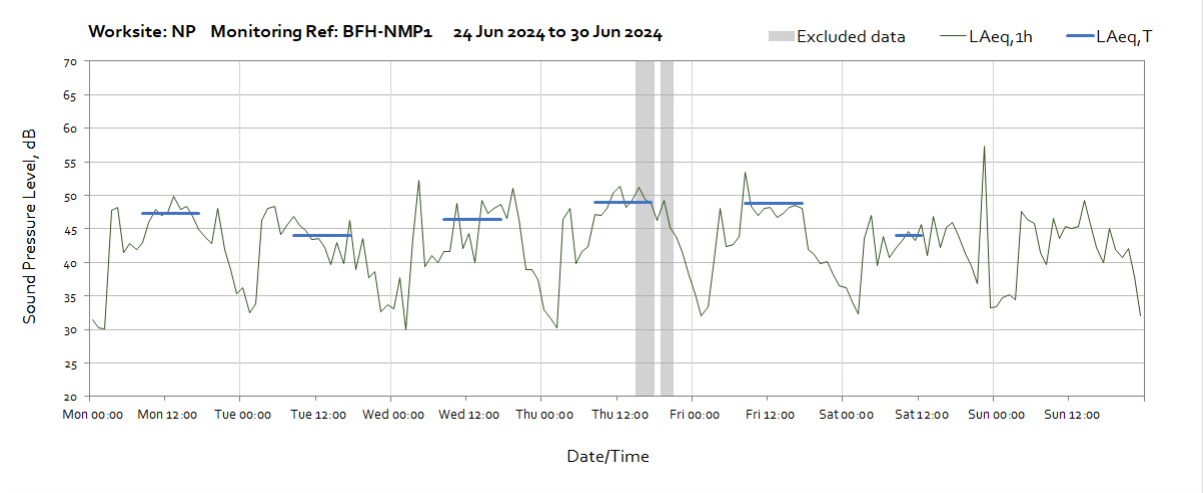




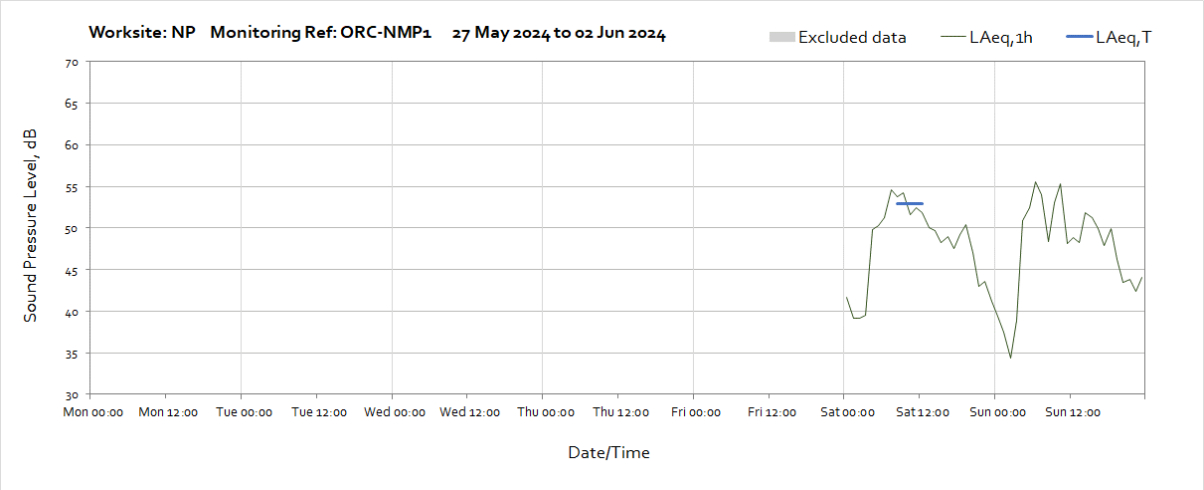
Note: Missing data between 11:00 and 12:00 on Tuesday 11th June and 10:00 and 11:00 on Wednesday 12th June was due to monitor maintenance.

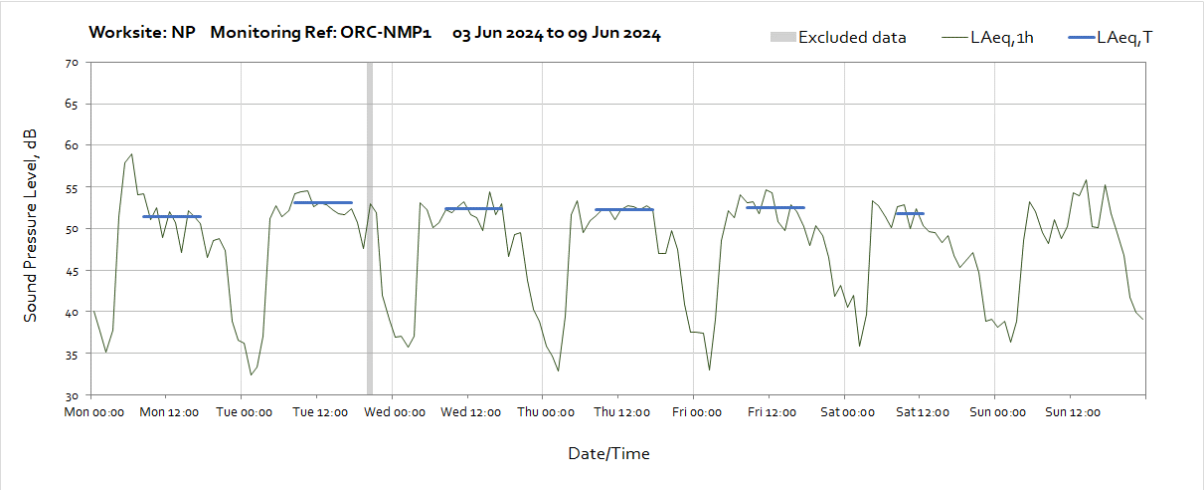


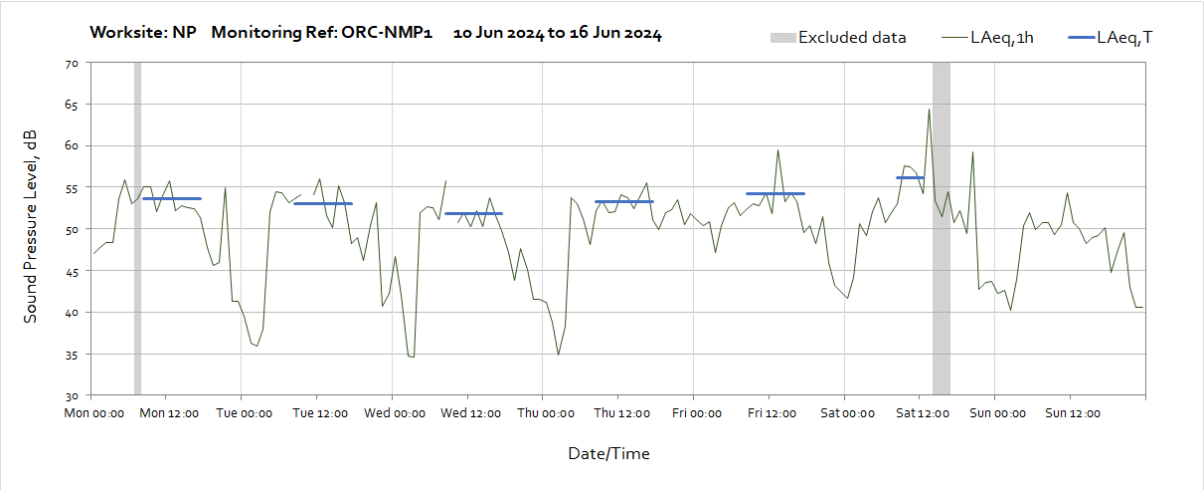
Note: Missing data between 16:00 and 17:00 on Thursday 20th June was due to monitor field calibration.



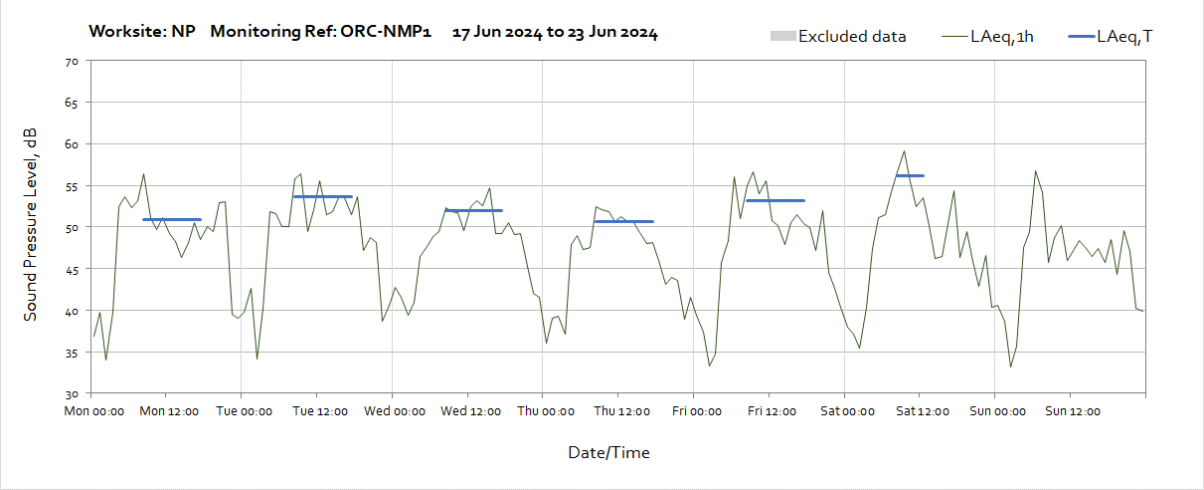
Worksite: NP – Monitoring Ref: ORC-NMP1

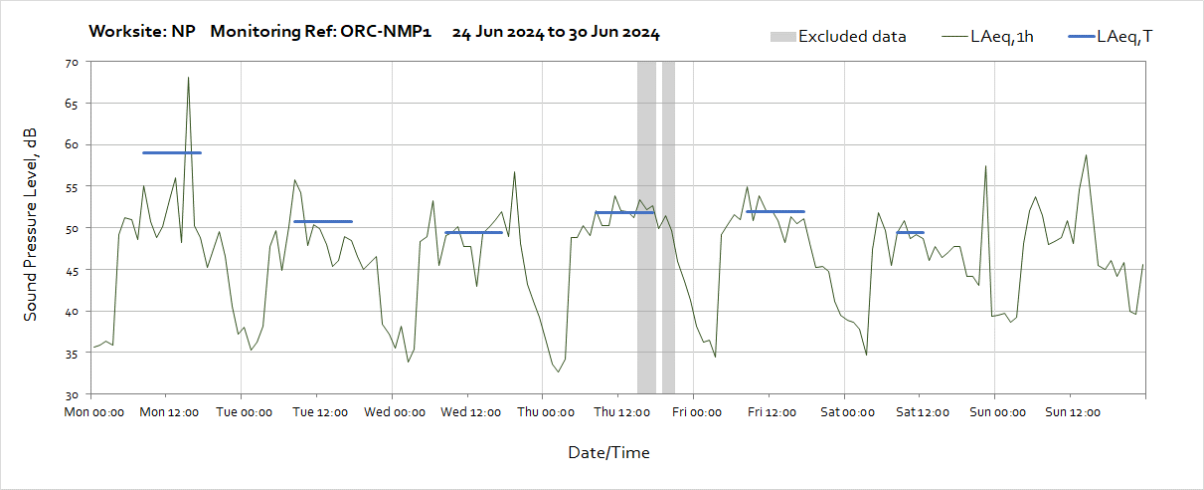




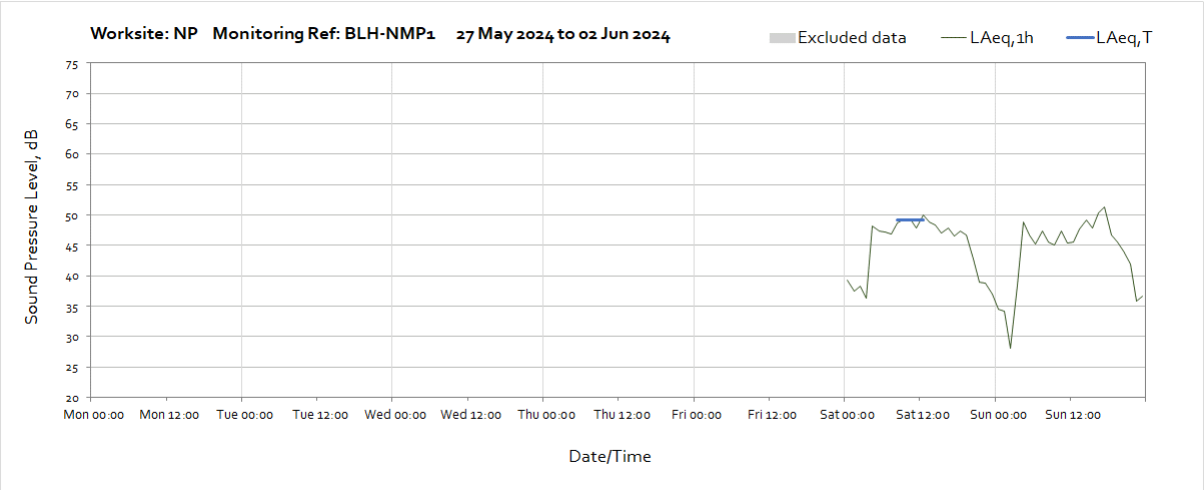


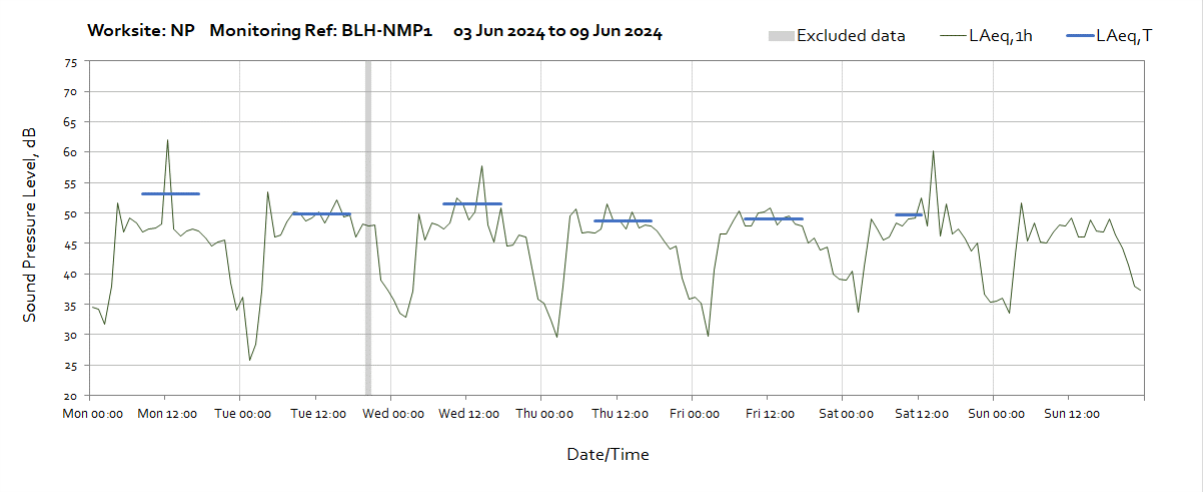
Note: Missing data between 10:00 and 11:00 on Tuesday 11th June and 09:00 and 10:00 on Wednesday 12th June was due to monitor maintenance.

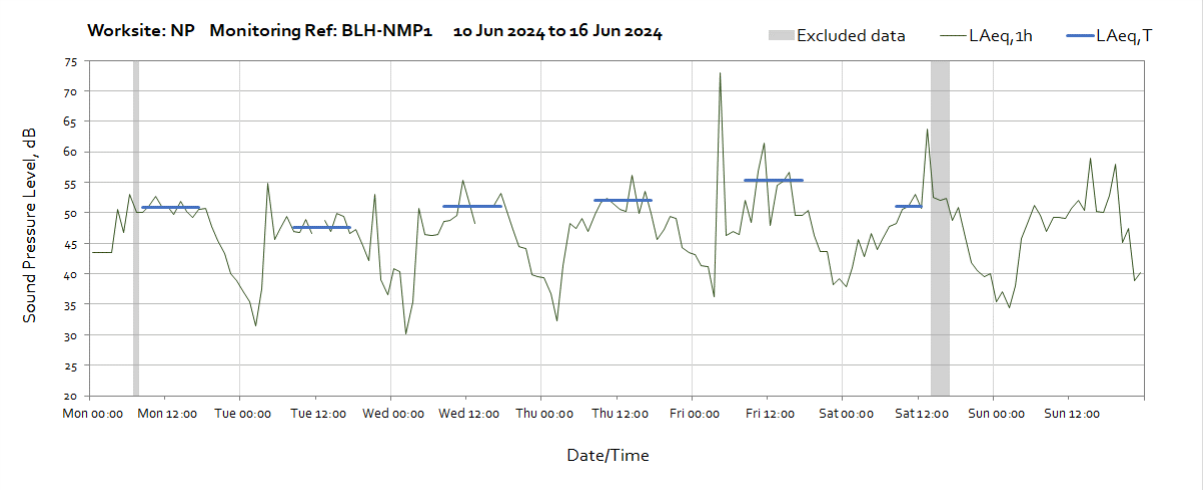




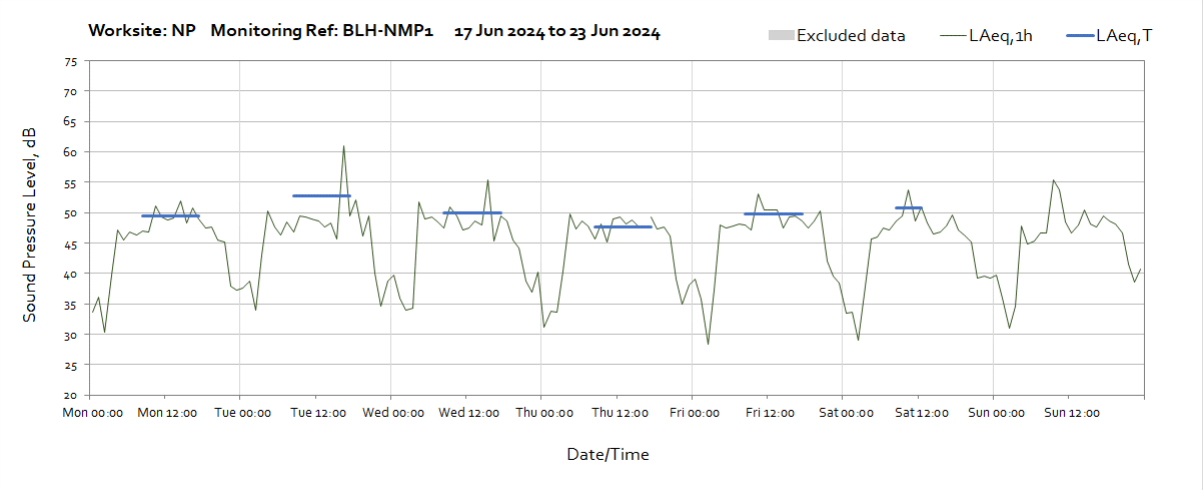
Worksite: NP – Monitoring Ref: BLH-NMP1



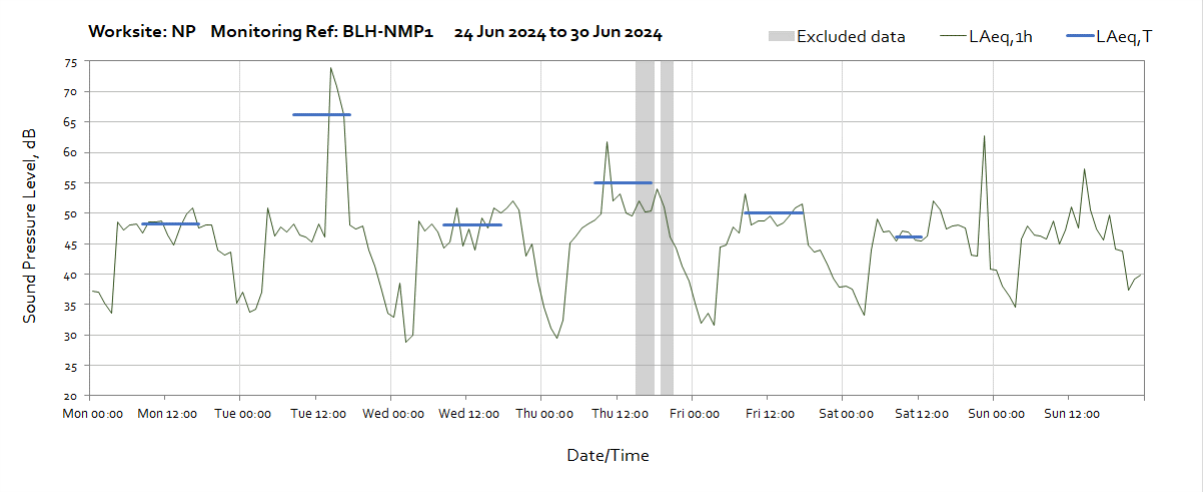




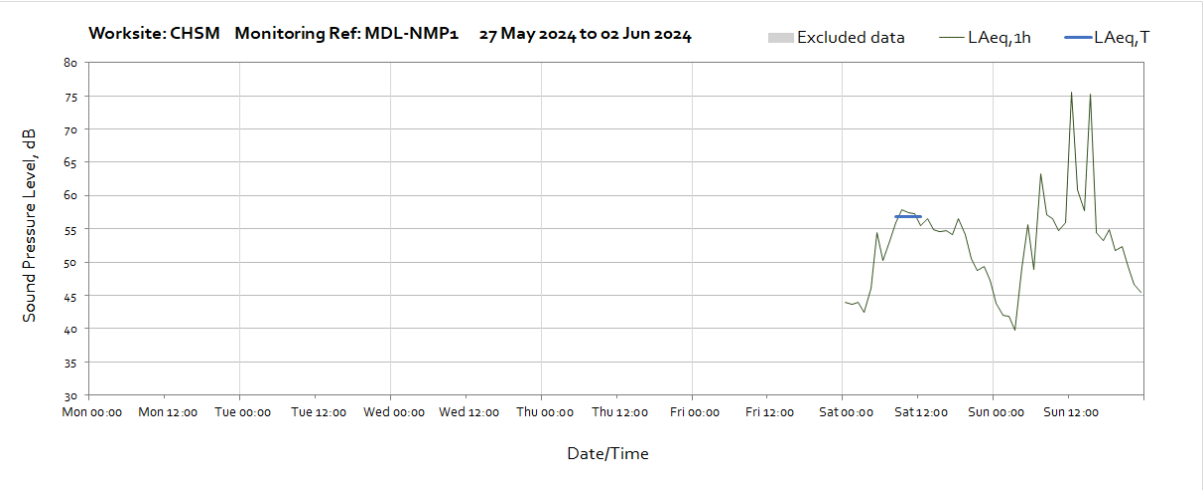
Note: Missing data between 12:00 and 13:00 on Tuesday 11th June and 14:00 and 15:00 on Wednesday 12th June was due to monitor maintenance.

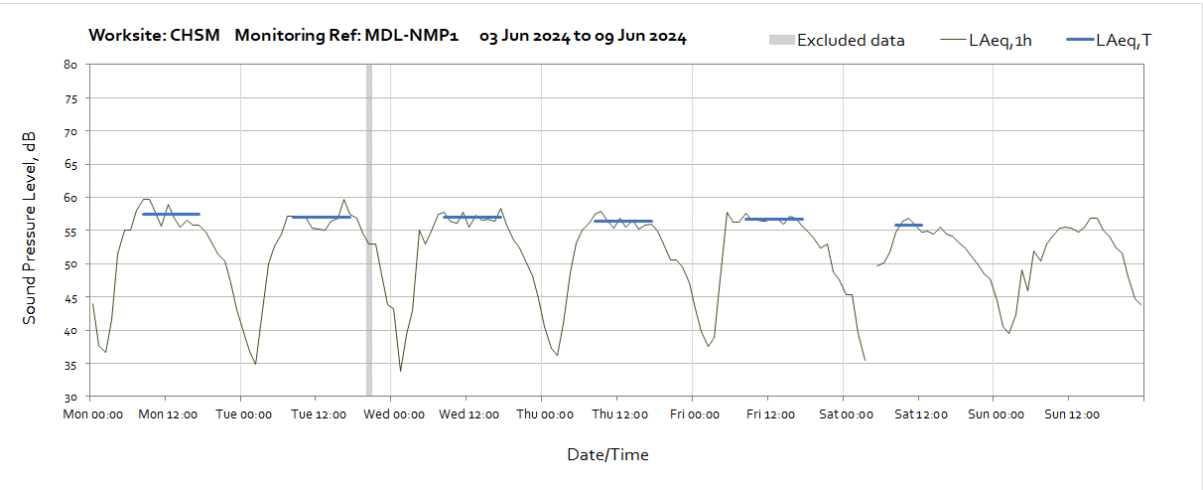


Note: Missing data between 16:00 and 17:00 on Thursday 20th June was due to monitor field calibration.

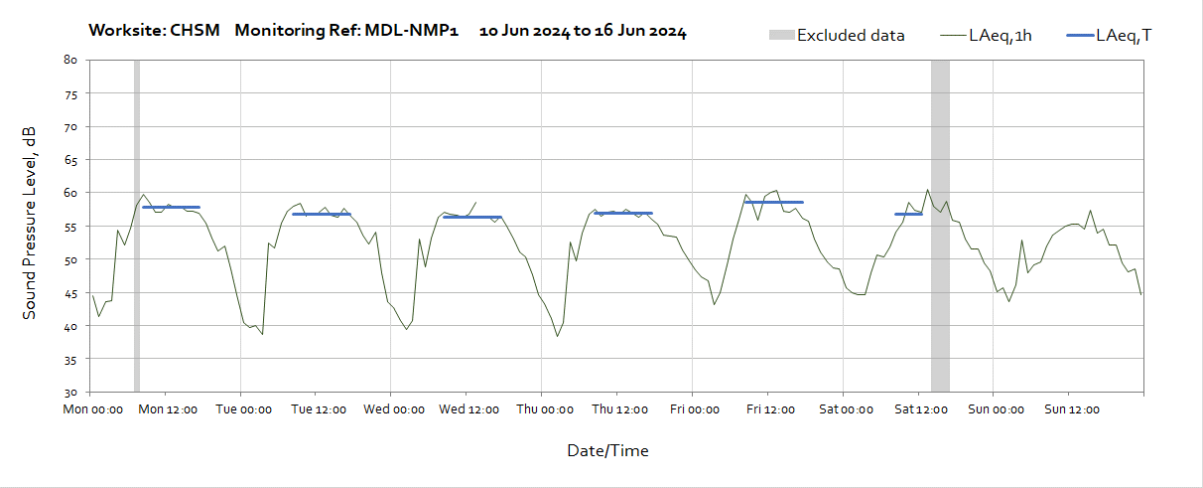


Worksite: CHSM – Monitoring Ref: MDL-NMP1

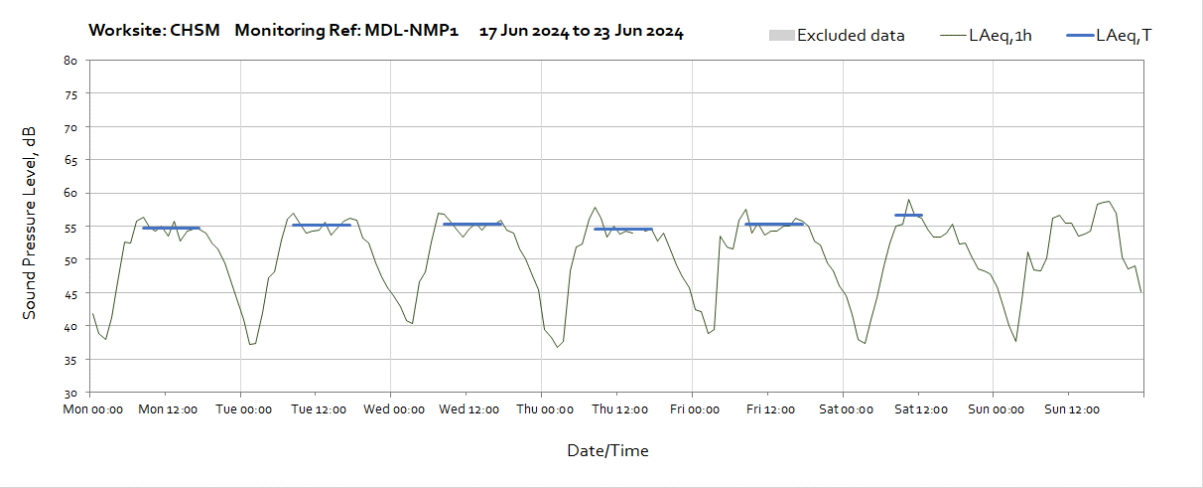




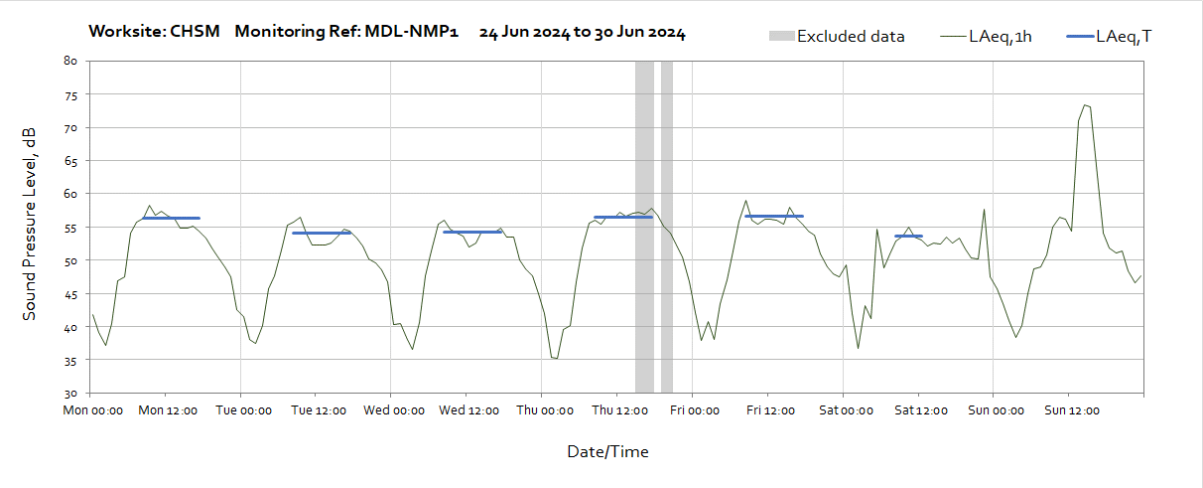
Note: Missing data between 04:00 and 05:00 on Saturday 8th June was due to a communication error between the monitoring station and server.



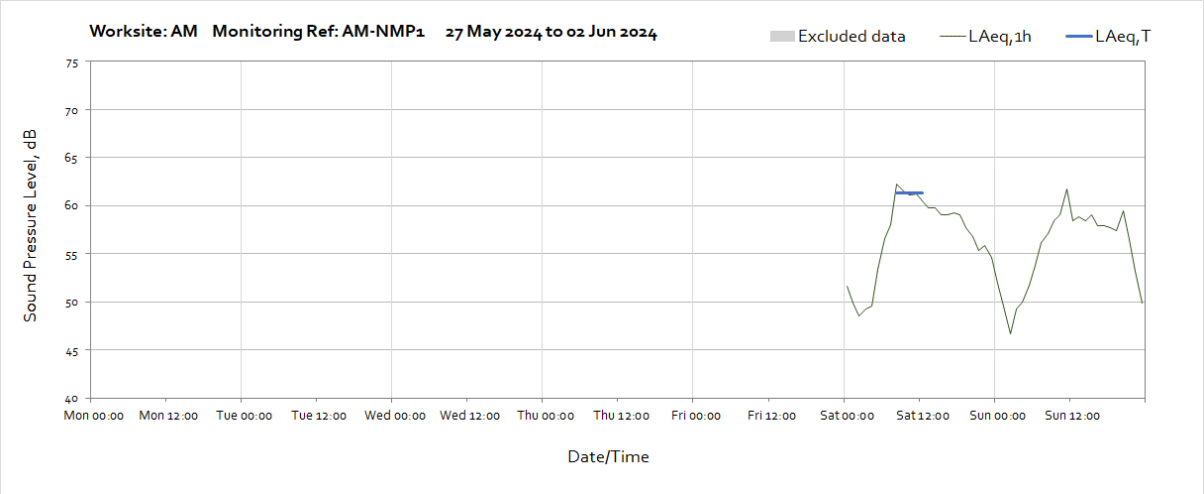
Note: Missing data between 11:00 and 12:00 on Tuesday 11th June and 14:00 and 15:00 on Wednesday 12th June was due to monitor maintenance.

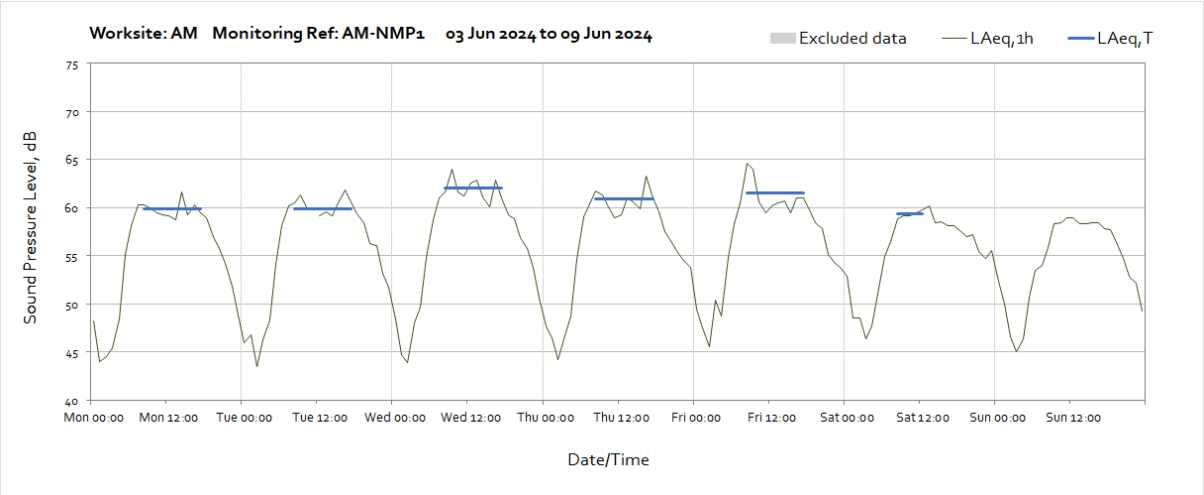


Note: Missing data between 15:00 and 16:00 on Thursday 20th June was due to monitor field calibration.

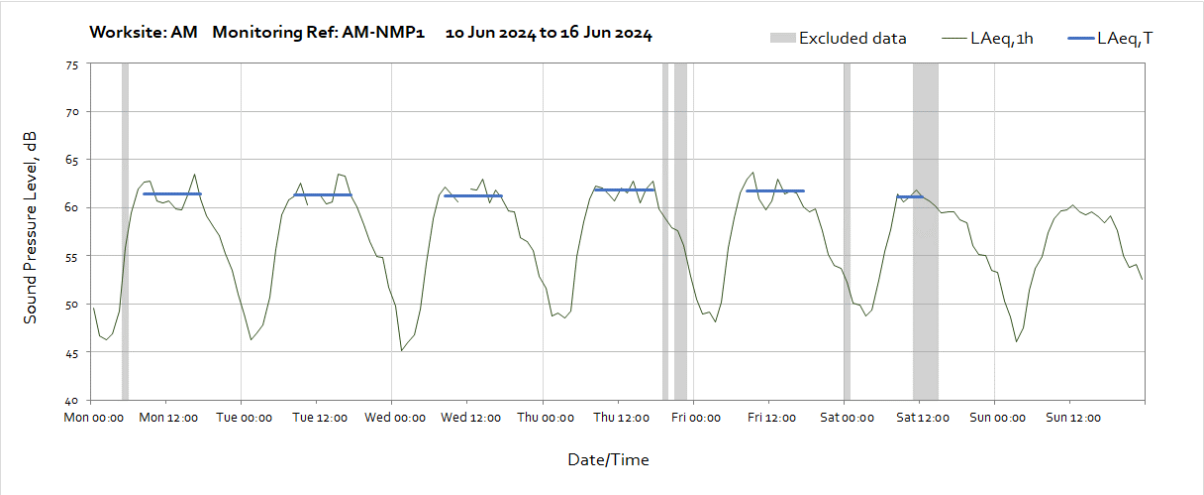


Worksite: AM – Monitoring Ref: AM-NMP1

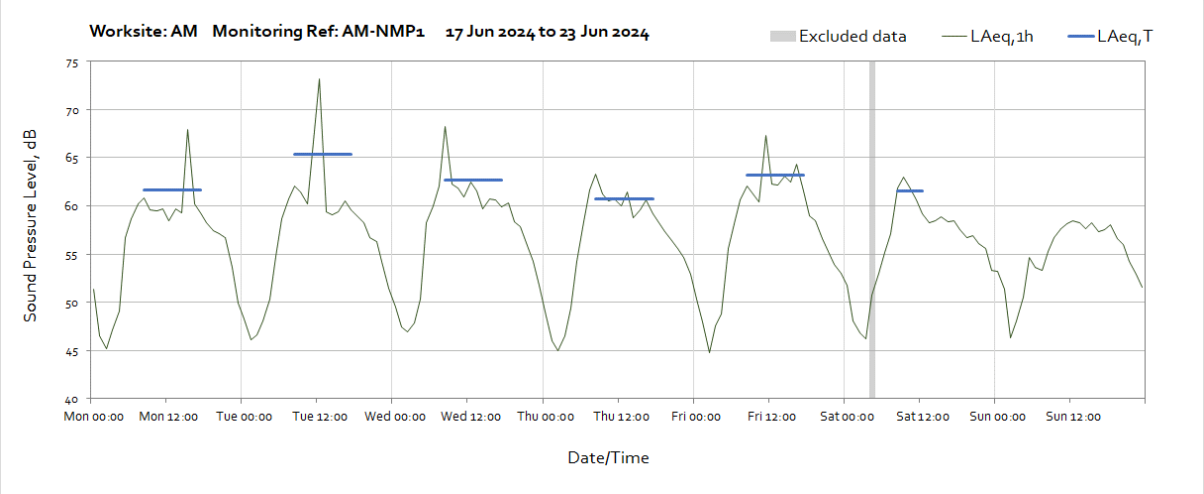


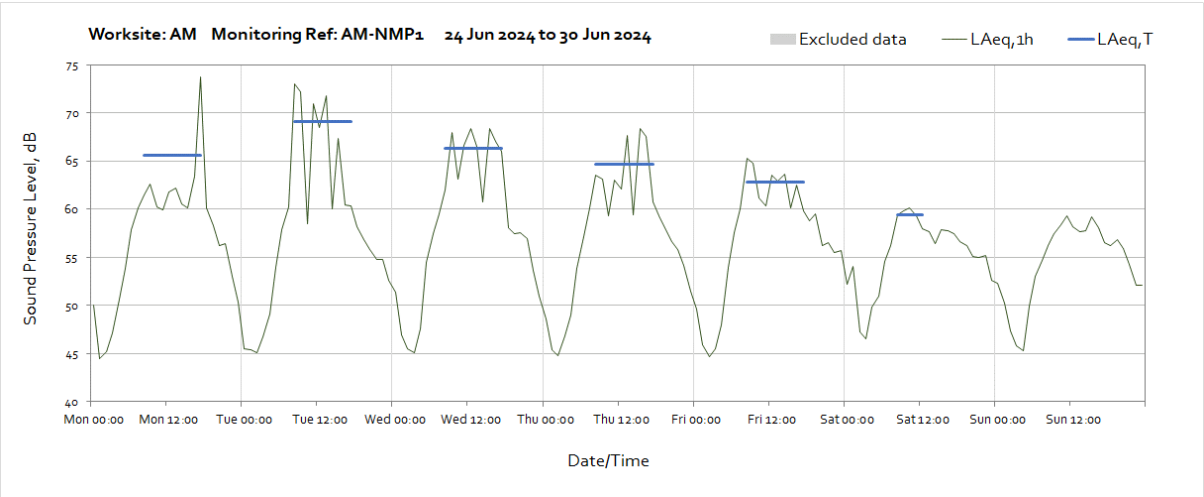


Note: Missing data between 11:00 and 12:00 on Tuesday 4th June was due to monitor field calibration.

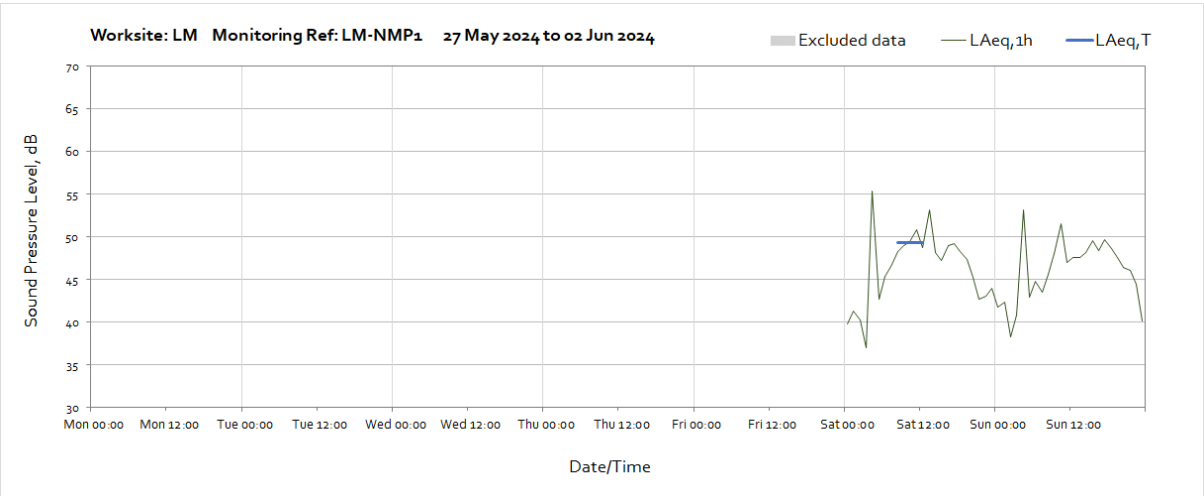


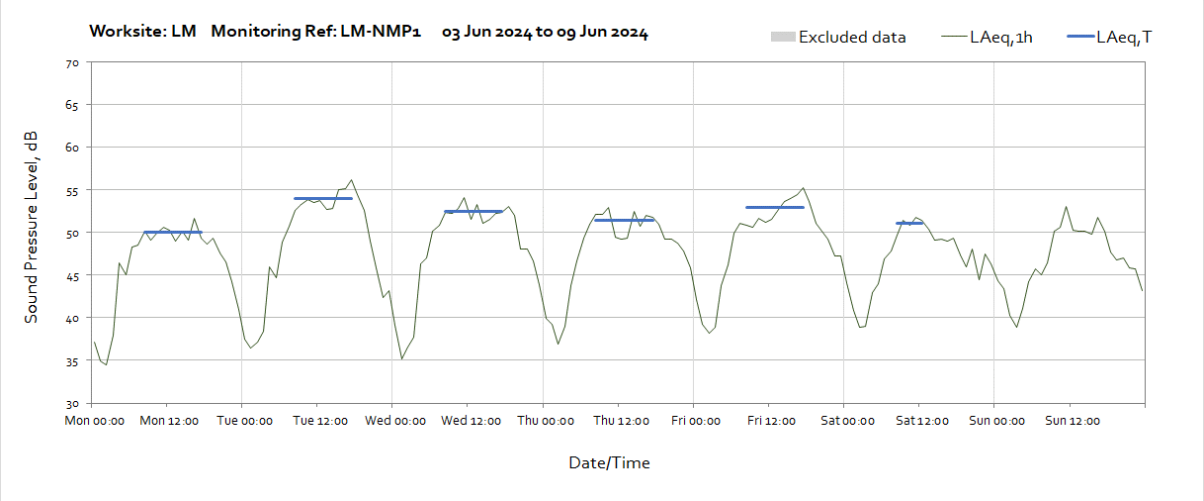
Note: Missing data between 11:00 and 12:00 on both Tuesday 11th and Wednesday 12th June was due to monitor maintenance.

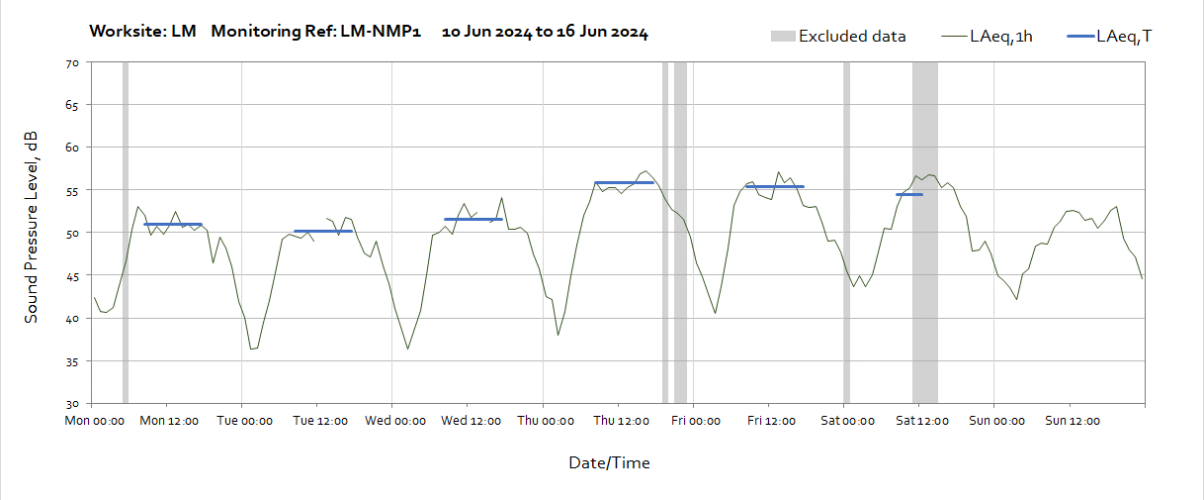




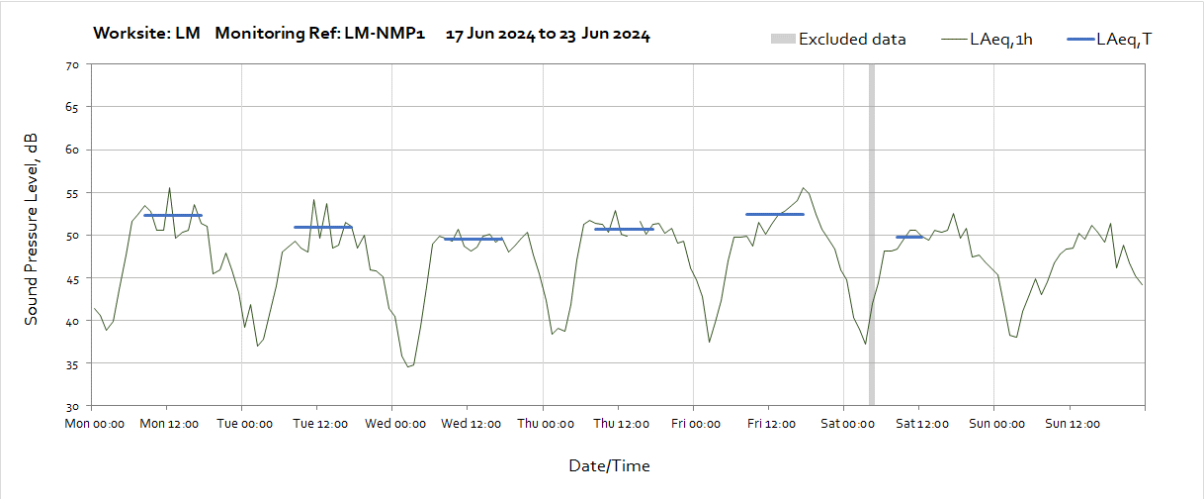
Worksite: LM – Monitoring Ref: LM-NMP1



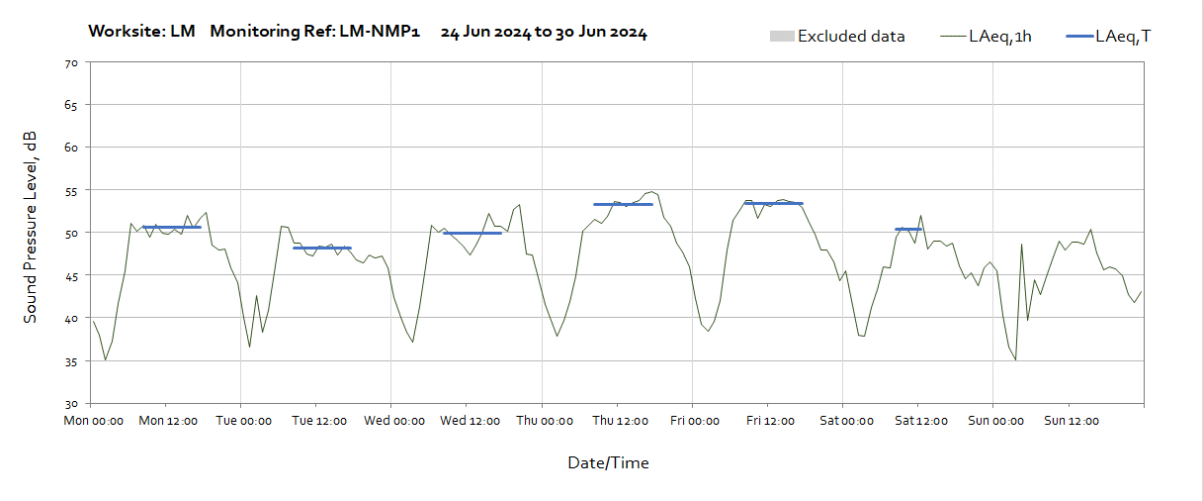




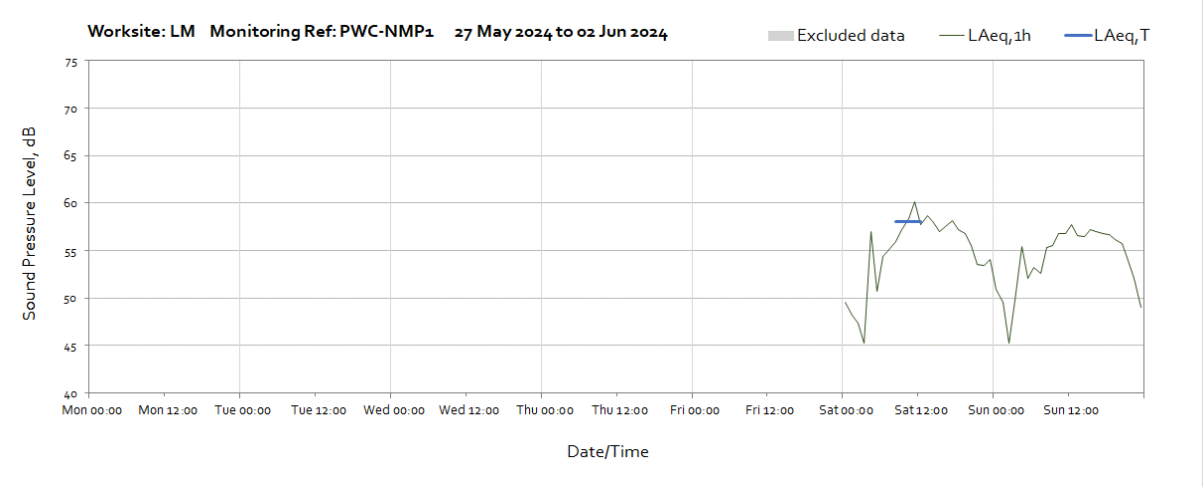
Note: Missing data between 12:00 and 13:00 on Tuesday 11th June and 14:00 and 15:00 on Wednesday 12th June was due to monitor maintenance.

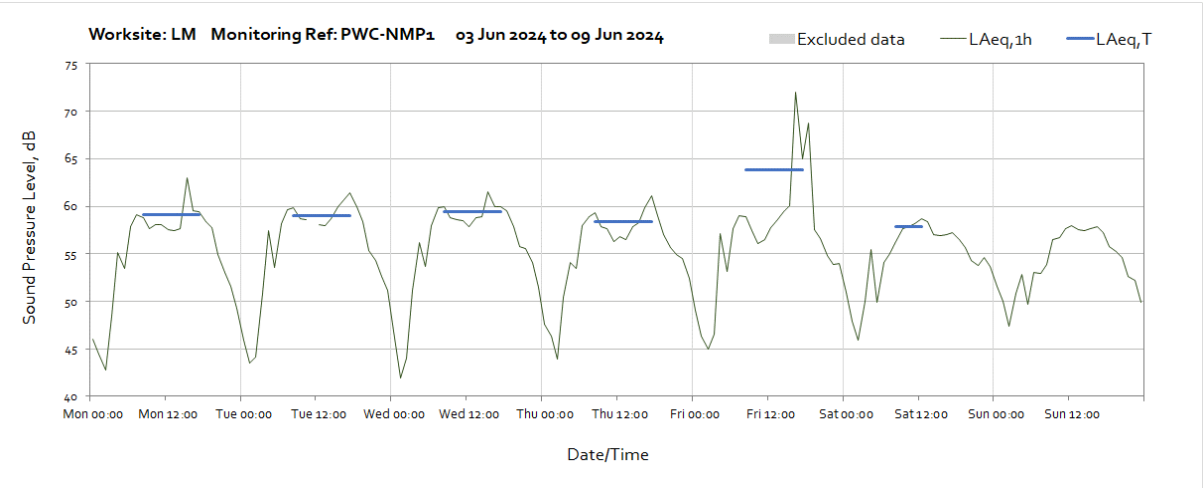


Note: Missing data between 14:00 and 15:00 on Thursday 20th June was due to monitor field calibration.

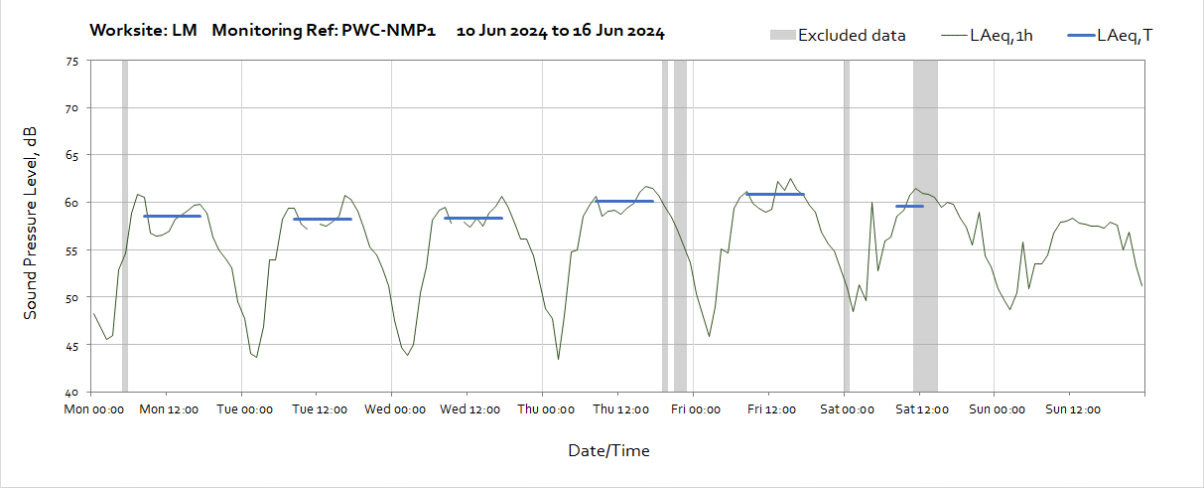


Worksite: LM – Monitoring Ref: PWC-NMP1

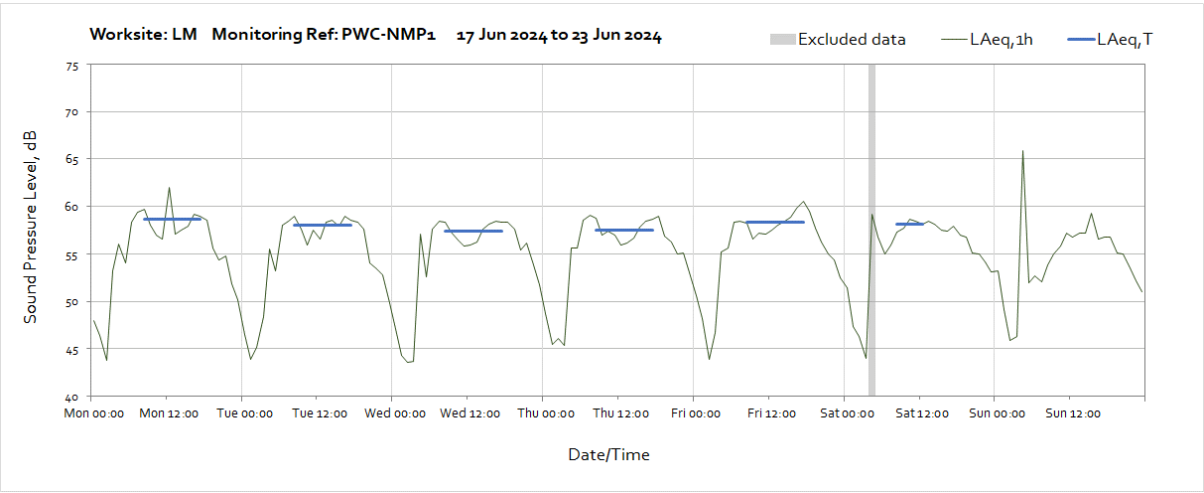


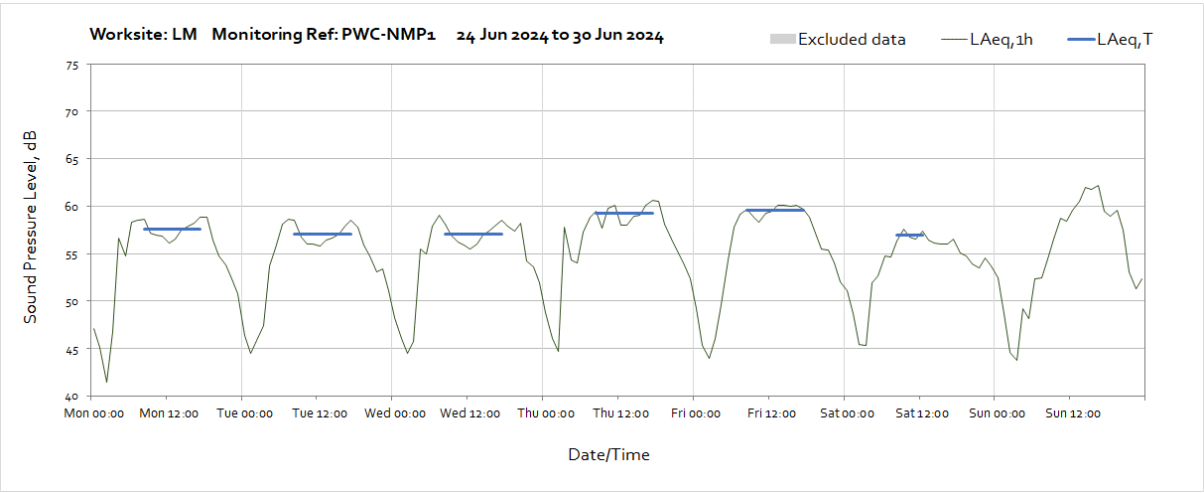


Note: Missing data between 11:00 and 12:00 on Tuesday 4th June was due to monitor field calibration.

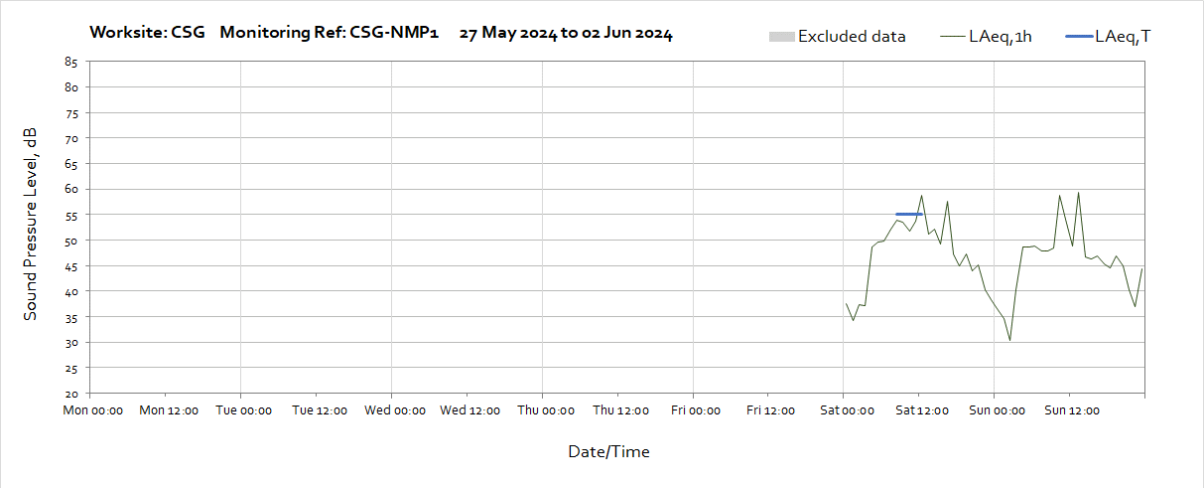


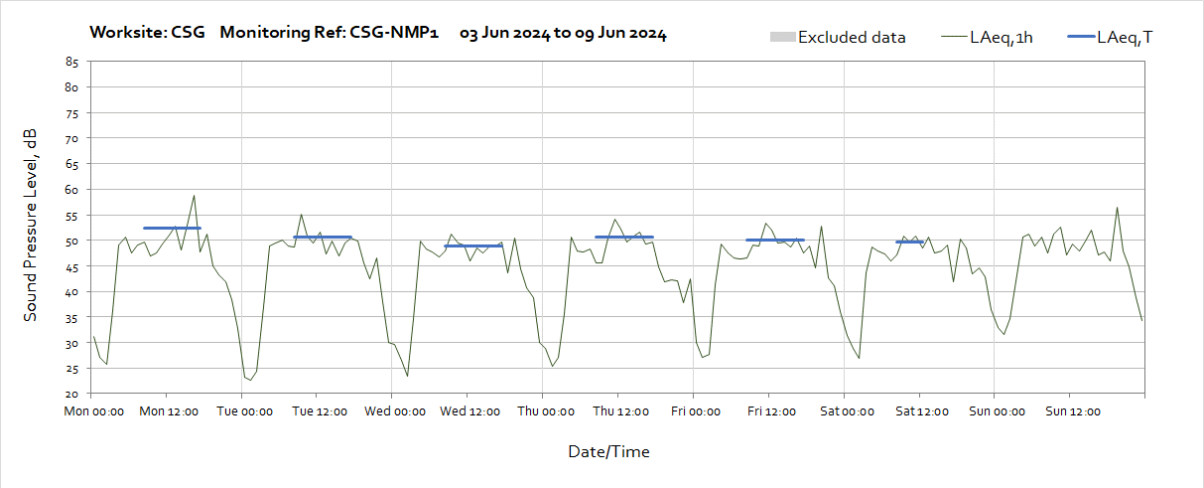
Note: Missing data between 11:00 and 12:00 on Tuesday 11th June and 10:00 and 11:00 on Wednesday 12th June was due to monitor maintenance.

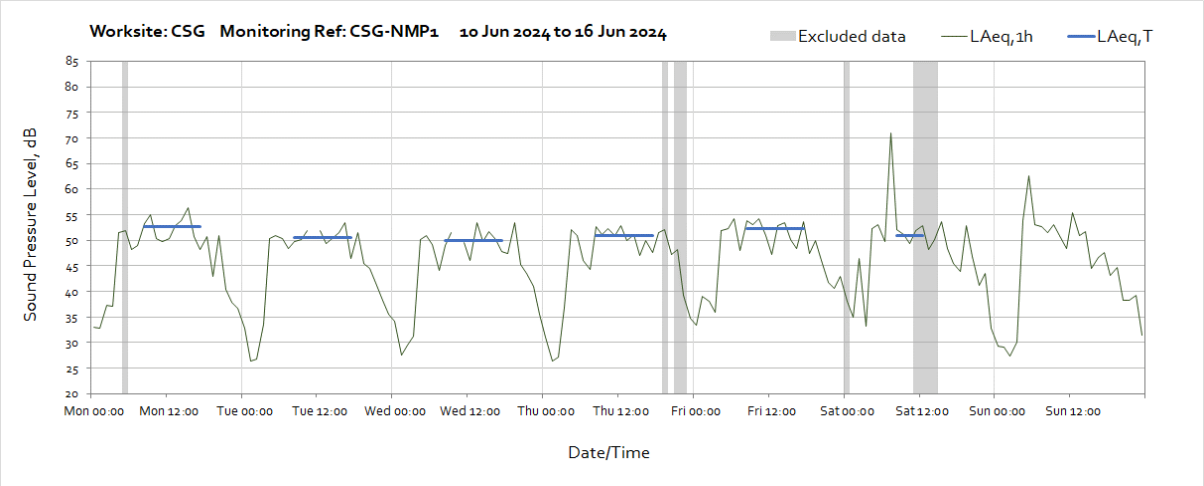




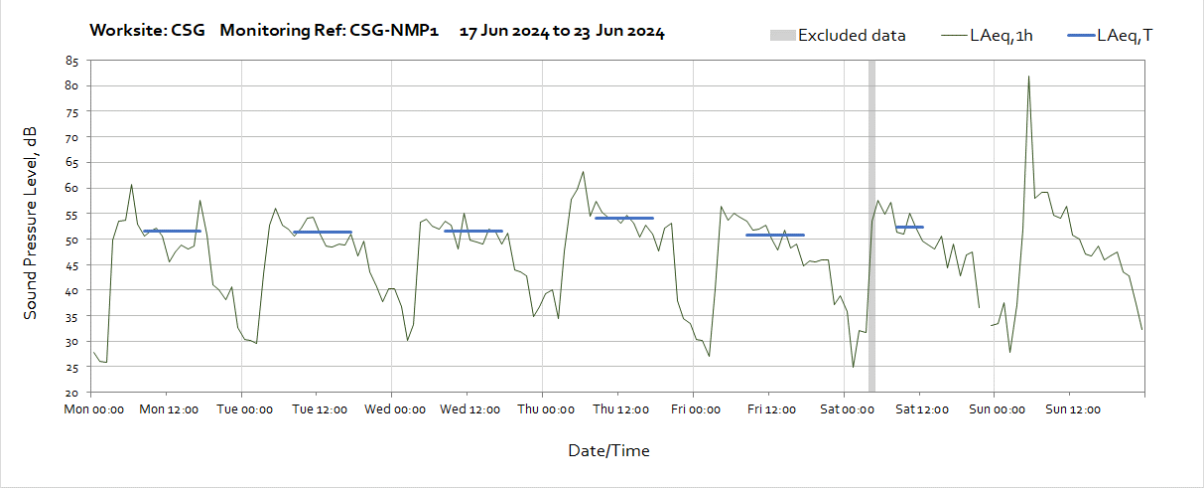
Worksite: CSG – Monitoring Ref: CSG-NMP1



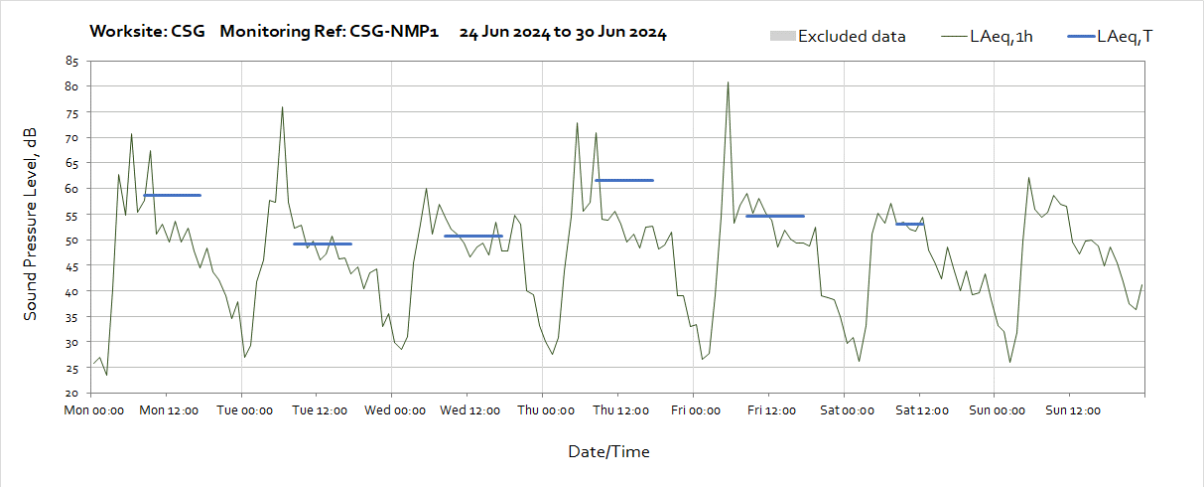




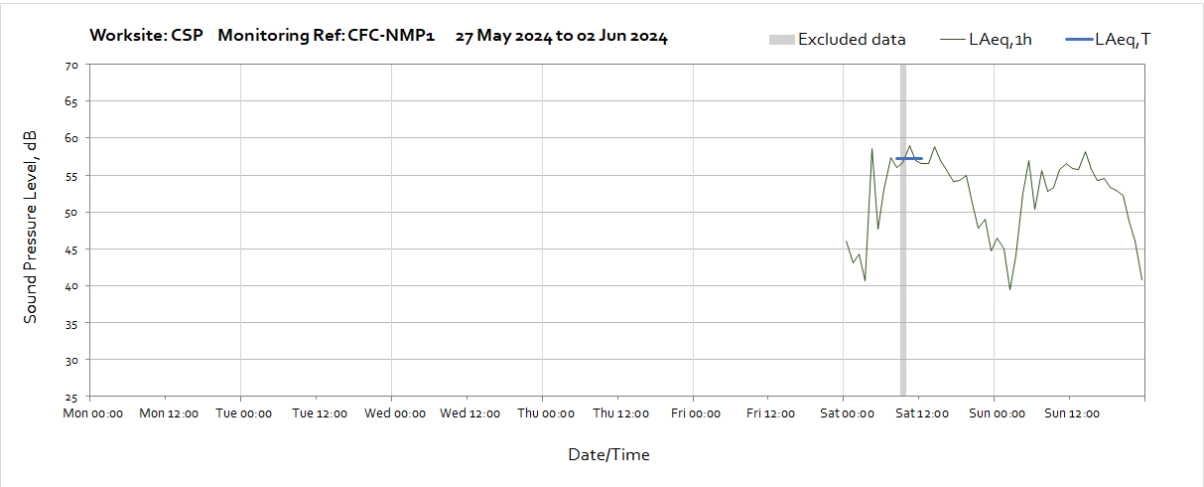
Note: Missing data between 11:00 and 12:00 on Tuesday 11th June and 10:00 and 11:00 on Wednesday 12th June was due to monitor maintenance.

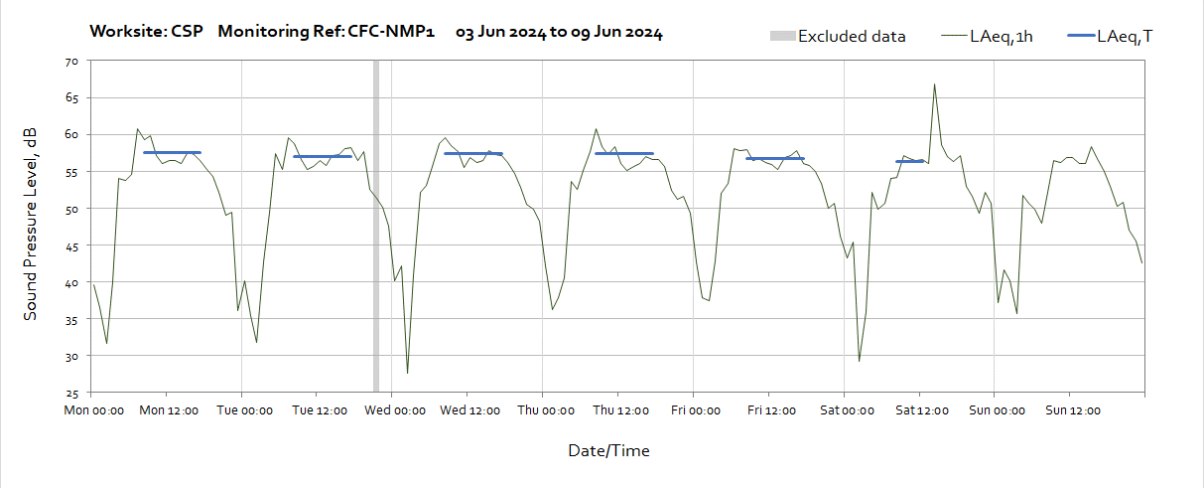


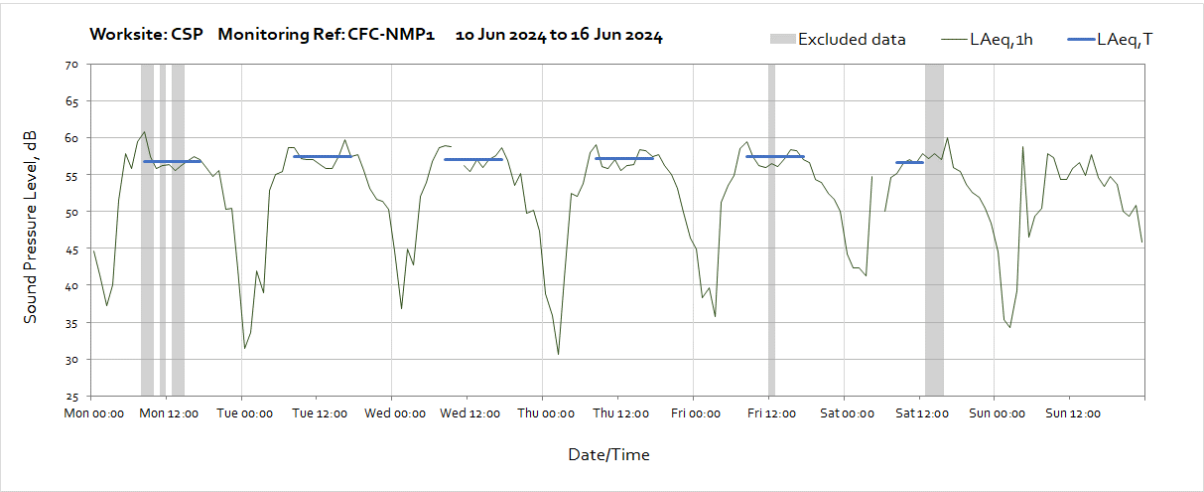
Note: Missing data between 22:00 and 23:00 on Saturday 22nd June was due to a communication error between the monitoring station and server.



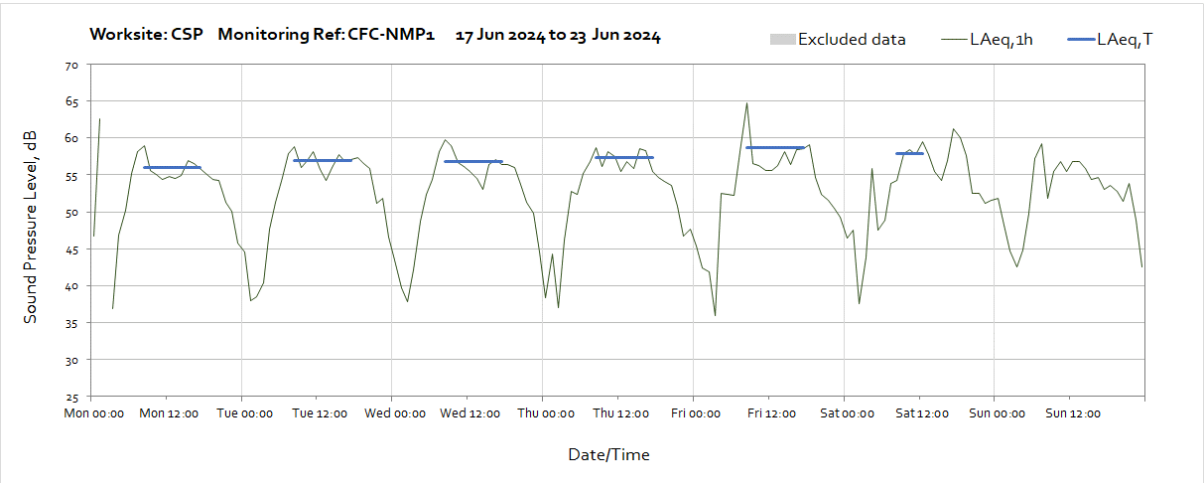
Worksite: CSP – Monitoring Ref: CFC-NMP1



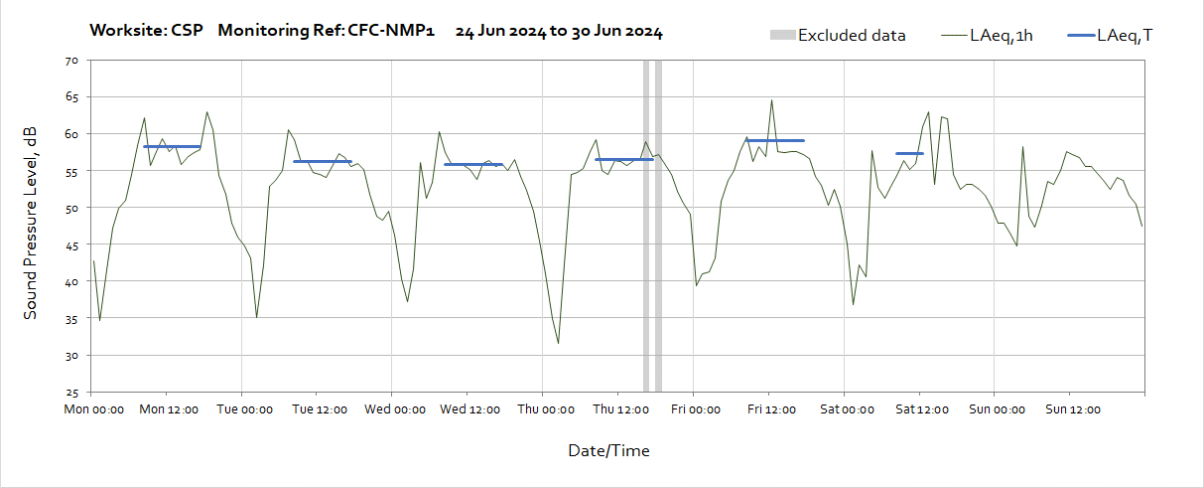




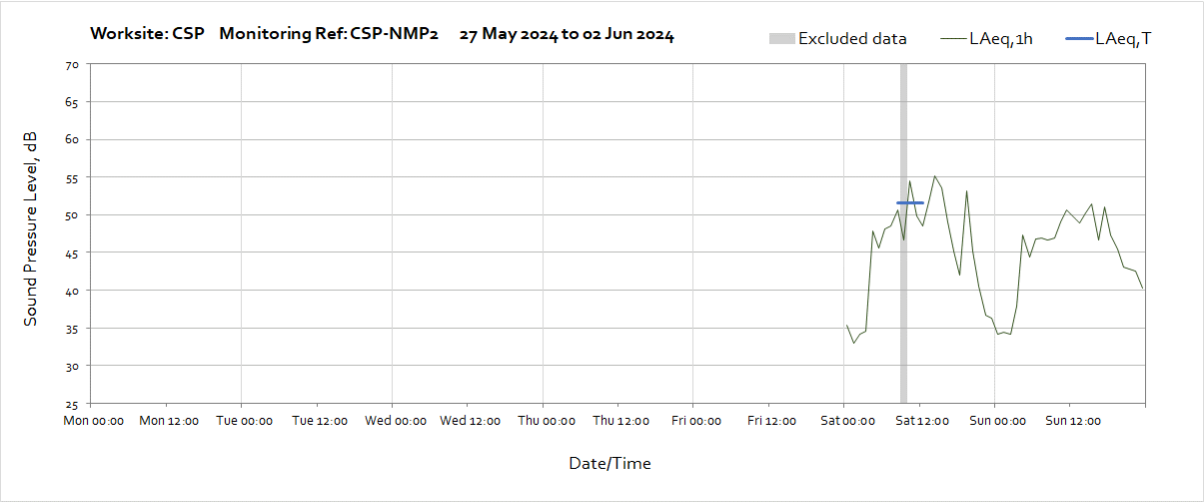
Note: Missing data between 10:00 and 11:00 on Wednesday 12th June was due to monitor maintenance. Missing data between 05:00 and 06:00 on Saturday 15th June was due to monitor maintenance.

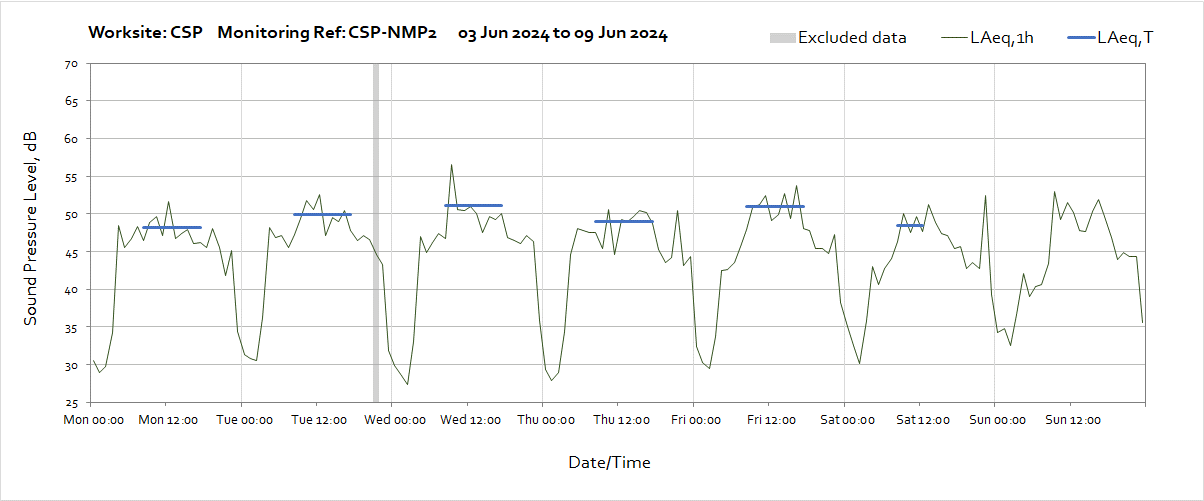


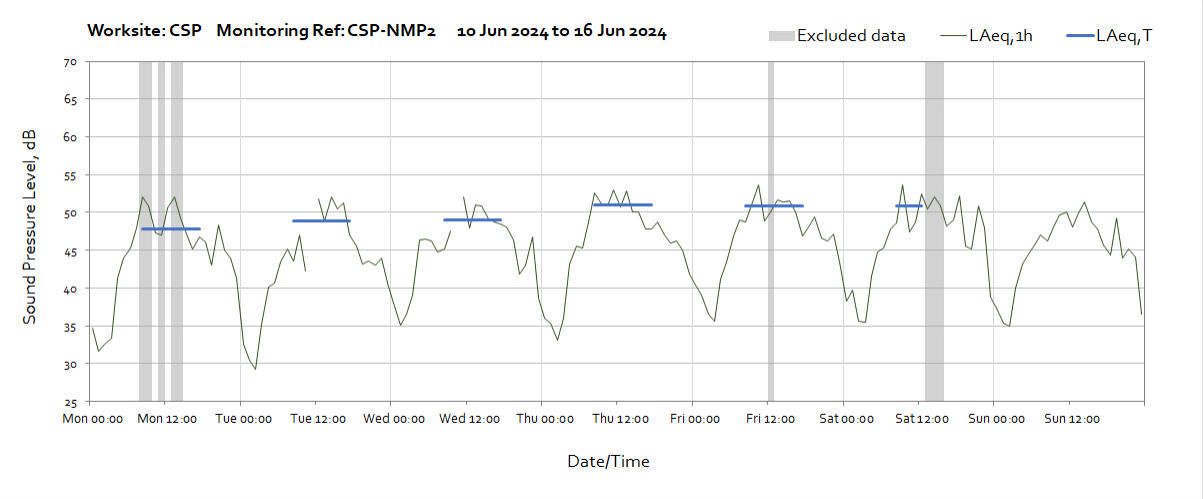
Note: Missing data between 02:00 and 03:00 on Monday 17th June was due to monitor maintenance.



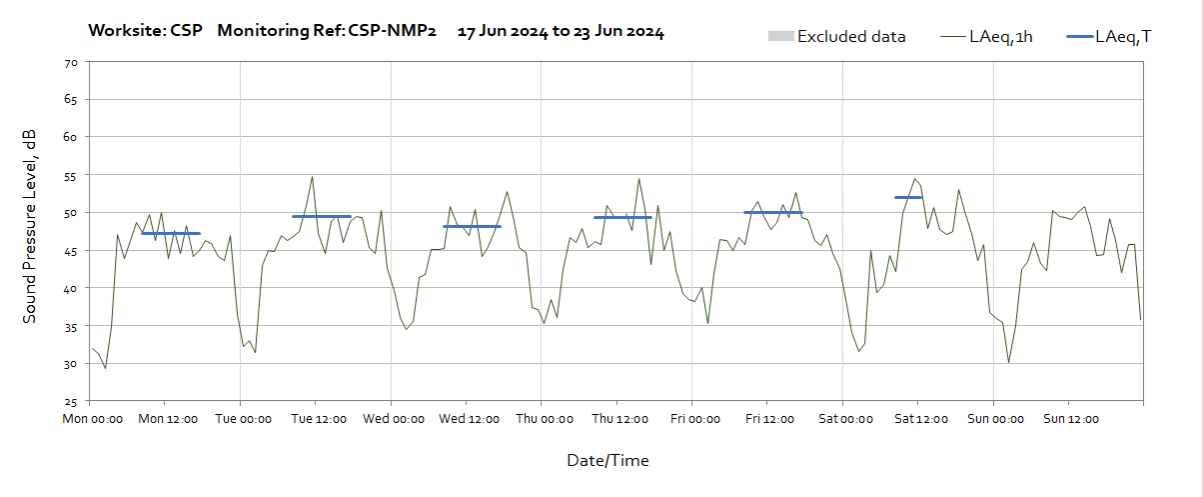
Worksite: CSP – Monitoring Ref: CSP-NMP2



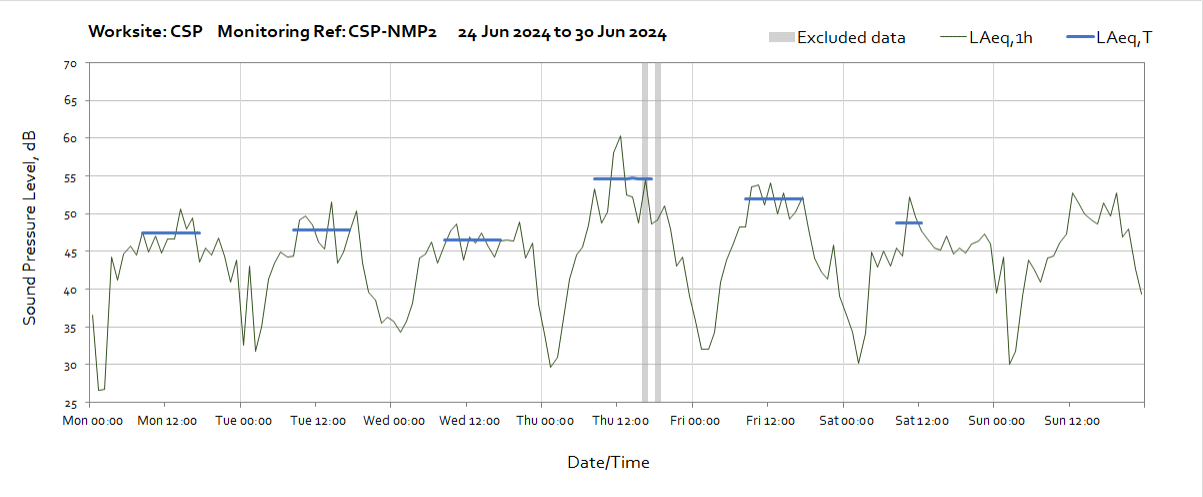




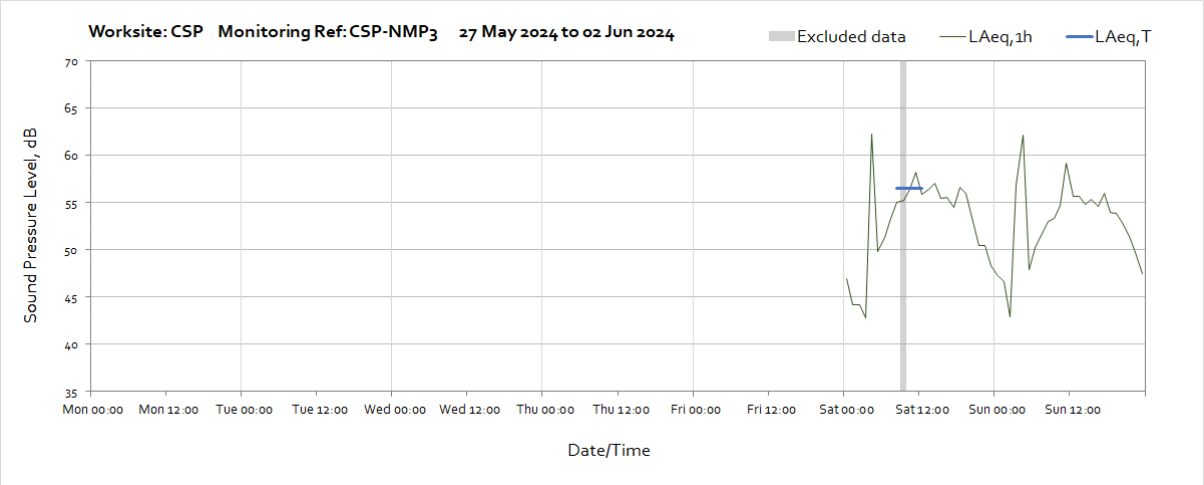
Note: Missing data between 11:00 and 12:00 on Tuesday 11th June and 10:00 and 11:00 on Wednesday 12th June was due to monitor maintenance.

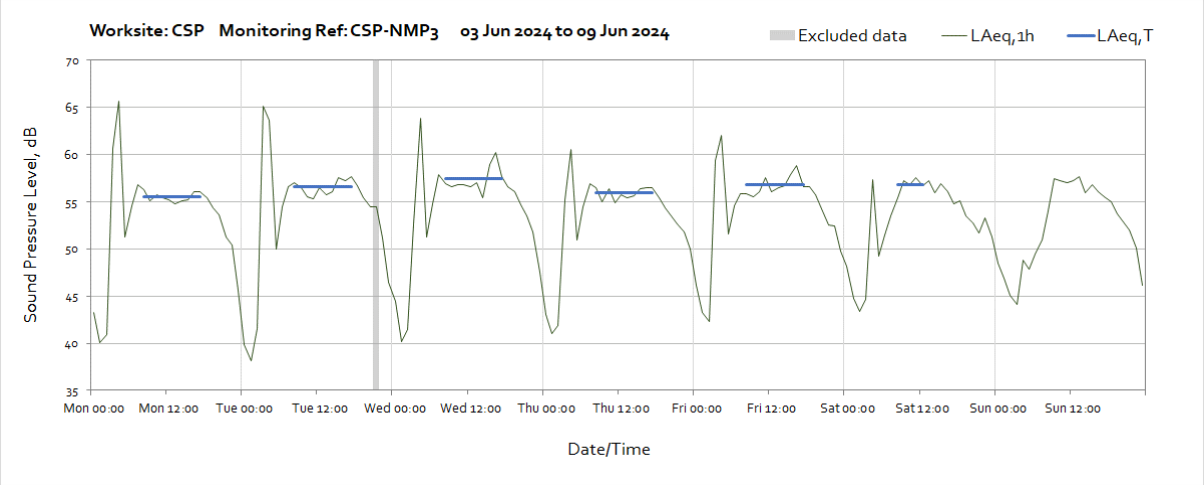


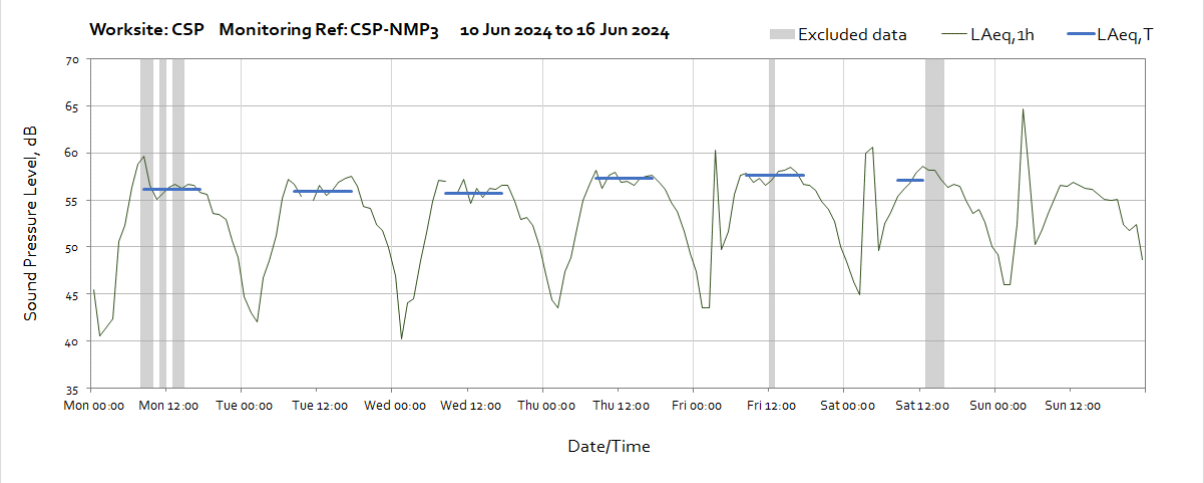
Note: Missing data between 12:00 and 13:00 on Thursday 20th June was due to monitor field calibration.



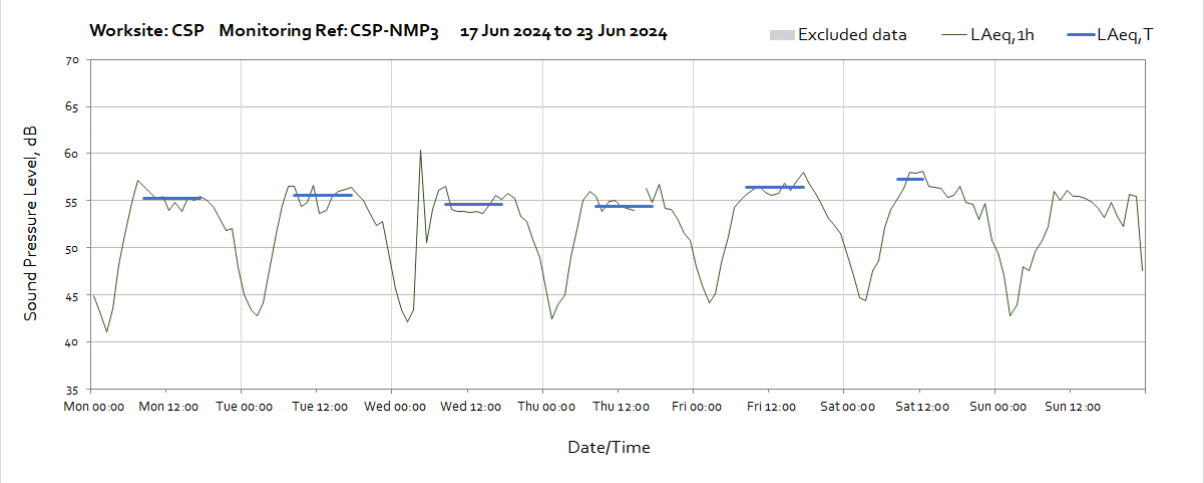
Worksite: CSP – Monitoring Ref: CSP-NMP3



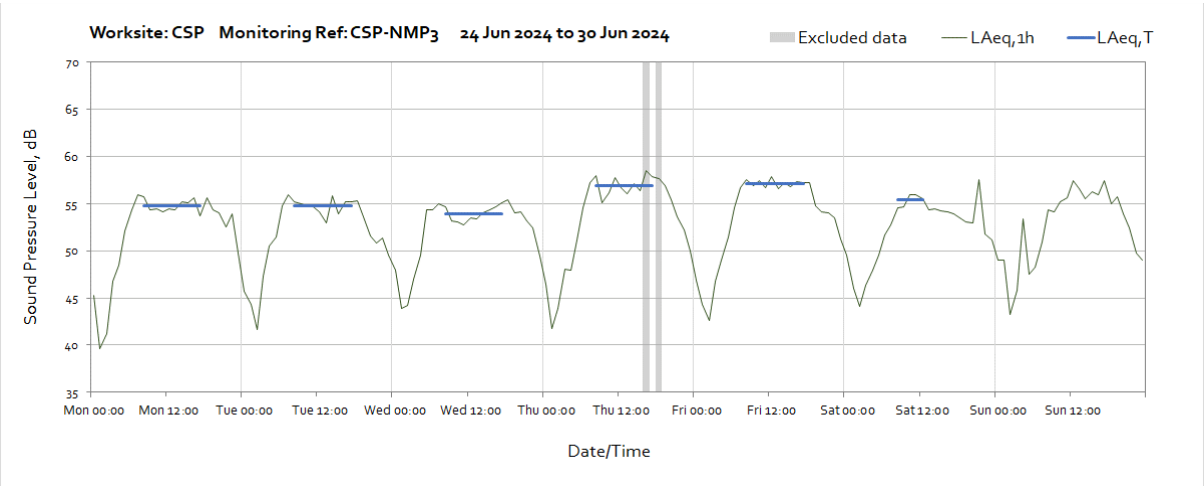




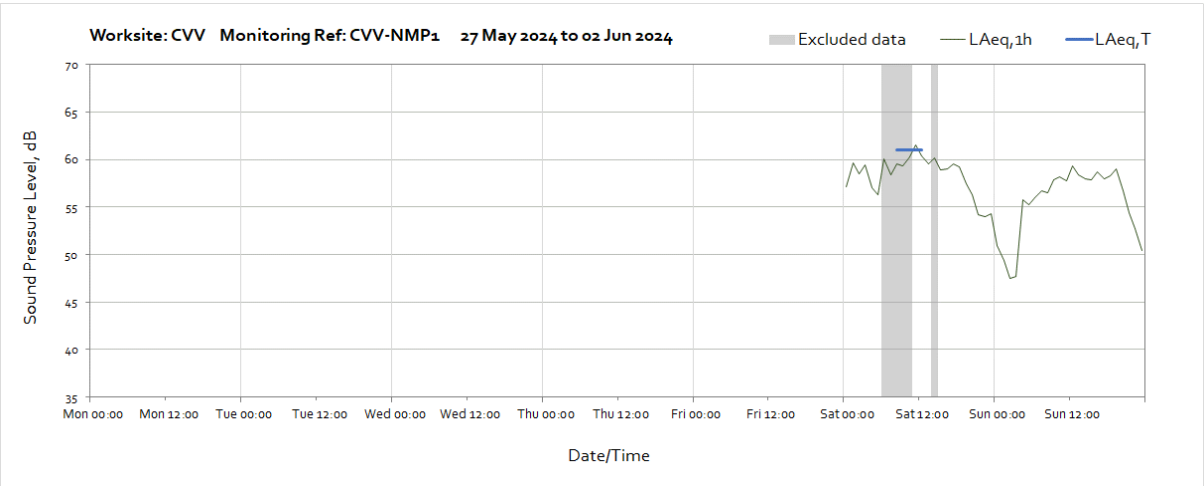
Note: Missing data between 10:00 and 11:00 on Tuesday 11th June and 09:00 and 10:00 on Wednesday 12th June was due to monitor maintenance.

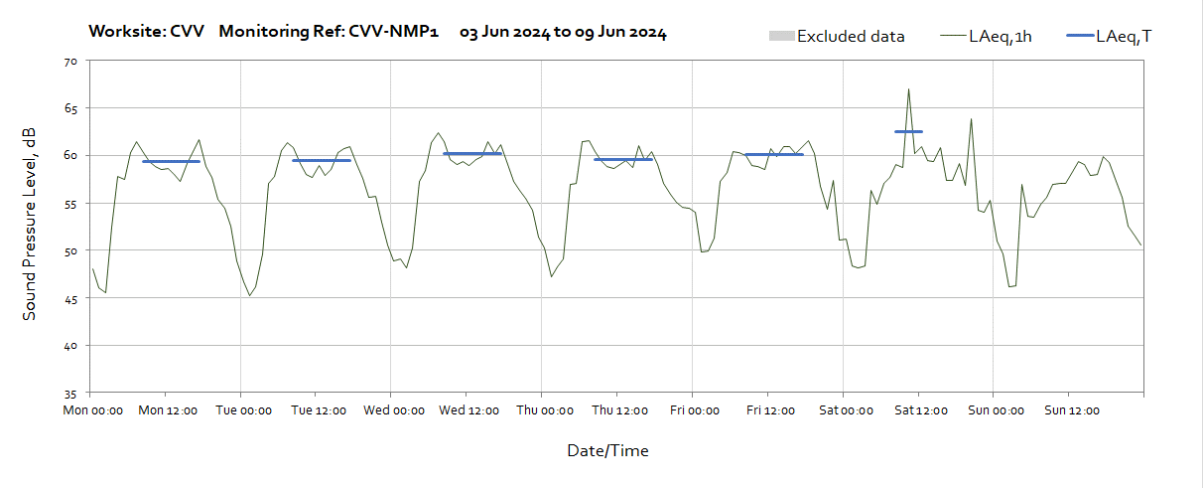


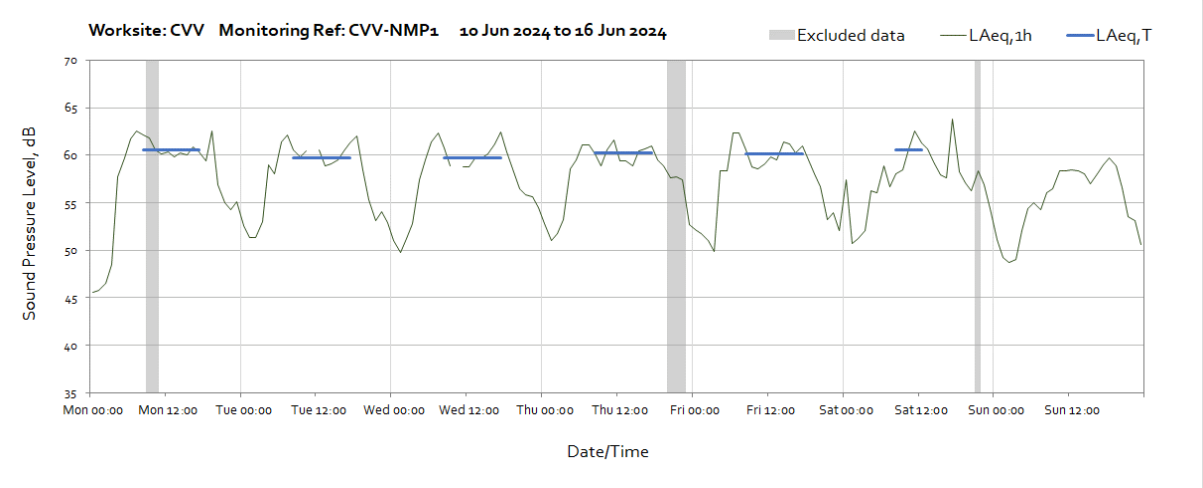
Note: Missing data between 15:00 and 16:00 on Thursday 20th June was due to monitor field calibration.



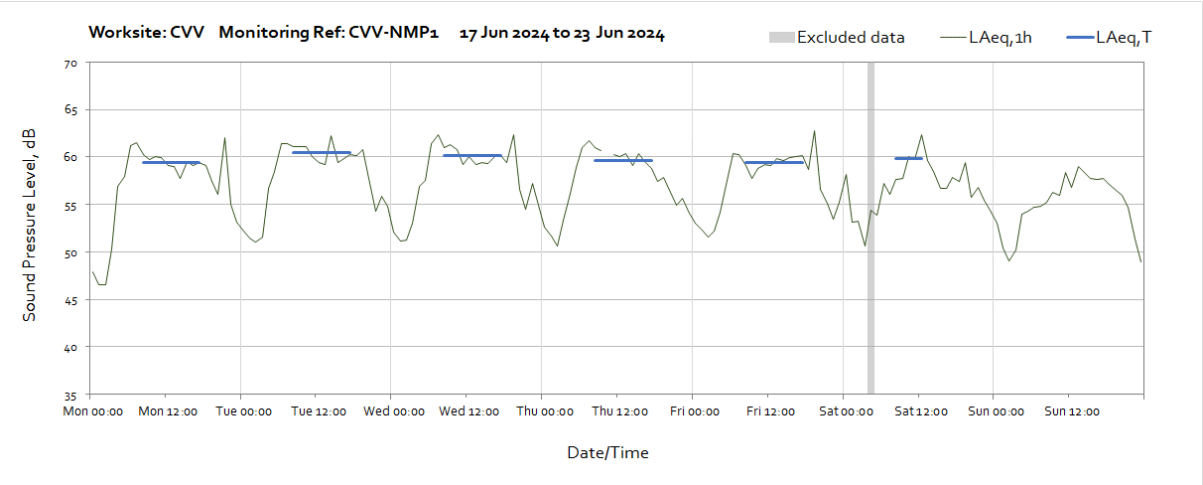
Worksite: CVV– Monitoring Ref: CVV-NMP1



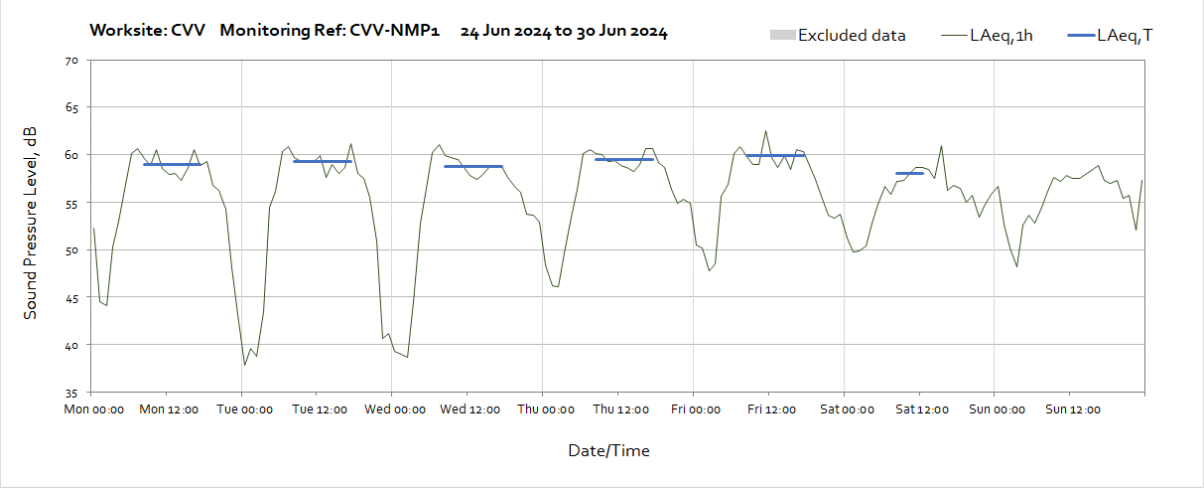




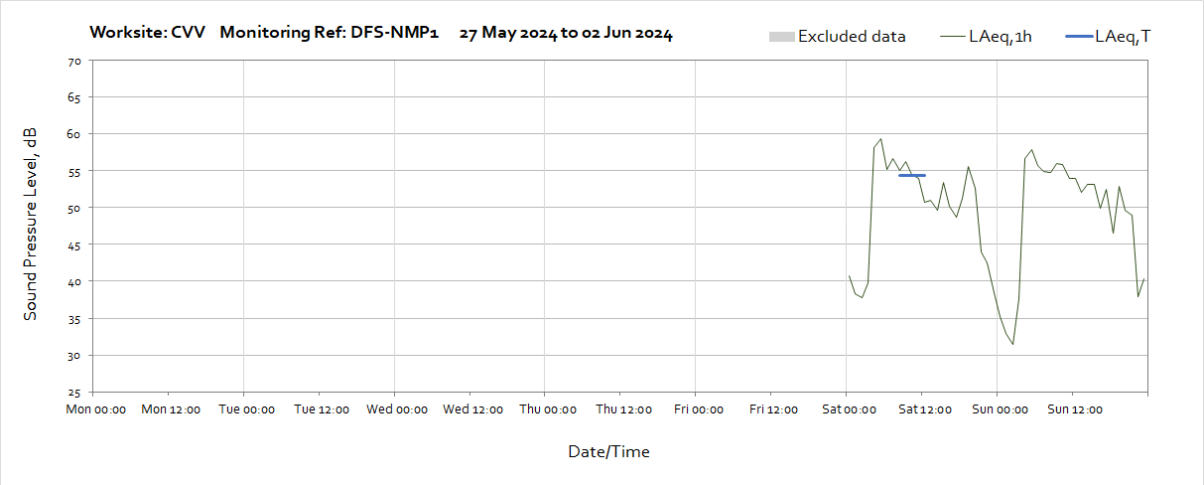
Note: Missing data between 11:00 and 12:00 on Tuesday 11th June and 10:00 and 11:00 on Wednesday 12th June was due to monitor maintenance.

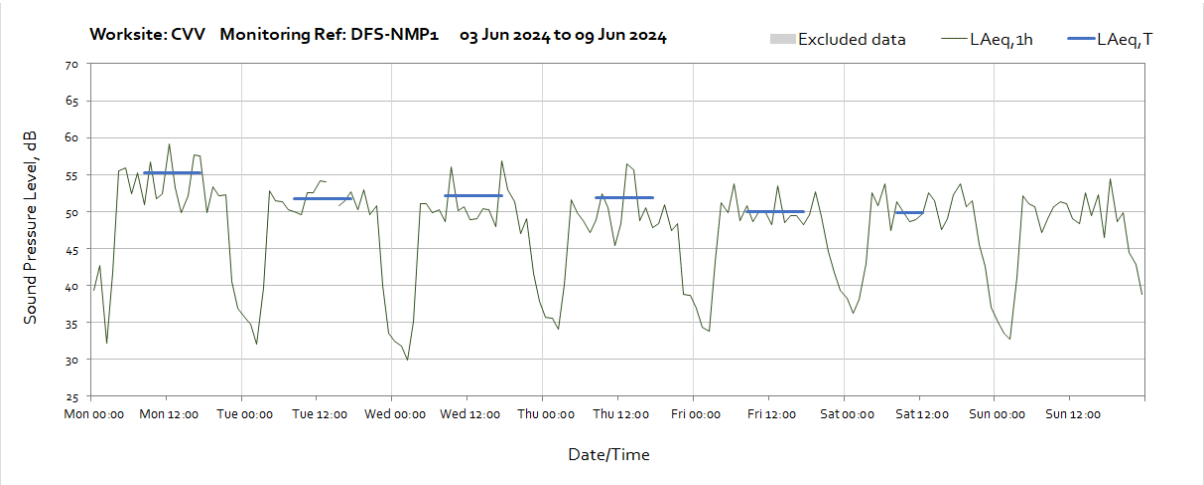


Note: Missing data between 10:00 and 11:00 on Thursday 20th June was due to monitor field calibration.

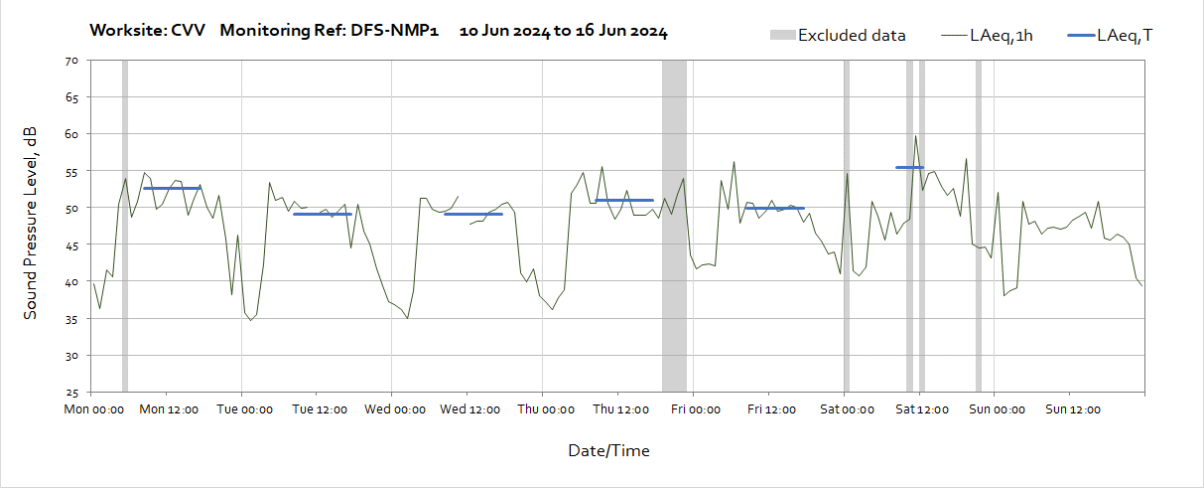


Worksite: CVV – Monitoring Ref: DFS-NMP1

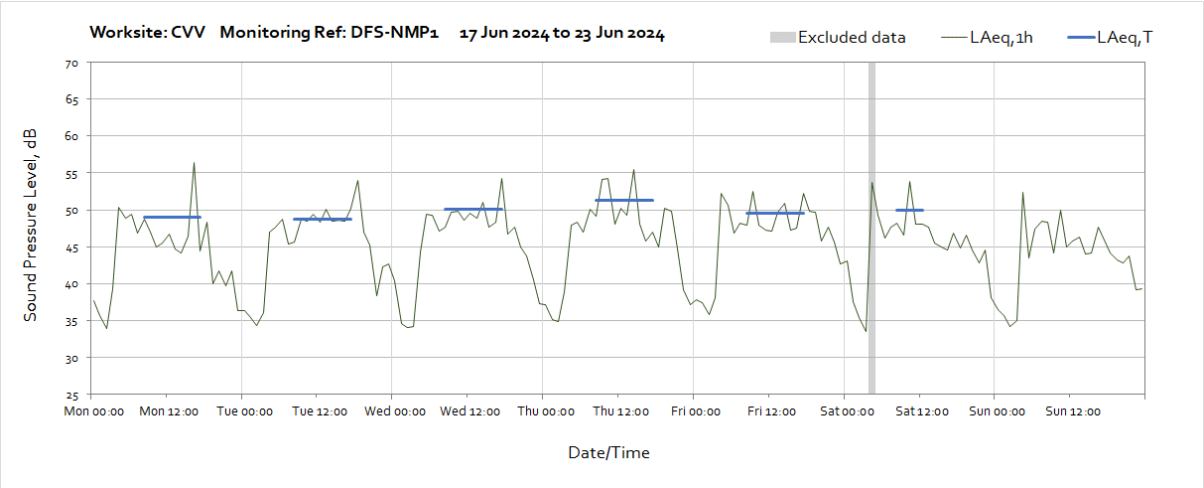


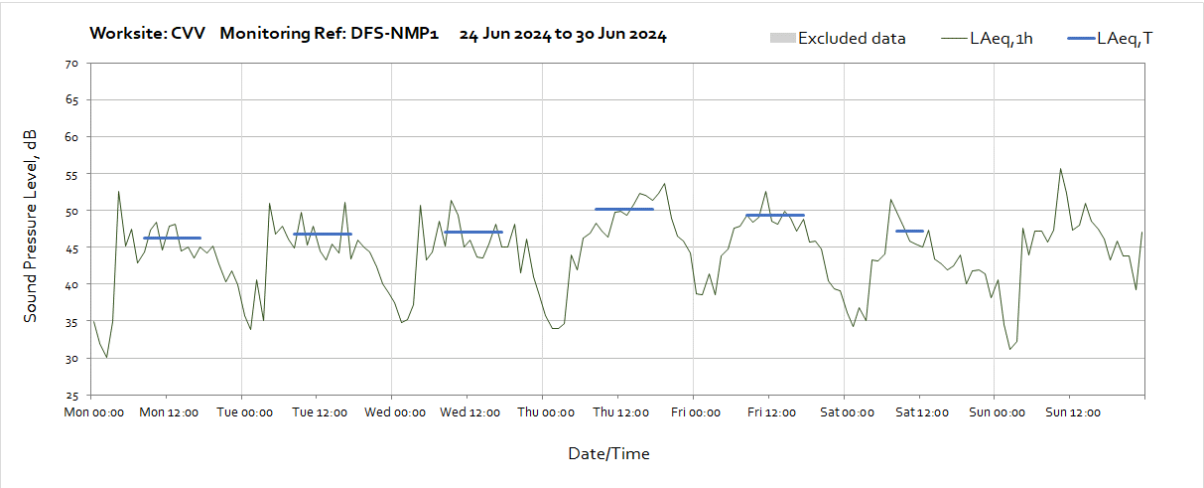


Note: Missing data between 14:00 and 15:00 on Tuesday 4th June was due to monitor field calibration.



Note: Missing data between 11:00 and 12:00 on both Tuesday 11th and Wednesday 12th June was due to monitor maintenance.

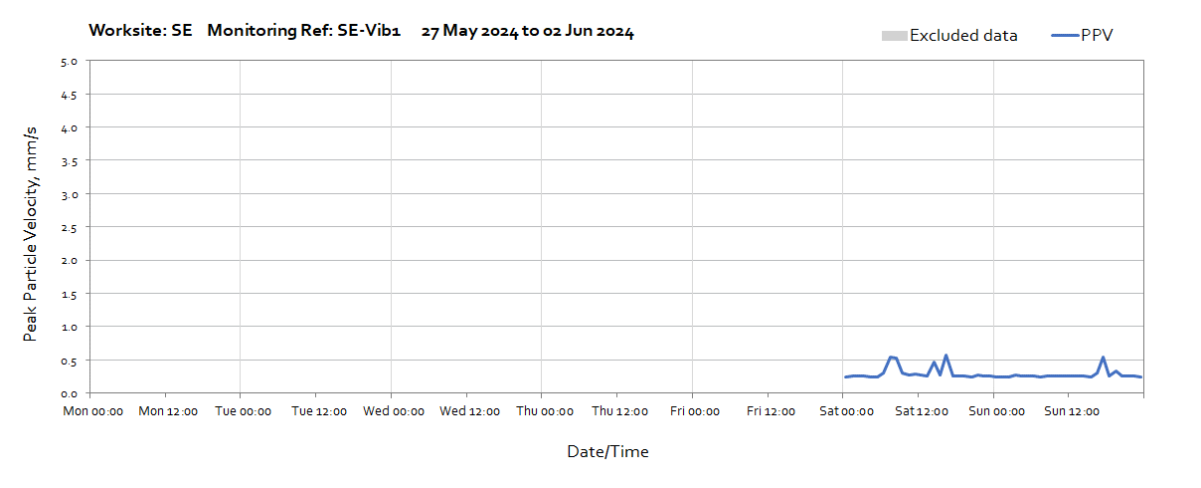


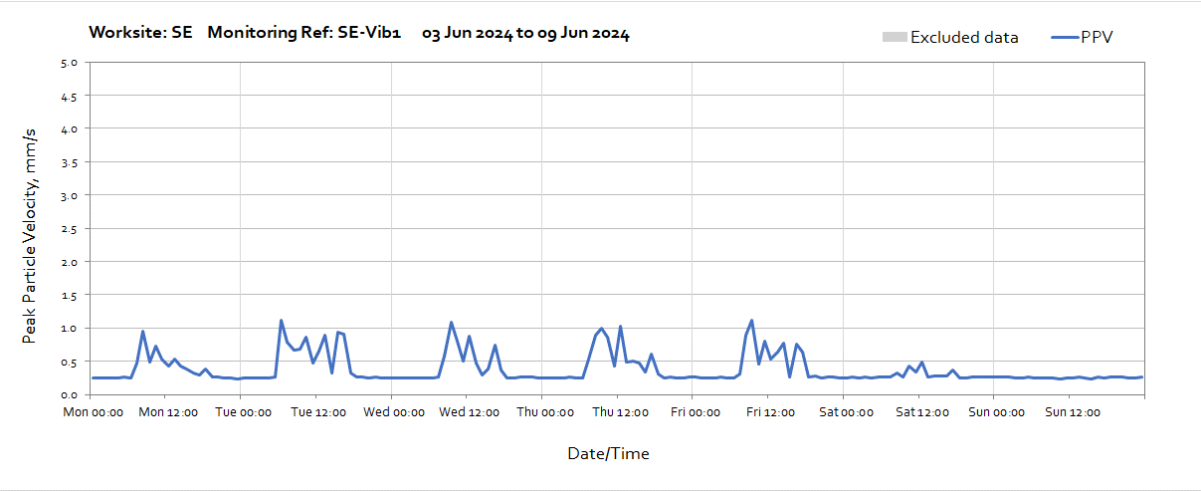


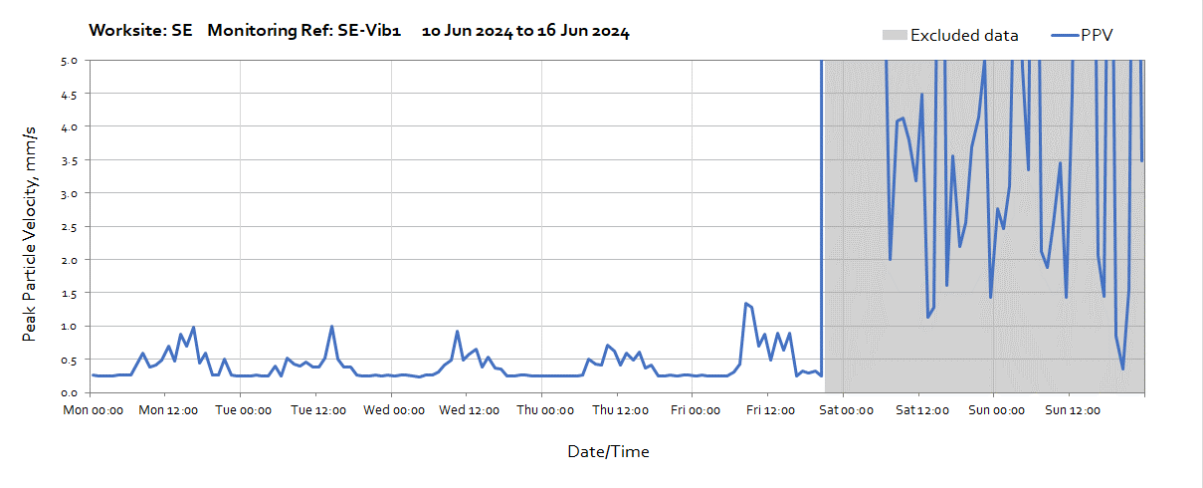
Vibration

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

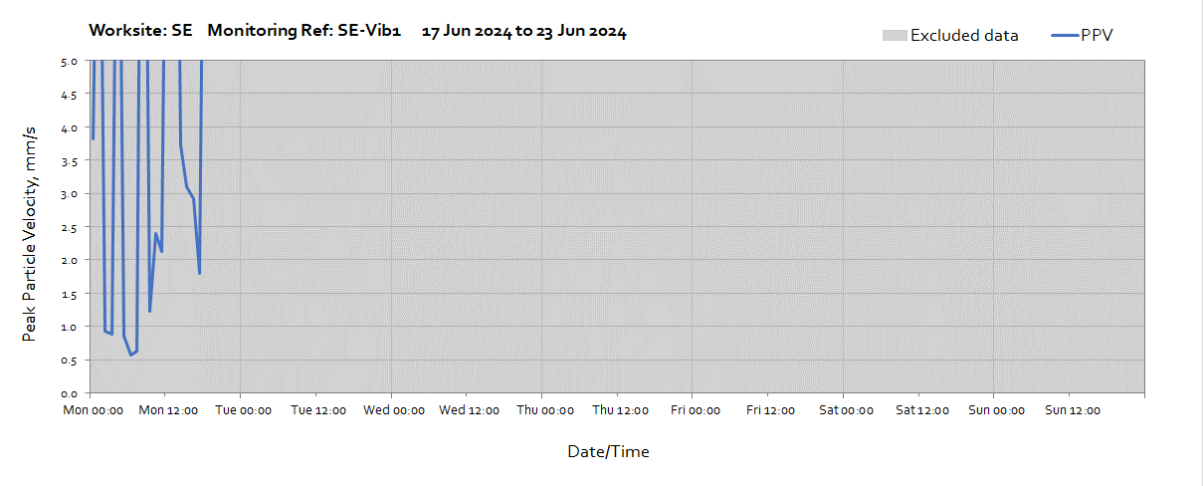
Worksite: SE – Monitoring Ref: SE-Vib1



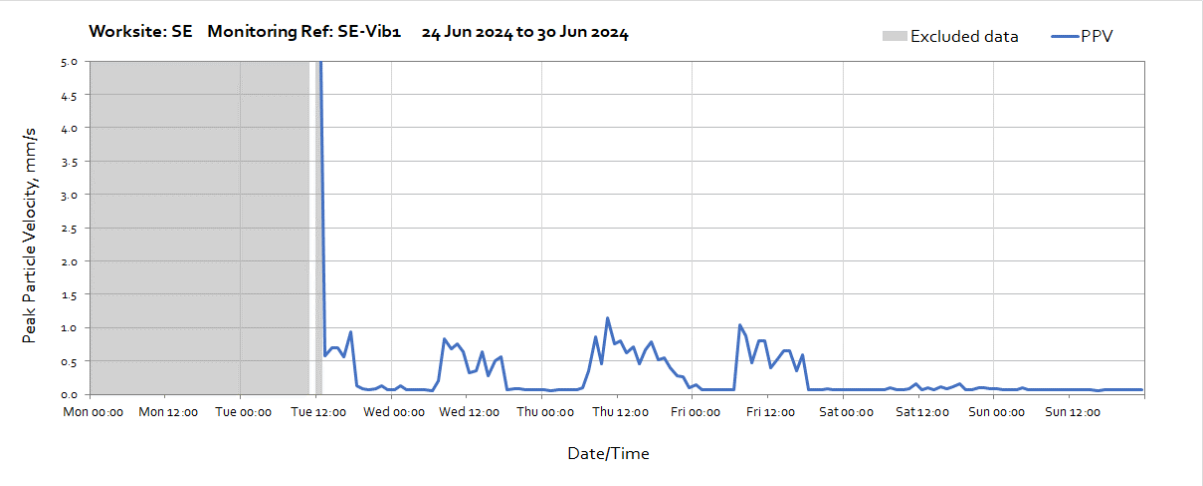




Note: Data excluded throughout the week due to spurious measurements.

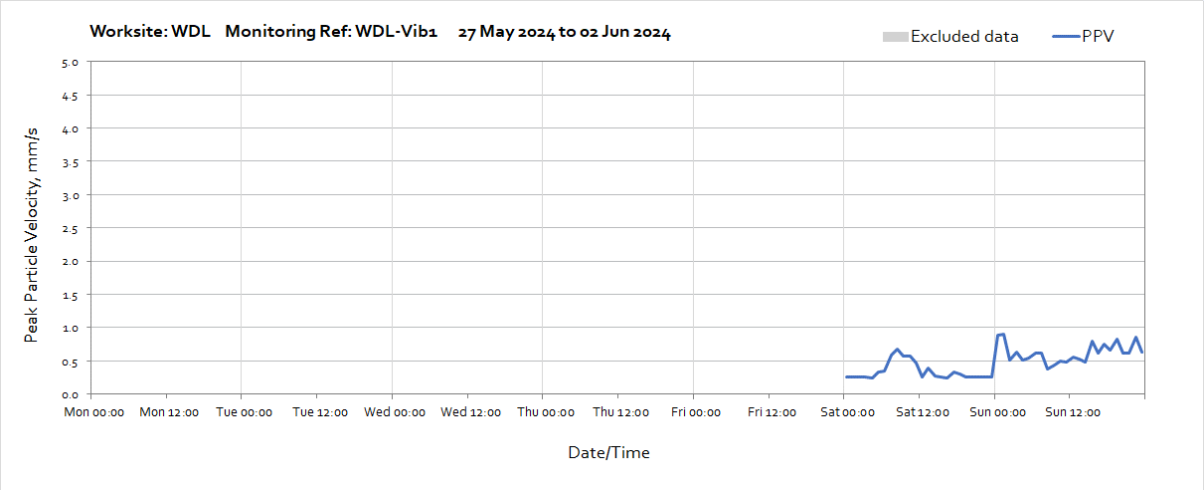


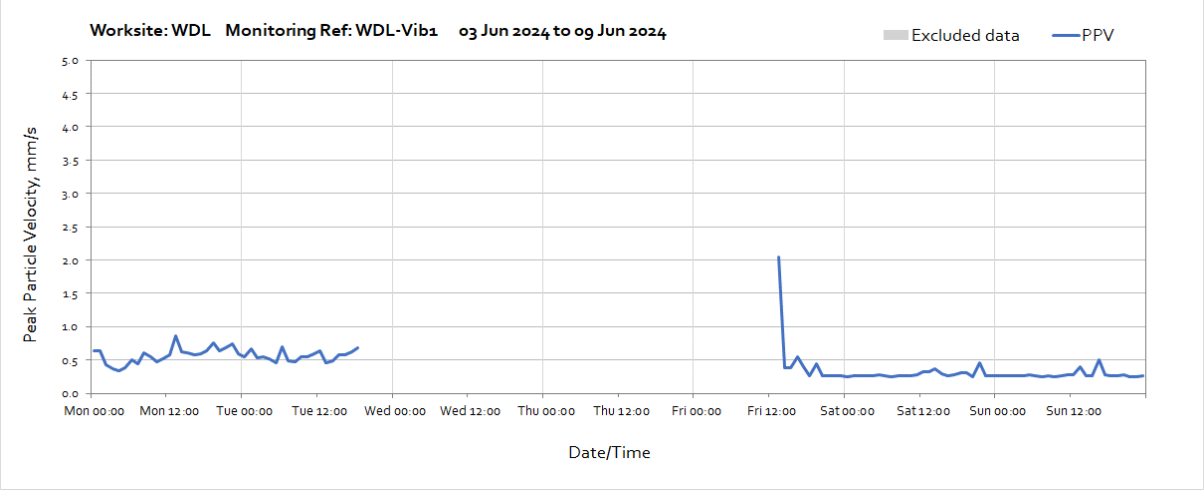
Note: Data excluded throughout the week due to spurious data.



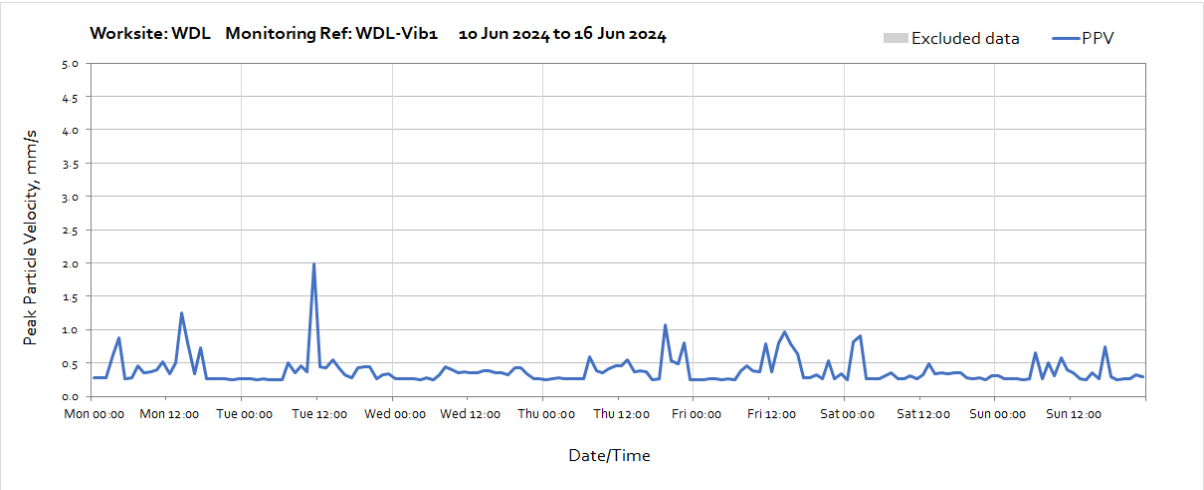
Note: Data excluded throughout the week due to spurious data. Missing data between 11:00 and 12:00 on Tuesday 25th June was due to monitor retrieval for repair. A new vibration monitor was installed at 12:00 on Tuesday 25th June.

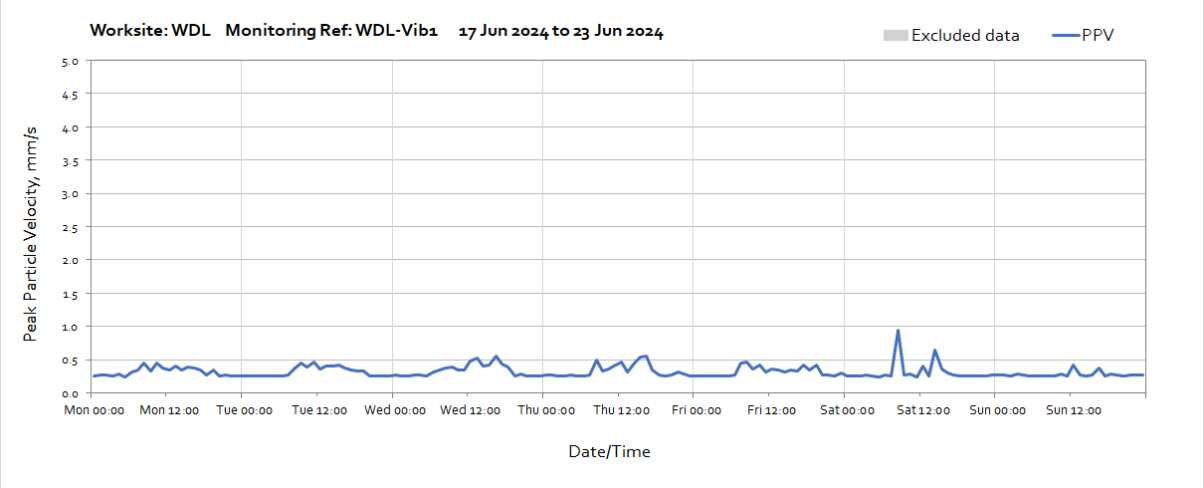
Worksite: WDL – Monitoring Ref: WDL-Vib1

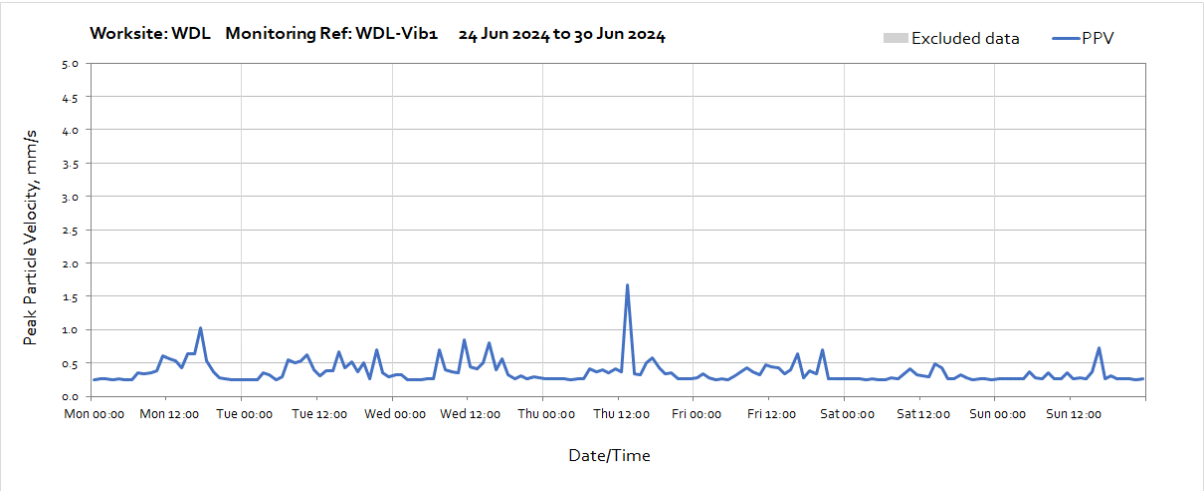




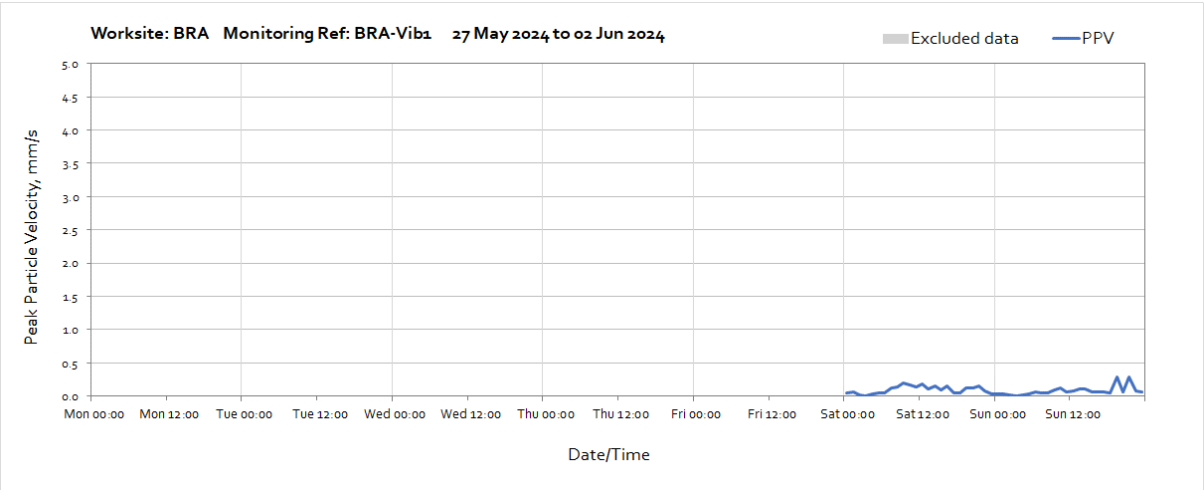
Note: Missing data from 19:00 on Tuesday 4th June until 13:00 on Friday 7th June was due to a depleted monitor battery.

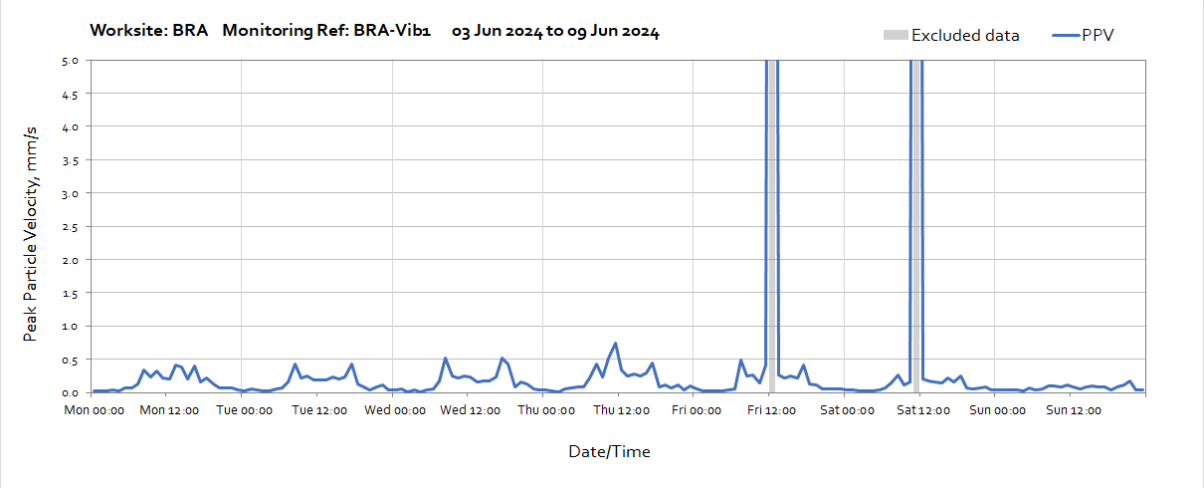


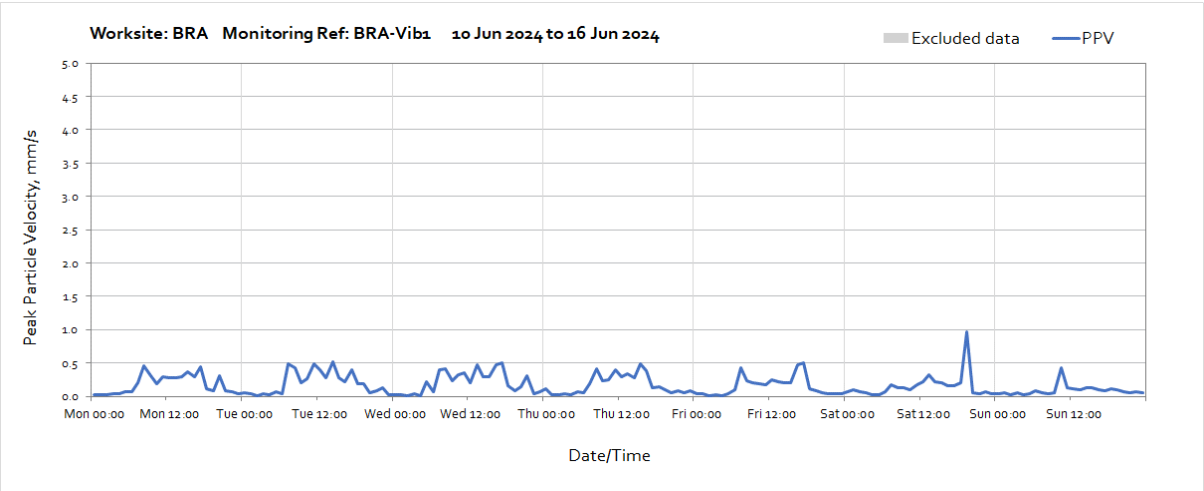


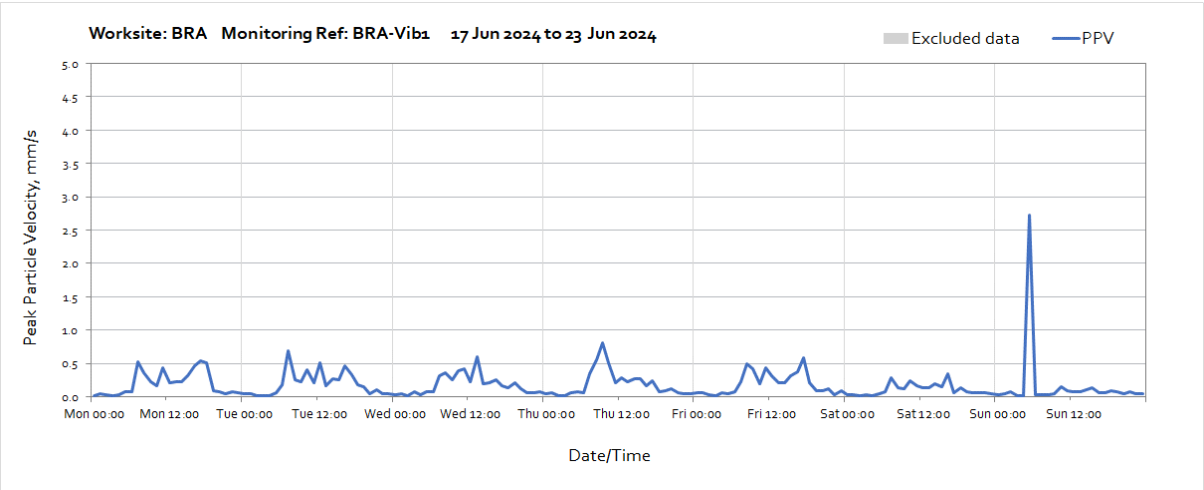


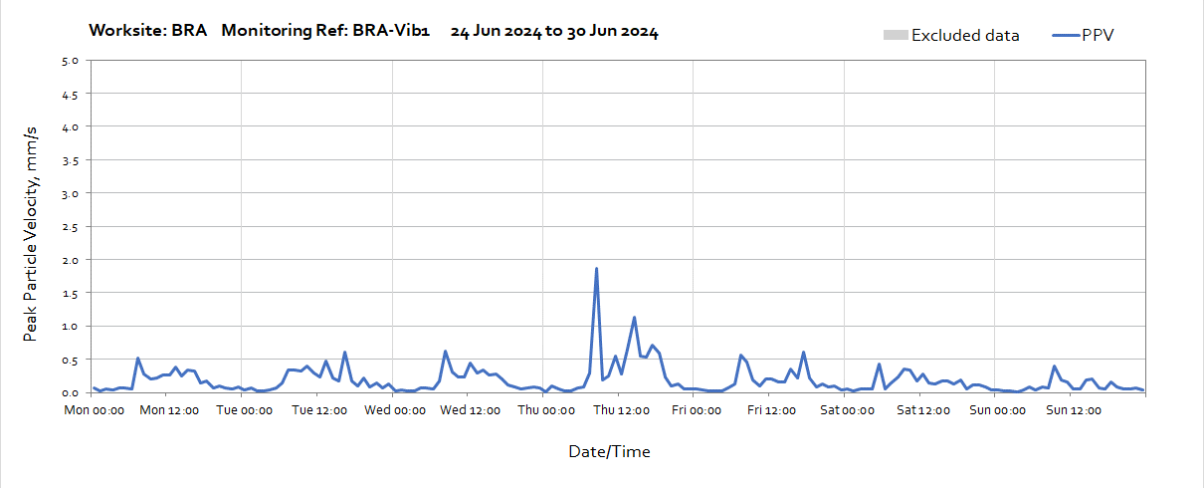
Worksite: CAL – Monitoring Ref: BRA-Vib1



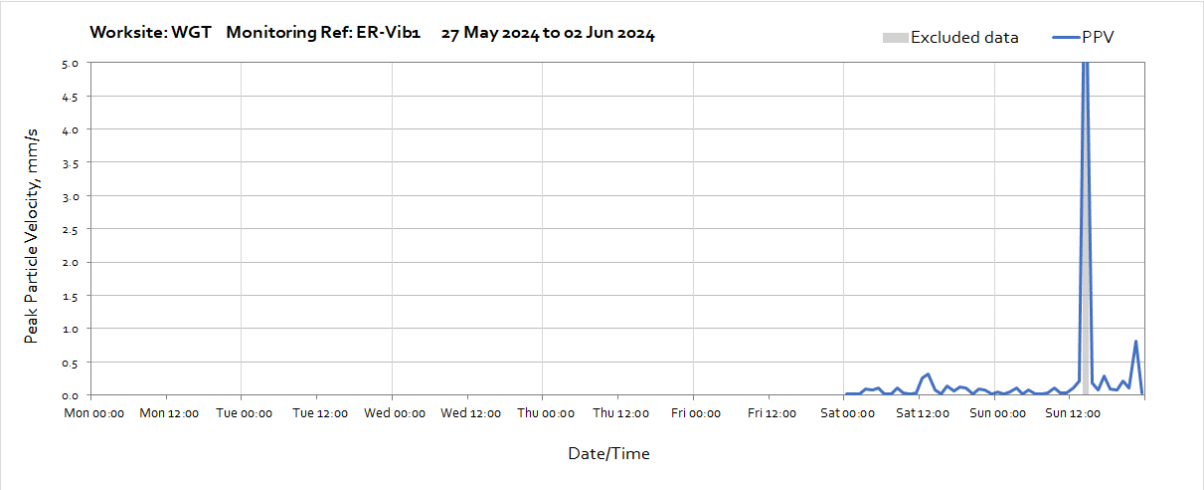

Worksite: BRA Monitoring Ref: BRA-Vib1 03 Jun 2024 to 09 Jun 2024
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

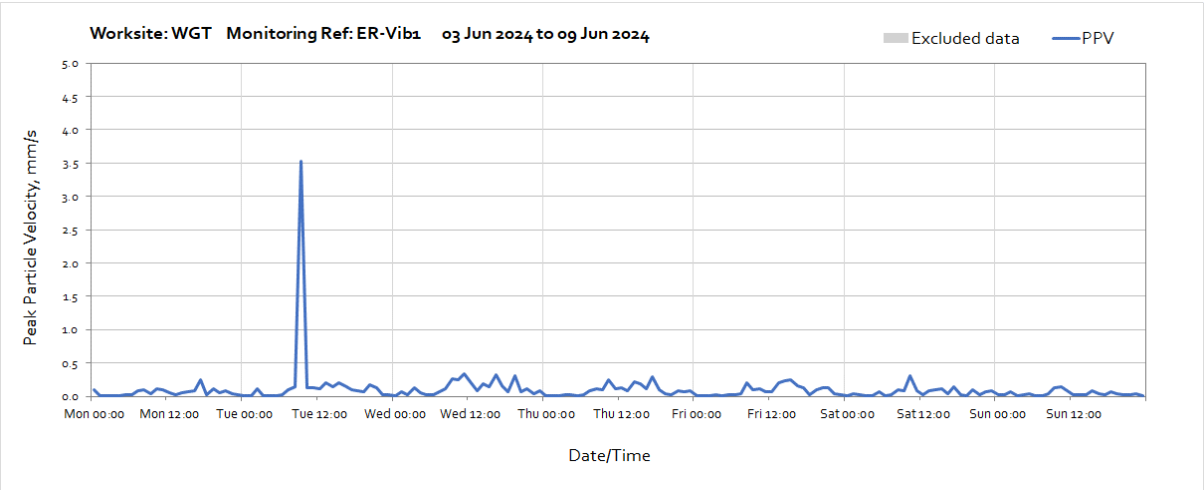

Worksite: BRA Monitoring Ref: BRA-Vib1 10 Jun 2024 to 16 Jun 2024
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

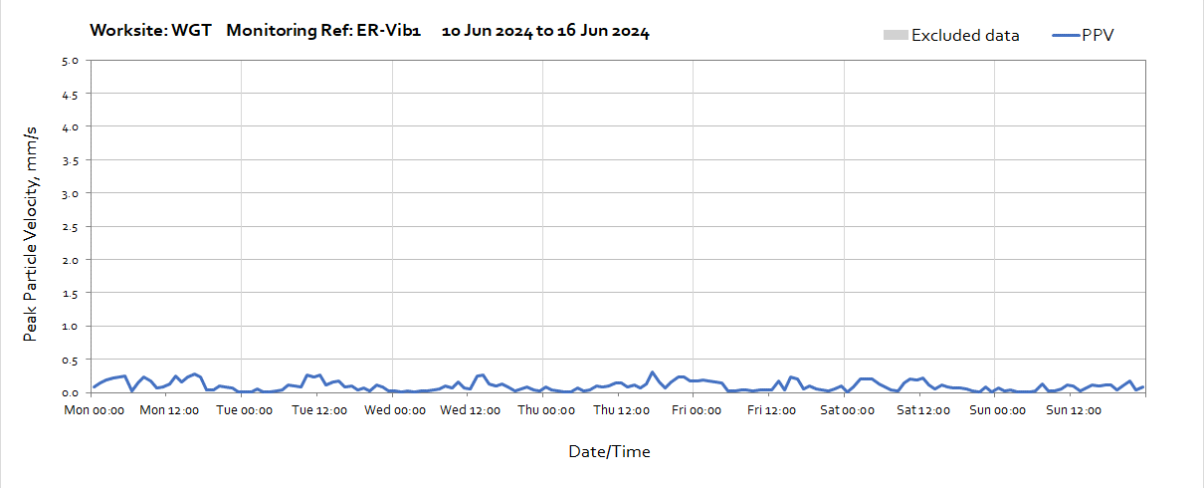

Worksite: BRA Monitoring Ref: BRA-Vib1 17 Jun 2024 to 23 Jun 2024
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

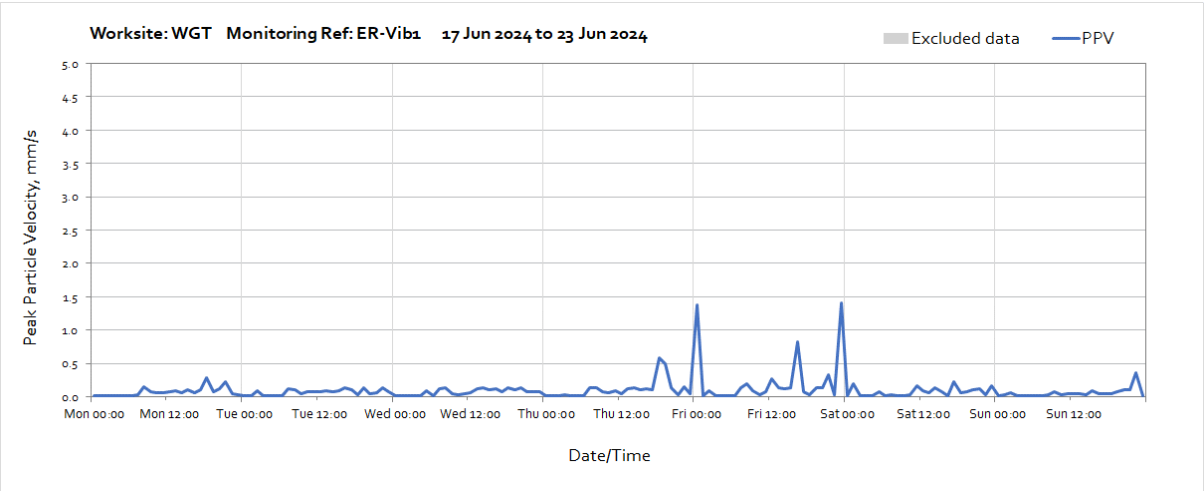


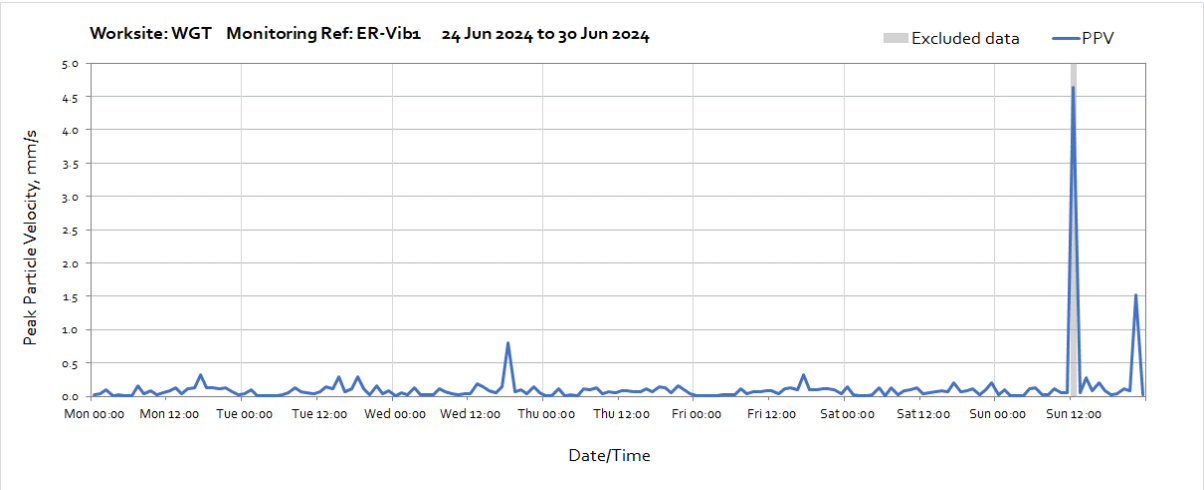
Worksite: WGT – Monitoring Ref: ER-Vib1



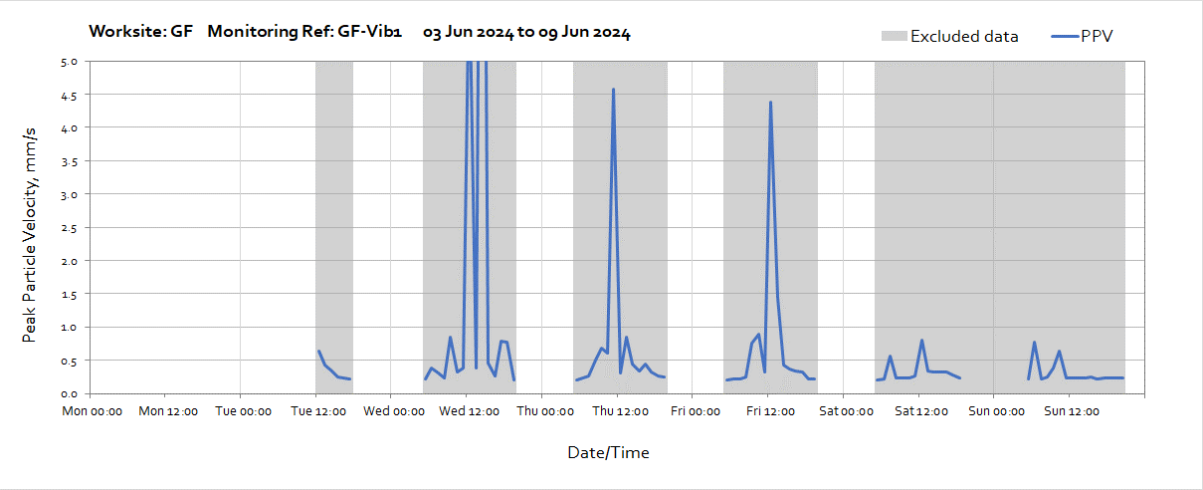



Worksite: WGT Monitoring Ref: ER-Vib1 10 Jun 2024 to 16 Jun 2024
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

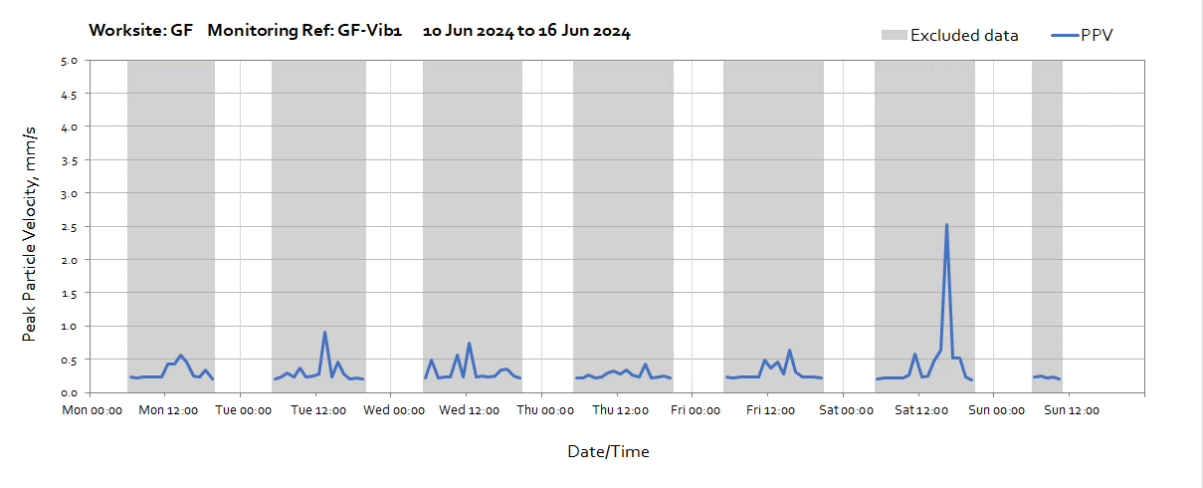

Worksite: WGT Monitoring Ref: ER-Vib1 17 Jun 2024 to 23 Jun 2024
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: WGT Monitoring Ref: ER-Vib1 24 Jun 2024 to 30 Jun 2024
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

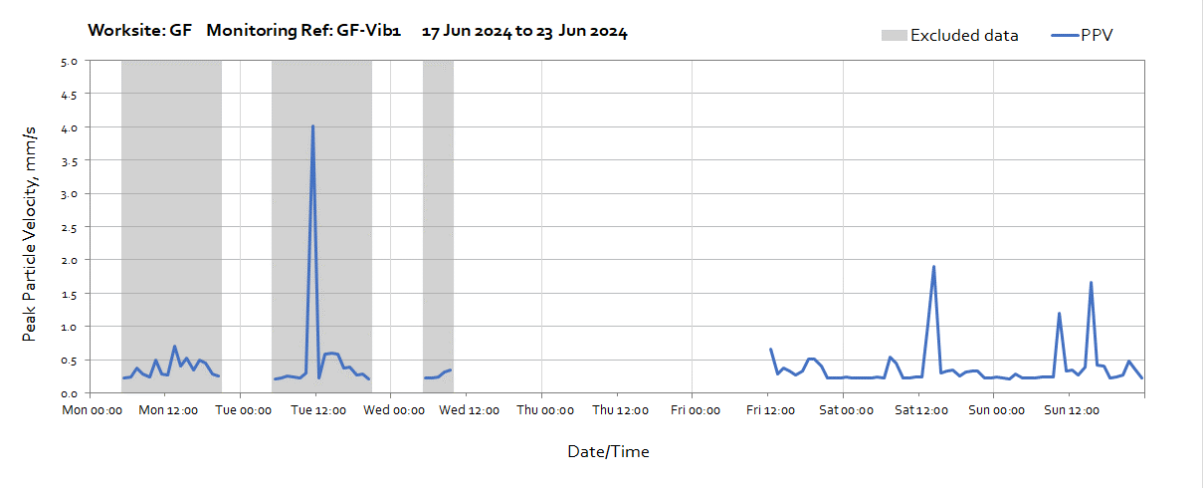
Worksite: GF – Monitoring Ref: GF-Vib1



Note: Missing data and excluded data throughout the week was due to a technical fault at the monitoring station.



Note: Missing data and excluded data throughout the week was due to a technical fault at the monitoring station.



Note: Missing data and excluded data throughout the week was due to a technical fault at the monitoring station.