



Noise Impact Assessment

Forecourt Redevelopment at FS1049 Norcot Service Station, 856 Oxford Road, Reading RG30 1EL

Motor Fuel Group

Prepared by:

SLR Consulting Limited

15 Middle Pavement, Nottingham, NG1 7DX

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Basis of Report

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Table of Contents

Basis of Report	i
1.0 Introduction	1
2.0 Site Description	2
2.1 Proposed Development.....	2
2.2 Noise Sensitive Receptors	2
3.0 Planning and Noise Guidance	4
3.1 National Planning Policy Framework	4
3.2 Noise Policy Statement for England	4
3.3 National Planning Practice Guidance	5
3.4 Reading Borough Council.....	6
3.5 BS 4142:2014 +A1:2019	7
4.0 Environmental Sound Survey.....	8
4.1 Equipment and Measurements.....	8
4.2 Sound Climate.....	9
4.3 Residual and Background Sound Levels	10
5.0 Noise Impact Assessment	11
5.1 Plant Sound Power Levels	11
5.2 Specific Sound Level Calculations.....	12
5.3 BS 4142 Assessment	15
5.4 Context.....	16
5.4.1 Reading Borough Council Policy EN17	17
5.5 Statement of Uncertainty	19
5.6 Predicted Noise Impact and Planning.....	20
6.0 Conclusions.....	21
7.0 Closure.....	22



Tables in Text

Table A:	Planning Practice Guidance Noise Exposure Hierarchy Table	5
Table B:	Sound Monitoring Equipment.....	8
Table C:	Summary of Measured Residual and Background Sound Levels.....	10
Table D:	Input Data Summary.....	11
Table E:	Specific Sound Levels	12
Table F:	BS 4142 Assessment of Proposed Development.....	15
Table G:	Review of Sound Levels for Local Policy EN17.....	17

Figures in Text

Figure A:	Location Plan and Identification of NSRs	3
Figure B:	Monitoring Location	9
Figure C:	Specific Sound Levels, Highest dB $L_{Aeq,T}$ at Building Façades – All Plant.....	13
Figure D:	Specific Sound Levels, Highest dB $L_{Aeq,T}$ at Building Façades – External Condensers Only.....	14
Figure E:	Context of Receiver Location NSR B	18
Figure F:	Policy EN17 Potential Excess.....	18

Appendices

Appendix A Glossary of Terminology

A.1 Acoustic Terminology

Appendix B Drawings and Plant

Appendix C Survey Results



1.0 Introduction

Motor Fuel Group has appointed SLR Consulting Limited to undertake a noise impact assessment for a proposed forecourt redevelopment at FS1049 Norcot Service Station, 856 Oxford Road, Reading RG30 1EL (the Site).

This document has been prepared to support planning application number 231121 within Reading Borough Council (RBC), for the following scheme proposal:

“New Single storey side extension to existing sales building. installation of 2no. Jet Wash Bays and new 2m High bin store”

Consultee commentary has been provided on the above-listed application, by Rebecca Moon, RBC Environmental Health Officer. This has highlighted the need for a noise impact assessment to be submitted within the application timeframe to avoid planning refusal:

“If there are any air conditioning or external refrigeration condensers to be installed as part of the development then a noise assessment will be required. If the jet washes are increasing in number or being moved closer to residential properties then a noise assessment will be required.

The acoustic assessment should be carried out in accordance with BS4142:2014+A1:2019 methodology.

A noise assessment has not been submitted with the application and therefore I cannot determine the likely noise impact of the proposal and whether the proposals are acceptable. I therefore recommend refusal unless a noise assessment can be submitted and considered by us before the application is determined...”

This report has been prepared to inform noise impacts from the proposed development following the assessment principles of British Standard BS 4142:2014 + A1:2019 *Methods for rating and assessing industrial and commercial sound*.

Site operating hours have been understood as 24/7, where the proposals for forecourt development as including use of mechanical equipment, have been considered within these opening hours.

This report has been prepared and checked by suitably qualified persons as defined in Section 7.0. Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature. To assist the reader, a glossary of terminology has been included in **Appendix A**.



2.0 Site Description

Norcot Service Station has been noted of nominally 0.12 hectares to the east of the roundabout junction of Oxford Road and Wigmore Lane, as including a petrol station forecourt and sales building. The area subject to extension has been noted to the east of the current forecourt sales building.

2.1 Proposed Development

The planned proposal has included for a 950 ft² extension of the sales building to include a food store and takeaway, facilitated through removal of existing air/water machines and fuel pumps (P7 and P8). Two jet wash bays have been proposed to the north of this building, of enclosed bays with screens on three side and a roof, facing west towards Wigmore Lane.

The proposed sales building extension of has included new plant types in terms of two external cold store refrigeration condensing units and two external air conditioning (AC) units. Proposed external plant has been understood to the north of the building extension.

Air/water machines currently existing to the north and east of the sales building have been proposedly replaced by a single combi unit to the southwest corner of the site, adjacent to maintained vent stacks and inside a boundary wall.

The ability for all proposed plant items to operate during approved opening hours, as including any new or modified items, has remained a subject of this assessment.

2.2 Noise Sensitive Receptors

The Site has been noted to reside in a mixed commercial and residential area, with noise sensitive receptors (NSRs) facing the development on all sides.

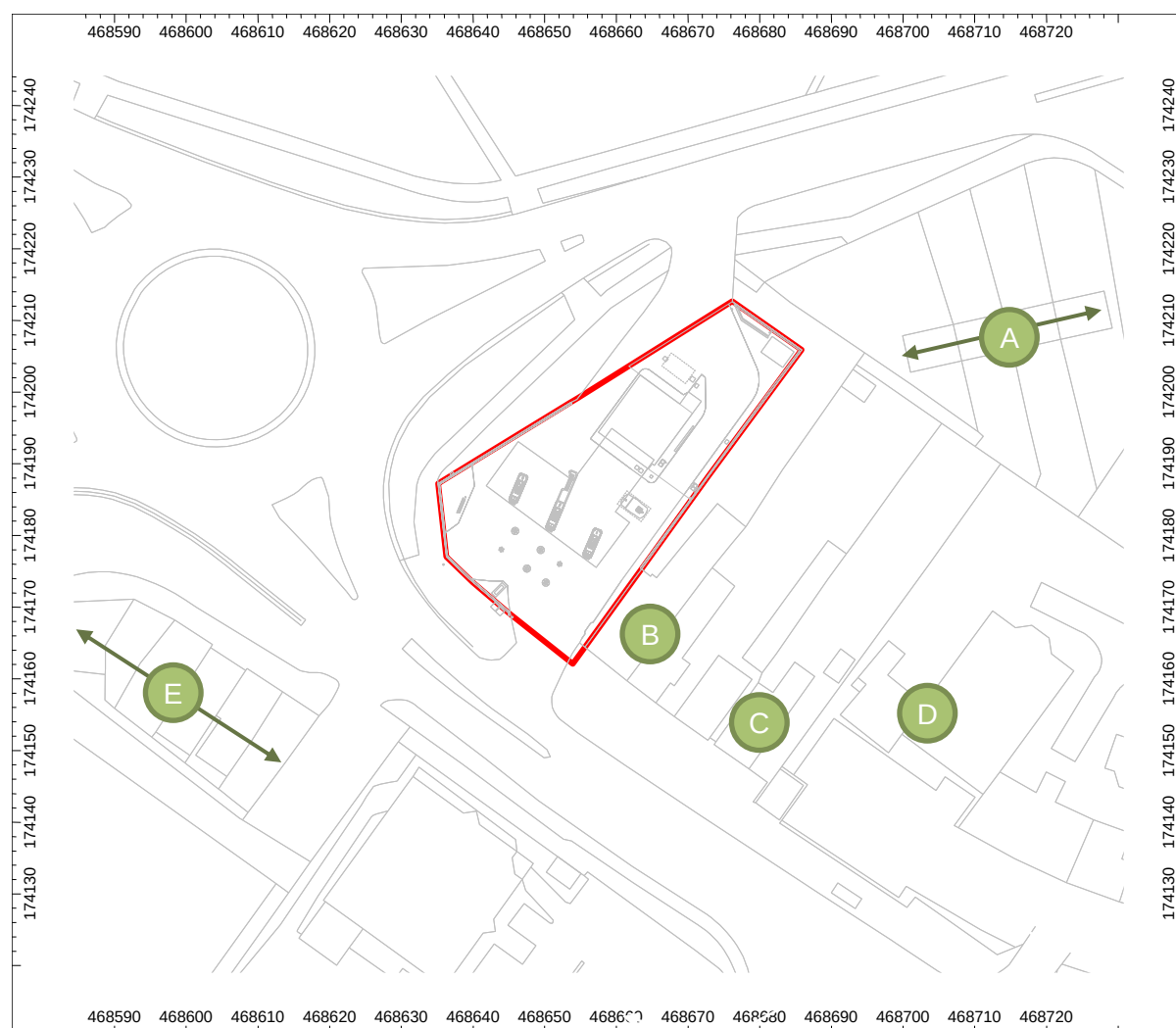
Those NSRs of consideration within this assessment have been referenced from public land property and Council Tax search information, as:

- A. 26 – 32 Wigmore Lane RG30 1HY. This group of terraced, two storey residential properties has been considered beyond the northeast boundary of the Site generally parallel to Wigmore Lane. The closest premise of No. 26 has been noted with no overlooking windows on the gable end and would have limited site of the scheme through the intervening Site boundary.
- B. 852A/B/C & 850A Oxford Road, RG30 1EL. These terraced buildings have been confirmed as noise sensitive, with 852 A/B/C Oxford Road defining residential uses above and to the rear of ground floor commercial Post Office use, with first floor accommodation above the Bridal Store at 850A Oxford Road.
NB. No current register of residential use noted above 848 Oxford Road.
- C. 846 Oxford Road, RG30 1EL. Has been noted to contains a single flat at first floor level above the fish and chip shop.
- D. 1 – 24 Winslet Place, Oxford Road RG30 1EN. Residential flats have been noted of three and five storeys, as overlooking the development from the east.
- E. 733 – 743 Oxford Road, RG30 1JA. This block of terraced properties on the opposite site of Oxford Road have been noted to contain first floor flats as overlooking the forecourt from the south.

All above-listed receptors have been identified within the site plan of Figure A below.



Figure A: Location Plan and Identification of NSRs



3.0 Planning and Noise Guidance

3.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was introduced by The Department for Communities and Local Government in March 2012, with latest revision in September 2023.

The NPPF defines the Government's planning policies for England and sets out the framework, within which local authorities must prepare their local and neighbourhood plans, reflecting the needs and priorities of their communities. The Government's stated purpose in producing the NPPF was to streamline policy, so the planning process is less restrictive, to give a more easily understood framework for delivering sustainable development.

Under the heading of conserving and enhancing the natural environment and Paragraph 174 e), one aim of the NPPF is *"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of... noise pollution..."*.

Paragraph 185 requires planning policies and decision to ensure that new development is appropriate for its location. It stipulates a need to account for the likely effects of pollution on health and other matters, requiring the planning process to *"mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life"*.

The NPPF acknowledges that there is a host of existing sources of national and international guidance which can be used, in conjunction with the Framework, to inform the production of Local Plans and decision making.

3.2 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published in March 2010. It sets out the long-term vision of government noise policy, which is fundamentally to: *"Promote good health and good quality of life through the effective management and control of noise within the context of Government policy on sustainable development"*. The vision is supported by three key aims:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and reduce to a minimum, other adverse impacts on health; and
- Where possible, contribute to the improvement of health and quality of life.

The NPSE should apply to all forms of noise including environmental noise, neighbour noise and neighbourhood noise but does not apply to noise in the workplace. The NPSE has adopted the following concepts, to help consider whether noise is likely to have "significant adverse" or "adverse" effects on health and quality of life:

SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is



acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available (Defra, 2010)."

3.3 National Planning Practice Guidance

Revised Planning Practice Guidance was released in March 2014 to support the NPPF and last updated in July 2019. The Guidance stipulates that Local Planning Authorities' plan making and decision making should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

The guidance has also provided the following noise exposure hierarchy table *"when noise could be a concern"*.

Table A: Planning Practice Guidance Noise Exposure Hierarchy Table

Response	Example of Outcomes	Increasing Effect Level	Action
NOEL – No observed effect level			
Not present	No effect	NOEL	No specific measures required
No observed adverse effect level			
Present and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
LOAEL – Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes 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 sleep disturbance. Affects acoustic character of the area and creates a perceived change in quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
SOAEL – Significant Observed Adverse Effect Level			
Present and disruptive	The 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	Significant Observed Adverse Effect	Avoid



Response	Example of Outcomes	Increasing Effect Level	Action
	sleep. Quality of life diminished due to change in acoustic character of the area.		
Present and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

3.4 Reading Borough Council

Consultation commentary from RBC planning application number 231121 has provided the following basis for noise impact assessment when considering BS 4142 methodology.

“N2 MECHANICAL PLANT (NOISE ASSESSMENT REQUIRED)

No mechanical plant shall be installed until a noise assessment of the proposed mechanical plant has been submitted and approved by the Local Planning Authority. The assessment shall be carried out for in accordance with BS4142:2014+A1:2019 methodology. The predicted specific sound level ($L_{Aeq,TR}$) (with reference to BS:4142) as measured at a point 1 metre external to the nearest noise-sensitive facade shall be at least 10dB below the pre-existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation. The predicted rating level, $L_{Ar,Tr}$ (specific sound level plus any adjustment for the characteristic features of the sound) as measured at a point 1 metre external to the nearest noise-sensitive facade (habitable window of a dwelling) shall not exceed the pre-existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation. The plant shall thereafter only be installed in accordance with the assessment and shall thereafter be maintained so that it operates to the same standard.

REASON: To safeguard the amenities of the adjoining premises and the area generally, in accordance with Policy CC8 and EN17 of the Reading Borough Local Plan 2019.”

The above listed commentary has provided reference to specific Policies CC8 and EN17 of the Reading Borough Local Plan 2019. Further clarifications have been provided below in reference to noise.

Policy CC8 titled ‘Safeguarding Amenity’, has been provided to ensure that *“development will not cause a detrimental impact on the living environment of existing residential properties or unacceptable living conditions for new residential properties...”*; where noise and disturbance has been listed as one consideration of this policy.

The requirements of Policy EN17 ‘Noise Generating equipment’ has been understood from the Local Plan to relate specifically to the phenomenon of ‘background creep’, stating:

“Where noise generating equipment is proposed, the noise source specific level (plant noise level) should be at least 10dBA below the existing background level as measured at the nearest noise sensitive receptor.”



3.5 BS 4142:2014 +A1:2019

The British Standard BS 4142:2014 +A1:2019 *Methods for Rating and Assessing Industrial and Commercial Sound* (BS 4142) notably describes methods for rating and assessing sound of an industrial or commercial nature. It has been referenced where required in policy and guidance documents to assess the potential impact of sound of an industrial and/or commercial nature, at existing and proposed noise-sensitive receptor locations within the context of the existing sound environment.

In this assessment, industrial/commercial sources have been present on the Site with respect to proposed development emission, where the onus lies with the developer to mitigate any associated impacts arising from existing and proposed sources of commercial noise.

Certain acoustic features can increase the significance of impact from a comparison of the specific sound level to the background sound level where these features are likely to affect perception and response. Where such features are present at the assessment location, a character correction (or penalty) to the specific sound level is made to obtain the rating level. This can be approached from subjective, objective and reference methods.

- **Tonality:** A correction of 0 dB to + 6 dB for sound ranging from not tonal to prominently tonal.
- **Impulsivity:** A correction of up to + 9 dB can be applied for sound that is impulsive.
- **Intermittency:** A penalty of + 3 dB can be applied if on/off conditions are readily distinctive within the reference time interval over the period of the greatest amount of on-time.
- **Other characteristics:** A penalty of + 3 dB can be applied in the absence of all other defined characteristics, where the specific sound contains a distinctive feature in the residual acoustic environment.
- The rating sound level is equal to the specific sound level if there are no acoustic features present or expected to be present.

The significance of sound depends upon both the margin by which the rating level exceeds the background sound level and the context in which the sound occurs. An initial estimate of the impact of the specific sound is made by subtracting the measured background sound level from the rating level.

- Typically, the greater the difference, the greater the magnitude of the impact;
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context.

BS 4142 has stipulated that context is important when assessing the impact of sound of a commercial and/or industrial nature. Amongst a range of advocated considerations, this can include mitigation, residual sound levels, location and absolute sound levels in the consideration of context.



4.0 Environmental Sound Survey

To establish the prevailing sound climate about the Site, a baseline survey was undertaken between Friday 15th and Wednesday 20th September 2023.

The period of surveying incorporated weather conditions that were conducive for sound surveying works, with average and gust wind speeds below 5 m/s. There were periods of rain showers within the study, where in the avoidance of doubt, the results of this section have excluded any adverse weather conditions highlighted in **Appendix C**.

4.1 Equipment and Measurements

Sound pressure level measurements were carried out using the following equipment listed in Table B, confirming to Class 1 acoustic accuracy for sound level meters and matched calibrators.

The sound level meter was calibrated before the measurements using the handheld acoustic calibrator and further checked upon completion of the survey. No significant drift was observed with calibration offsets of 0.0 dB. The calibration chain of equipment has been maintained traceably to national standards, no greater than one year for sound calibrators and two years for sound level meters.

Table B: Sound Monitoring Equipment

Location	Description	Serial No.
1	Rion NL-52 Class 1 Sound Level Meter	00710358
	Rion NC-74 Acoustic Calibrator	34713324

Sound level measurements were provided at Location 1, towards the eastern corner of the site adjacent to NSR B. The sound monitoring equipment was provided in free field condition, with measurement microphone 0.5 m above the 1.8 m high boundary fence and at least 3.5 m from a perpendicular reflective surface.

The monitoring location was provided in attempt to represent the pre-development conditions at the closest NSRs overlooking the site and has been considered a reasonable approximation for all NSRs in the area, as identified in Section 2.2. An alternative measurement height to 1.5 m was used to represent free-field conditions in this regard.

An on-site location was used to ensure security of the equipment over a prolonged measurement period including weekday and weekend periods, to which the available locations for security were deemed limited in the Site boundary.

The monitoring protocol consisted of substantially unattended readings over the survey period with nominal 1-hour attendances at the start and end of the monitoring periods.

The following sound level indices have been reported at 15-minute intervals in decibels (dB):

- $L_{Aeq,T}$ – The A-weighted equivalent continuous noise level over the measurement period.
- $L_{A90,T}$ – The A-weighted noise level exceeded for 90% of the measurement period.
- $L_{A10,T}$ – The A-weighted noise level exceeded for 10% of the measurement period.
- $L_{Amax(F)}$ – The maximum A-weighted noise level during the measurement period.

Full survey results describing unattended monitoring periods have been provided for the above-listed metrics within **Appendix C**. The monitoring location has been highlighted on the existing site plan in Figure B below.



Figure B: Monitoring Location



4.2 Sound Climate

The sound climate at Location 1 was dominated from road traffic movements from Oxford Road and Wigmore Lane, as well as vehicles moving around the forecourt. The unattended time history of data recorded has generally reflected a diurnal pattern of transportation sources over day and night periods.

Existing forecourt operations were present at the time of site attendances, comprising the arrival and departure of vehicles, filling operations and use of forecourt equipment. The service station was understood to be in typical function during the times of assessment as operational over its approved usage times.

Extraneous mechanical plant (such as constantly operating refrigeration condensers) was not viewed to be audible or influential at the monitoring location during times of assessment. The sound climate at the monitoring location was viewed to be subjectively comparable to that directly outside of the neighbouring NSRs adjacent.



4.3 Residual and Background Sound Levels

The 'typical' background sound levels have been reported in Table C in accordance with BS 4142 as established from histograms of the recorded dB $L_{A90,15min}$ data provided in **Appendix C**. These have been used to describe the underlying sound climate at NSRs during the proposed operating periods.

In line with Section 8.1.4 of BS 4142, the monitoring duration has reflected the range of background sound levels for the period assessed. In practice, there has been no single level for background sound where this is a fluctuating parameter, although a representative value of the period has been used. Note this has not been either the lowest or mean average value of dB $L_{A90,T}$ according to the assessment standard.

Table C: Summary of Measured Residual and Background Sound Levels

Measurement Details				Residual sound level dB $L_{Aeq,15min}$		Background sound level dB $L_{A90,15min}$	
Date Range	Location	Period	Time HH:MM	Range	Typical*	Range	Typical*
Friday 15/09/2023 - Wednesday 20/09/2023	1	Day	07:00 – 19:00	52 – 83	58	47 – 66	54
		Evening	19:00 – 23:00	53 – 68	55	46 – 55	51
		Night	23:00 – 07:00	47 – 67	52	43 – 54	45
* Typical values of background sound level have been established from counts of data from Appendix C. Typical residual sound levels have been equated at times of typical background sound.							



5.0 Noise Impact Assessment

The impact of noise from the proposed development on the surrounding environment will depend on several factors, including (but not limited to) the time of day, frequency of occurrence and nature of sound source. Development activities will naturally pose greater noise risk where they have been permitted during noise sensitive periods of the evening and night where the likelihood of annoyance or sleep disturbance increases. Human response to noise depends on sociological factors, attitudes and perceptions which can be difficult to define and account for any individual case.

The recognised methodology for assessment has been taken from BS 4142 which includes consideration of sound from fixed plant installations within its scope. The numerical assessment has been provided below for relevant periods of proposed operation, following the definition of specific sound levels.

5.1 Plant Sound Power Levels

The following input data of Table D has been summarised from manufacturers data sheets and measured data as provided in **Appendix B**.

Table D: Input Data Summary

Type	Detail	Quantity	Sound power level, dB L_{WA}	On Time	Period
Jet wash	SLR in-situ measurement	2	80	50 %	Day & Evening
Combined Air/Water/VAC Unit	Istobal Combo	1	78	50 %	
Food sales building external condensers (on north façade)	Mitsubishi PUHZ-ZRP140KVA	1	70	100 %	All
	Mitsubishi PUHZ-ZRP71VHA	1	67		
	Foster DCU4-3L	1	74		
	Foster DCU2-1H	1	73		

The on-time assumptions have been provided on SLR's experience of similar and successful applications for development elsewhere and as not to underpredict the resulting impacts.



5.2 Specific Sound Level Calculations

To understand specific sound levels for the purposes of assessment, a noise model has been created using CadnaA with input sound power level data from Table D. The on-time for all equipment has been accounted for in the modelled sound power levels.

The modelling process has followed the technical requirements of ISO 9613 Parts 1 and 2, accounting for all plant items at their developed location. The format of calculations has included all noise sources 1.5 m above ground with receptor locations of 1.5 m and +3.0 m per upper floor as appropriate to the receptor. Propagation over mixed ground ($G = 0.5$) has been used to define soft and hard ground types along with a reflection order of 2.

Two scenarios have been considered to understand the level of specific sound occurring from different plant items that would be expected to operate during different times of the day or night:

- 1 All proposed plant in operation during opening hours of the daytime and evening.
- 2 External condensers only in operation during the night.

The following specific sound levels of Table E have been estimated from the described modelling process, with results illustrated in Figure C and Figure D. Results have highlighted the highest level on the façade, at either ground or upper floor level appropriate to the height of the receptor.

Table E: Specific Sound Levels

NSR Reference	NSR Name	Predicted Specific Sound Level dB $L_{Aeq,T}$	
		Daytime & Evening (All Plant)	Night-time (Condensers Only)
A	26 – 32 Wigmore Lane	33	32
B	852A/B/C & 850A Oxford Road	36	24
C	846 Oxford Road	21	15
D	1 – 24 Winslet Place	28	27
E	733 – 743 Oxford Road	33	10
Highest specific sound level at any NSR		36	32



Figure C: Specific Sound Levels, Highest dB $L_{Aeq,T}$ at Building Façades – All Plant



Figure D: Specific Sound Levels, Highest dB $L_{Aeq,T}$ at Building Façades – External Condensers Only



5.3 BS 4142 Assessment

The following numerical assessments have been provided in Table F below in accordance with BS 4142 to provide a comparison between the rating sound levels of the proposal against the typical sound levels existing prior to development.

Table F: BS 4142 Assessment of Proposed Development

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	58	55	52	Representative residual and background sound levels from Location 1 of the assessment and shown within Table C.
Background sound level, dB $L_{A90,T}$	54	51	45	
Reference time interval	1-hour	1-hour	15-minute	
Specific sound level, dB $L_{Aeq,T}$	36	36	32	Highest off-site values from noise modelling results of Table E.
Acoustic feature correction, dB	+ 3	+ 3	+ 3	A 3 dB feature correction has been applied to account for a source that could have intermittent sound characteristics inherent to forecourt plant. Plant has not been reviewed as having tonal, impulsive, or other character.
Rating level, dB $L_{Ar,Tr}$	39	39	35	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	- 15	- 12	- 10	
Assessment indicates likelihood of *depending on context	Low impact*			The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context.



Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Uncertainty of the assessment	Not significant			Uncertainty was minimised by measuring over an extended period and has been accounted for any periods of adverse weather.

The numerical assessments have highlighted a low impact at the worst affected NSRs, where the rating sound levels have been predicted significantly below the representative background sound levels at all times of operation. In following of the assessment requirements of BS 4142, these numerical predictions have been considered in context in Section 5.4 below.

5.4 Context

The concept of “context” has been notably emphasised in Section 11 of BS 4142 when considering numerical impacts established from applying the standard.

During operational hours, predictions have provided large differences (i.e. greater than 10 dB) between the residual sound level over the specific sound level, such that in context, the ambient sound level should not change by a perceptible degree due to the development. It has subsequently been considered in context that these development activities will be largely indistinguishable for most of the time and masking will be afforded by the residual sound level.

The evening and night have been considered particularly sensitive periods of operation where it would normally be appropriate to consider that residents will likely be resting or sleeping within their homes. During this time, it could be expected that residents may choose to leave windows open, where a level difference of approximately 13 dB would normally be expected inside the dwelling through a partially open window. The nearest NSRs have not been noted to contain any sound insulation provisions that allow residences to keep windows closed (e.g. mechanical ventilation) therefore an open window assessment has been considered appropriate in context.

Internal ambient noise levels within the worst affected dwellings have been predicted to relate to the residual sound climate where this prevails beyond the specific sound levels of this assessment. In combination and at any time, the resulting ambient sound level would not change because of the development and comprise mainly of the residual sound from transportation and extraneous forecourt activities, rather than that of the development as including new forecourt plant.

Where any industrial or commercial sound remains audible, as might be possible during periods of operation, then it has been considered possible in context for some minor level of effect. This has been considered relevant for any source character that could have different temporal or spectral characteristics than the prevailing residual climate.

Predicted noise impacts have been supported as low when considering the context of the Site.



5.4.1 Reading Borough Council Policy EN17

Section 3.4 has highlighted RBC Policy EN17 that required the “*specific level (plant noise level) should be at least 10dBA below the existing background level*”. This subsection has been added to explore application of the Local Policy requirement further to the BS 4142 assessment of Table F.

Note: the wording of Policy EN17 includes the word “should” as inferring a recommendation, rather than “shall” as inferring a requirement. The distinction has been important for the purposes of assessment context, because achieving a specific sound level 10 dB below the background sound level may not be easy to achieve or necessarily required.

Table G has been provided to compare specific sound levels against background sound levels within this assessment, including a new scenario of all plant at night.

Table G: Review of Sound Levels for Local Policy EN17

	All Plant Operational			Condensers Only
Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Night 23:00 – 07:00
Background sound level, dB $L_{A90,T}$	54	51	45	45
Specific sound level, dB $L_{Aeq,T}$	36	36	36*	32
Excess of specific sound level over background sound level, dB	- 18	- 15	- 9*	- 13
* Effect at worst case NSR B only.				

It can be seen from Table G that the specific sound level provided in this assessment would lie below the background sound level by at least 10 dB, to achieve the recommendation of RBC Policy EN17. This has been realised with an initial night restriction of usage times for the proposed jet washes and combi unit.

If all equipment was in use during the night, then the excess of the specific sound level over background sound level would be 9 dB (i.e. 45 – 36 dB), of which has been largely influenced by the combi unit being used for 7.5 minutes per 15 minute night period. This result has been considered marginal to policy at – 9 dB and local to NSR B only.

If necessary to grant planning approval, a restriction of usage time could be enforced with the proposed air/water/vacuum combi machine and/or jet washes.

Notwithstanding, it must be understood that the proposals seek to remove fuel pumps and similar air/water machines that are much closer to the nearest receptor without such usage restrictions. Therefore, an *imperceptible level* of background creep from instating new plant items would be offset by *some level* of improvement from removing others.

This would remain a local phenomenon where any attributable effects would lie below the level of human perceptibility in an area of much higher levels of residual sound. The only NSR in which Policy EN17 would not be achieved would be with respect to NSR B if all equipment was used at all times of the day or night.

Where the highest specific sound levels have been predicted at the façade of NSR B, at 36 dB $L_{Aeq,T}$, it has been noted that external condensers (unrelated to the development) have been located at first floor level along this façade. In combination of removing fuel pumps P7 and P8, existing air machine adjacent, it has not been viewed that any meaningful effect would occur from restricting usage hours of any plant item, per Figure E and Figure F.



Figure E: Context of Receiver Location NSR B



Figure F: Policy EN17 Potential Excess



In following it has been considered from PPGN that the proposed noise could *“slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life”*.

On balance it has not been reviewed necessary in context to restrict items of forecourt plant including the combi unit, where resulting effects have been considered negligible in context. However, if necessary, a restriction of jet wash usage during the night could be applied as this would not prohibit an expected operation (of washing a car during at night).

5.5 Statement of Uncertainty

Uncertainty has been considered as a limit to the accuracy of any noise assessment, including associated steps of measurement, calculation, or prediction. Factors have been considered to include (but not limited to) the following:

- The inherent accuracy limitation of methodology in Standards and guidance.
- Variability in meteorological conditions.
- The accuracy of sound source input data of a calculation.

It has been a requirement of the assessment standard BS 4142 to minimise uncertainty to a level commensurate with the intention of the assessment objective. Measures taken in this assessment to minimise uncertainty have included:

- Baseline sound levels have been measured over a reasonably long period and therefore provide a good indication of representative background and residual sound levels.
- Baseline sound level measurements undertaken in accordance with recognised Standards, using a tall environmental windshield and during acceptable weather conditions e.g. low wind speeds and precipitation.
- A direct measurement location was used to provide a representative basis for background sound levels at the nearest receiver locations.
- Field calibration checks were undertaken before and after measurements to record very low levels of equipment drift.
- The calculations have been conservative as not to under-predict the resulting impacts.

These measures have been considered to reduce uncertainty to a level considered not to have any significance to the outcome of this assessment.



5.6 Predicted Noise Impact and Planning

The evaluated noise impacts in this report should be considered by WCC mindful of the National Planning Policy Framework and Noise Policy Statement for England that define policy and decision-making requirements for planning and noise.

It has been provided within Section 3.0 of this report, that the NPSE suggests noise levels above the SOAEL should be avoided and that if noise levels fall between the LOAEL and SOAEL all reasonable steps should be taken to minimise and mitigate adverse effects, while considering guiding principles of sustainable development.

The range of noise impacts for the proposed forecourt development have been deemed acceptable with respect to overarching requirements for planning and noise. Resulting impacts with suitable mitigation have been anticipated between the NOEL and LOAEL thresholds of the NPSE.

It is expected that the development sound would be largely unnoticeable, or just perceptible during the most noise sensitive periods of assessment. If it is possible for the sound to be audible, it is not expected to cause any change in behaviour or attitude. The development could marginally affect the acoustic character of the area but not to the extent that there is a perceived change in quality of life.

Commensurate measures have been considered to “*mitigate and minimise adverse impacts on health and quality of life*” which have been included within the detail of this proposal as:

- Jet washes to include nominal 3.0 m tall, glazed screens and roof to both bays.
- No jet washes in use at night (23:00 – 07:00).

Where context has been accounted for in the provided predictions, there has been viewed no practicable justification to provide further mitigating means.



6.0 Conclusions

An assessment of environmental sound levels has been carried out for a proposed forecourt development at Norcot Service Station. Environmental sound levels have been taken from a site survey at a location representative of nearest noise sensitive receptors.

A noise impact assessment has been carried out in line with BS 4142 methodology by a suitably qualified acoustician. Cumulative rating sound levels have been predicted at nearest sensitive receptors using noise modelling techniques of all new plant and equipment defined by quantitative noise emissions.

The numerical assessments in Section 5.0 have predicted worst-case rating levels significantly below the representative background sound levels at all times of proposed operation. Predicted noise impacts have been supported as low when considering the context of the Site.

It has been concluded from the findings of this assessment that the range of noise impacts for the proposed forecourt redevelopment are acceptable with respect to overarching requirements for planning and so, noise should not present reasonable grounds for planning refusal.

The likely acoustic effects have been established below the LOEAL threshold of the NPSE, such that noise could not cause any change in behaviour or attitude or a perceivable change in the quality of life. Commensurate mitigation has been discussed in terms of jet wash usage hours, as necessary to include in the consideration of planning approval.



7.0 Closure

The assessment has required a suitable level of technical ability and has been undertaken by a Suitably Qualified Person (SQP). An individual with all the following credentials has been considered a SQP for this assessment:

- Has a minimum of three years' verifiable experience (within the last five years) of providing noise impact assessments in planning. Such experience has clearly demonstrated a practical understanding of factors affecting acoustics in relation to the proposed development use and in the built environment in general, including acting in an advisory capacity to provide recommendations and design advice in planning, and;
- Holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

This assessment has been led and managed by a SQP as defined above.

Where some elements of the assessment (e.g. measurements) have been carried out by an acoustician who does not meet the requirements above, this has been undertaken with the direct guidance and supervision of a SQP who has reviewed, agreed and overseen the measurement methodology and any results obtained.

The SQP confirms that the relevant measurements and calculations:

- Represent good industry practice in accordance with available guidance.
- Are appropriate given the development being assessed and scope of works proposed.
- Avoid invalid, biased and exaggerated claims.

The checker and author of this document confirm that they both comply with the definition of a SQP defined in this Section.

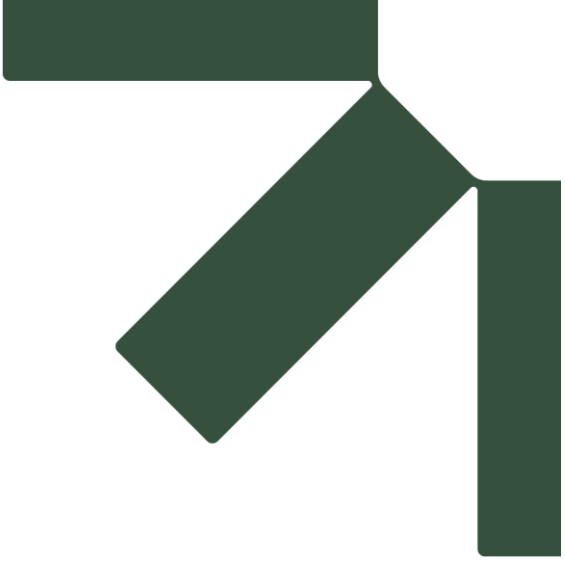
Regards,

SLR Consulting Limited

**Steve Skingle, BSc. (Hons) PgDip MIOA
MAES**
Principal Acoustic Consultant

Miriam Pratap, BSc. (Hons) MIOA
Associate Acoustic Consultant





Appendix A Glossary of Terminology

Noise Impact Assessment

Forecourt Redevelopment at FS1049 Norcot Service Station, 856 Oxford Road, Reading RG30 1EL

Motor Fuel Group

SLR Project No.: 403.064788.00028

21 September 2023

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

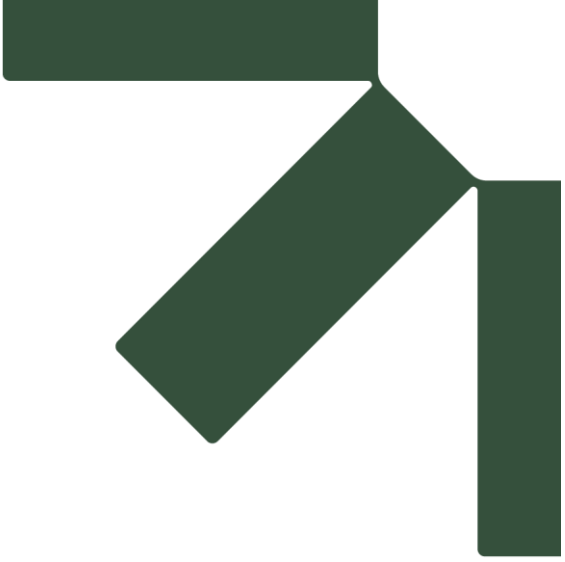
Table A-1: Sound Levels Commonly Found in the Environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft on take off
140 dB(A)	Threshold of Pain

A.1 Acoustic Terminology

dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (of 20 μ Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq, T}$	$L_{Aeq, T}$ is defined as the notional steady sound level which, over a stated period T, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
$L_{A10, T}$ & L_{A90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
$L_{Amax(F)}$	$L_{Amax(F)}$ is the maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.





Appendix B Drawings and Plant

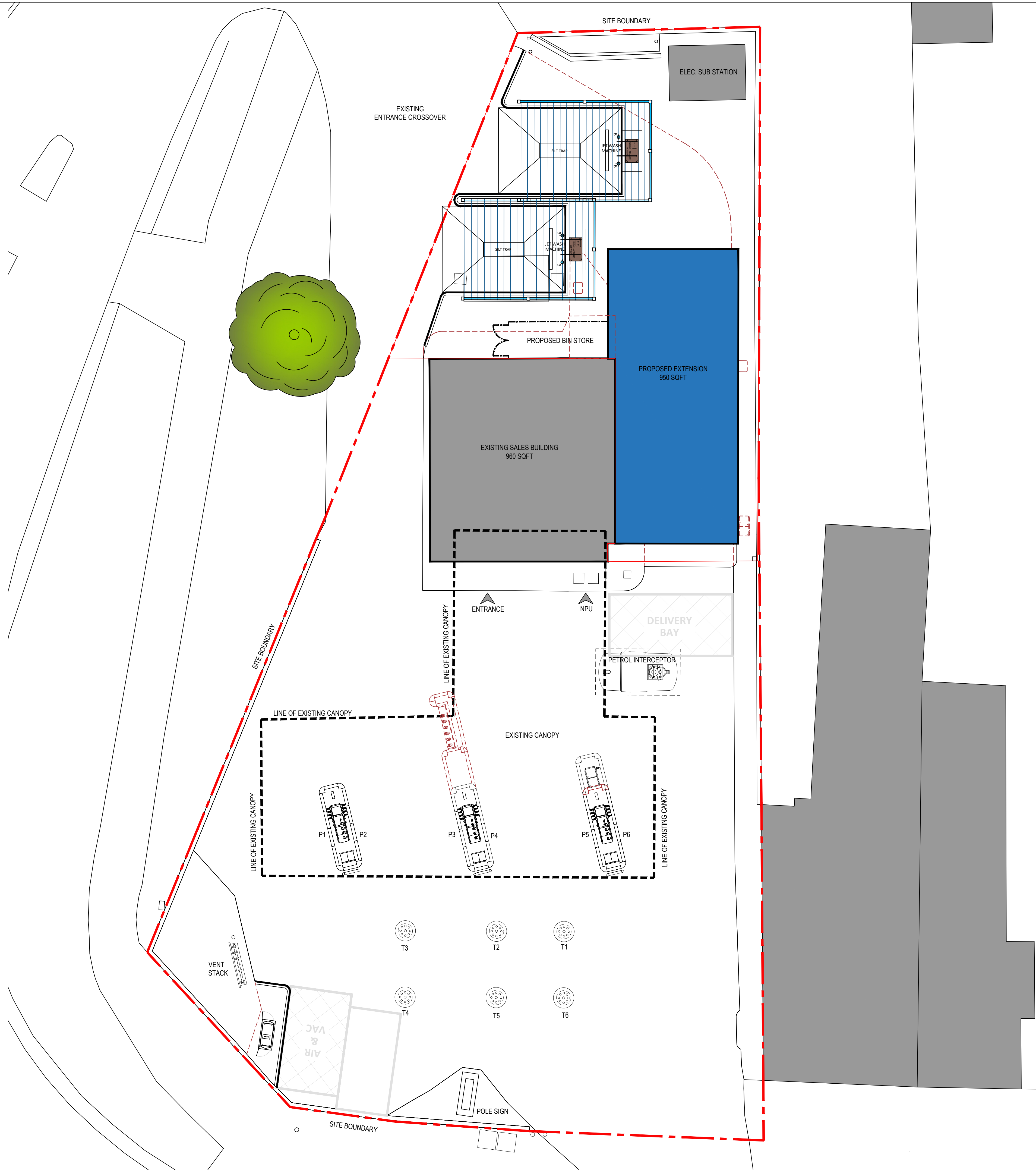
Noise Impact Assessment

Forecourt Redevelopment at FS1049 Norcot Service Station, 856 Oxford Road,
Reading RG30 1EL

Motor Fuel Group

SLR Project No.: 403.064788.00028

21 September 2023



Every effort has been made to ensure the accuracy of these drawings, however MBH Design Studio Ltd. accept no responsibility for any discrepancies arising from the reuse of survey info/Nation and preliminary drawings commissioned by the Applicant from others.

14156-LP	LOCATION PLAN
14156-BP	BLOCK PLAN
14156-201	EXISTING SITE PLAN
14156-202	PROPOSED SITE PLAN
14156-203	EXISTING AND PROPOSED SALES BUILDING LAYOUT
14156-204	EXISTING SALES BUILDING ELEVATIONS
14156-205	PROPOSED SALES BUILDING ELEVATIONS

3. ANY ADVERTISEMENTS ARE INDICATIVE AND ARE SUBJECT TO A SEPARATE ADVERTISEMENT APPLICATION
4. ANY NEIGHBOURING BUILDINGS SHOWN ON THE ELEVATIONS ARE DIAGRAMMATIC AND HAVE BEEN EXTRAPOLATED FROM SITE PHOTOGRAPHS. THEY HAVE NOT BEEN MEASURED.

Mixture of concrete and Asphalt, Block paving with various drainage channels / gullies.

A	2023.08.30	ADDED DELIVERY BAY	WG/NS
REV	DATE	DESCRIPTION	DRAWN/CHECKED
REVISION NOTES			

mbh

MBH Design Studio Ltd.
Rosemount House, Rosemount Avenue, West Byfleet, Surrey, KT14 6LB
www.mbbhstd.com t: 01932 352 727 f: 01932 351 545



PROJECT
NORCOT SERVICE STATION,
856 OXFORD ROAD
READING, BERKSHIRE
RG30 1EL

DRAWING TITLE
PROPOSED SITE PLAN

DRAWN BY LB	DATE 24.07.2023	SCALE 1:100	PAPER SIZE A1
CHECKED BY JN	DRAWING NUMBER 14156-202		REV. A

Third octave band data from attended measurements

Item / Description		Rating/Broadband/Input			1/3 Octave Band Centre Frequency, Hz																										
		Rating	dB	dB(A)	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
Jet Wash	Pressure at 1m (residual corrected)			72.4 (A)	61.4	61.4	63.6	70.9	68.7	71.7	64.6	60.6	65.8	67.4	60.1	61.6	63.6	63.4	63.2	61.3	60.0	57.9	58.0	59.5	62.2	62.2	59.5	58.7	60.1	57.7	55.5
	Tonal check re. BS 4142 Annex C				-	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	-
	Equated sound power level (Q=2)			80.4 (A)	69.3	69.4	71.6	78.9	76.7	79.6	72.6	68.6	73.7	75.3	68.1	69.5	71.6	71.4	71.2	69.3	68.0	65.9	66.0	67.5	70.2	70.2	67.5	66.7	68.1	65.7	63.5

Octave band data for plant items

Item / Description		Rating/Broadband/Input			Octave Band Centre Frequency, Hz								
		Rating	dB	dB(A)	31.5	63	125	250	500	1k	2k	4k	8k
Mitsubishi PUHZ-ZRP140KVA	Pressure at 1 m (hemispherical)			52.2 (A)		63.0	55.0	53.0	50.0	47.0	42.0	38.0	30.0
Mitsubishi PUHZ-ZRP71VHA	Pressure at 1 m (hemispherical)			48.1 (A)		53.0	51.0	52.0	44.0	42.0	38.0	33.0	26.0
Foster Duet 4-3L	Sound power level (emperical)			74.4 (A)		71.9	72.9	72.9	71.9	69.9	65.9	61.9	55.9
Foster Duet 2-1H	Sound power level (emperical)			73.1 (A)		70.6	71.6	71.6	70.6	68.6	64.6	60.6	54.6

COMBO

General features

- > Compact
- > Versatile
- > Practical

Features:

- > Stainless steel structure. AISI 304
- > LED display with countdown timer; two possible configurations depending on function chosen
- > Function can be easily changed

> Vacuum

Turbine and filtering system with high suction power and low noise level

> Sprayer

Fragrances, dashboard, tyre polish, etc.
Possibility of including up to 4 different products for the final cleaning of your vehicle.

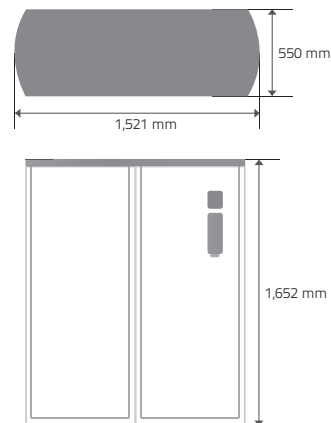
> Gauge

Air: Easy-to-use digital gauge with hose reel.
Possibility of including an internal compressor.

- > **Screen washer:** Hose with reel with water or washer fluid service.

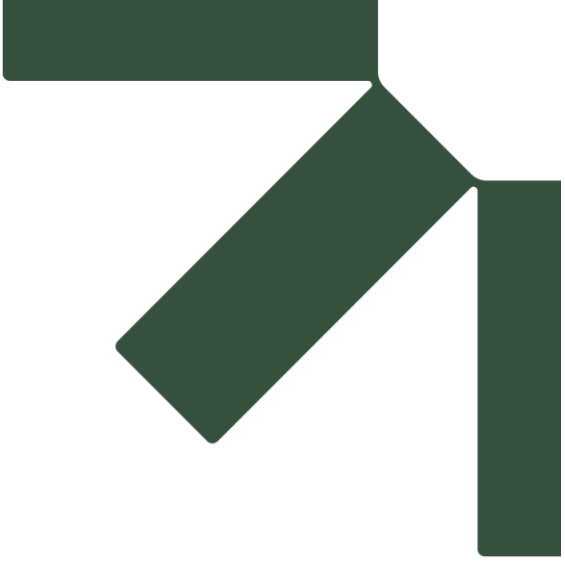
ALL IN ONE,
THE PERFECT
COMBINATION OF
CLEANLINESS AND
SAFETY

- > Do those little but important safety check-ups **while you vacuum** and clean your vehicle, like **pumping up the tyres** or **filling up the screen wash tank**.



Model 4KA00

VACUUM,
SPRAYER AND GAUGE,
ALL IN ONE



Appendix C Survey Results

Noise Impact Assessment

**Forecourt Redevelopment at FS1049 Norcot Service Station, 856 Oxford Road,
Reading RG30 1EL**

Motor Fuel Group

SLR Project No.: 403.064788.00028

21 September 2023

Table C - 1: 15-minute Unattended History Results – Location 1, dB

Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Fri 15/09/2023 14:30	65.2	54.3	71.0	79.9	
Fri 15/09/2023 14:45	66.0	53.2	72.0	74.7	
Fri 15/09/2023 15:00	62.4	53.7	68.5	79.3	
Fri 15/09/2023 15:15	64.8	53.8	70.1	79.0	
Fri 15/09/2023 15:30	60.6	54.3	63.0	78.9	
Fri 15/09/2023 15:45	72.1	53.5	63.9	91.5	
Fri 15/09/2023 16:00	68.6	55.8	71.8	87.7	
Fri 15/09/2023 16:15	63.5	53.7	69.9	85.6	
Fri 15/09/2023 16:30	59.8	54.3	61.8	82.2	
Fri 15/09/2023 16:45	62.8	53.8	67.7	77.9	
Fri 15/09/2023 17:00	69.5	54.8	71.7	90.5	
Fri 15/09/2023 17:15	59.5	54.1	61.5	80.6	
Fri 15/09/2023 17:30	60.8	54.5	62.0	83.4	
Fri 15/09/2023 17:45	59.0	54.1	60.1	79.1	
Fri 15/09/2023 18:00	57.4	53.9	59.2	73.2	
Fri 15/09/2023 18:15	56.2	52.9	58.4	68.9	
Fri 15/09/2023 18:30	57.3	53.0	58.8	80.7	
Fri 15/09/2023 18:45	62.7	53.4	68.0	88.7	
Fri 15/09/2023 19:00	63.3	53.3	70.0	74.7	
Fri 15/09/2023 19:15	65.2	53.6	70.7	75.8	
Fri 15/09/2023 19:30	55.9	52.6	57.9	74.1	
Fri 15/09/2023 19:45	64.0	53.0	70.3	72.2	
Fri 15/09/2023 20:00	67.0	54.0	71.1	81.4	
Fri 15/09/2023 20:15	62.3	52.3	70.1	79.4	
Fri 15/09/2023 20:30	65.6	53.0	70.7	79.4	
Fri 15/09/2023 20:45	58.8	52.7	60.5	76.9	
Fri 15/09/2023 21:00	55.8	50.8	58.1	70.9	
Fri 15/09/2023 21:15	55.0	50.7	57.7	65.7	
Fri 15/09/2023 21:30	55.3	51.4	57.6	69.8	
Fri 15/09/2023 21:45	56.4	51.1	58.1	83.0	
Fri 15/09/2023 22:00	58.8	51.3	59.8	81.1	
Fri 15/09/2023 22:15	54.4	49.7	57.2	68.7	
Fri 15/09/2023 22:30	54.1	49.7	56.5	66.9	
Fri 15/09/2023 22:45	59.6	49.8	58.1	87.2	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Fri 15/09/2023 23:00	55.3	48.6	57.3	79.4	
Fri 15/09/2023 23:15	59.1	48.5	61.9	82.5	
Fri 15/09/2023 23:30	53.5	49.0	56.0	71.8	
Fri 15/09/2023 23:45	54.0	48.3	56.2	68.6	
Sat 16/09/2023 00:00	61.3	47.9	56.7	85.1	
Sat 16/09/2023 00:15	52.0	46.7	54.6	68.9	
Sat 16/09/2023 00:30	53.0	46.6	55.8	70.4	
Sat 16/09/2023 00:45	59.8	46.9	55.3	88.6	
Sat 16/09/2023 01:00	50.2	45.4	52.6	69.3	
Sat 16/09/2023 01:15	51.5	45.6	54.4	64.0	
Sat 16/09/2023 01:30	50.5	45.9	52.5	71.1	
Sat 16/09/2023 01:45	51.3	45.4	54.1	68.5	
Sat 16/09/2023 02:00	52.2	45.6	53.4	76.4	
Sat 16/09/2023 02:15	50.7	44.9	52.9	73.1	
Sat 16/09/2023 02:30	52.0	44.9	51.9	80.0	
Sat 16/09/2023 02:45	55.2	44.7	58.0	67.7	
Sat 16/09/2023 03:00	48.1	44.9	50.5	64.0	
Sat 16/09/2023 03:15	50.1	44.4	52.7	69.0	
Sat 16/09/2023 03:30	52.1	45.4	54.0	70.7	
Sat 16/09/2023 03:45	50.4	44.6	53.1	67.7	
Sat 16/09/2023 04:00	53.1	44.8	53.2	85.8	
Sat 16/09/2023 04:15	52.0	44.6	53.2	78.8	
Sat 16/09/2023 04:30	61.6	45.0	59.4	85.7	
Sat 16/09/2023 04:45	59.7	44.9	55.1	84.1	
Sat 16/09/2023 05:00	51.2	44.6	53.7	74.7	
Sat 16/09/2023 05:15	52.3	45.2	54.0	71.1	
Sat 16/09/2023 05:30	50.6	45.6	53.3	70.1	
Sat 16/09/2023 05:45	51.8	46.3	54.1	71.8	
Sat 16/09/2023 06:00	52.1	47.0	54.8	63.9	
Sat 16/09/2023 06:15	63.0	48.9	64.6	81.6	
Sat 16/09/2023 06:30	56.5	48.6	57.3	83.8	
Sat 16/09/2023 06:45	59.6	49.3	59.2	78.8	
Sat 16/09/2023 07:00	55.8	49.7	58.4	72.3	
Sat 16/09/2023 07:15	56.8	50.7	59.1	75.8	
Sat 16/09/2023 07:30	57.8	51.8	59.6	78.0	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Sat 16/09/2023 07:45	60.9	51.5	60.6	86.7	
Sat 16/09/2023 08:00	57.7	52.6	59.7	77.9	
Sat 16/09/2023 08:15	56.7	52.4	59.1	76.9	
Sat 16/09/2023 08:30	57.8	53.6	59.4	76.2	
Sat 16/09/2023 08:45	57.2	53.3	59.2	75.6	
Sat 16/09/2023 09:00	76.0	53.9	71.4	92.0	
Sat 16/09/2023 09:15	68.6	55.4	68.6	90.2	
Sat 16/09/2023 09:30	65.5	54.8	70.8	80.5	
Sat 16/09/2023 09:45	67.4	55.0	72.1	84.8	
Sat 16/09/2023 10:00	67.6	55.5	71.3	77.7	
Sat 16/09/2023 10:15	68.5	56.0	72.4	83.1	
Sat 16/09/2023 10:30	69.1	56.2	71.6	78.3	
Sat 16/09/2023 10:45	68.8	55.0	70.8	95.6	
Sat 16/09/2023 11:00	59.3	53.7	60.4	76.7	
Sat 16/09/2023 11:15	68.6	55.5	71.7	79.4	
Sat 16/09/2023 11:30	57.6	53.8	60.5	73.8	
Sat 16/09/2023 11:45	70.7	54.9	71.8	85.7	
Sat 16/09/2023 12:00	71.9	53.4	74.9	89.8	
Sat 16/09/2023 12:15	74.8	54.3	79.9	89.5	
Sat 16/09/2023 12:30	69.9	54.6	73.7	89.3	
Sat 16/09/2023 12:45	70.1	54.4	65.7	94.1	
Sat 16/09/2023 13:00	60.6	53.7	63.9	75.0	
Sat 16/09/2023 13:15	76.6	55.7	81.2	89.0	
Sat 16/09/2023 13:30	74.7	54.9	79.1	94.0	
Sat 16/09/2023 13:45	59.4	54.3	63.1	72.5	
Sat 16/09/2023 14:00	66.3	54.7	70.7	84.6	
Sat 16/09/2023 14:15	71.6	58.0	75.7	84.6	
Sat 16/09/2023 14:30	60.6	53.8	60.5	89.4	
Sat 16/09/2023 14:45	73.9	53.9	64.1	91.2	
Sat 16/09/2023 15:00	68.8	53.3	69.4	84.7	
Sat 16/09/2023 15:15	73.8	54.4	74.8	93.5	
Sat 16/09/2023 15:30	70.6	53.8	70.6	88.0	
Sat 16/09/2023 15:45	70.4	56.6	73.1	81.3	
Sat 16/09/2023 16:00	71.9	54.9	73.2	88.4	
Sat 16/09/2023 16:15	68.7	54.1	71.0	84.5	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
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Sat 16/09/2023 17:30	57.6	53.7	59.8	70.7	
Sat 16/09/2023 17:45	57.7	54.0	60.3	71.3	
Sat 16/09/2023 18:00	64.9	54.0	71.5	74.0	
Sat 16/09/2023 18:15	64.5	53.9	70.3	82.7	
Sat 16/09/2023 18:30	59.4	53.6	60.6	76.6	
Sat 16/09/2023 18:45	59.4	53.6	60.4	79.0	
Sat 16/09/2023 19:00	56.9	53.4	59.0	72.8	
Sat 16/09/2023 19:15	63.9	53.0	69.6	89.1	
Sat 16/09/2023 19:30	56.5	52.6	58.5	70.5	
Sat 16/09/2023 19:45	57.4	53.4	59.3	76.5	
Sat 16/09/2023 20:00	56.5	51.7	59.2	72.0	
Sat 16/09/2023 20:15	56.9	52.4	59.5	67.5	
Sat 16/09/2023 20:30	55.9	51.5	58.4	68.4	
Sat 16/09/2023 20:45	57.0	51.7	58.2	74.5	
Sat 16/09/2023 21:00	64.0	51.7	69.3	73.2	
Sat 16/09/2023 21:15	63.7	51.9	70.4	76.7	
Sat 16/09/2023 21:30	62.8	51.9	70.1	80.7	
Sat 16/09/2023 21:45	55.7	51.5	57.6	71.3	
Sat 16/09/2023 22:00	54.6	49.9	57.0	68.4	
Sat 16/09/2023 22:15	54.2	48.8	56.6	73.6	
Sat 16/09/2023 22:30	55.1	50.3	58.0	69.1	
Sat 16/09/2023 22:45	54.7	49.6	56.8	73.7	
Sat 16/09/2023 23:00	56.1	51.1	58.4	70.7	
Sat 16/09/2023 23:15	55.2	50.9	57.5	74.2	
Sat 16/09/2023 23:30	52.6	47.6	55.6	66.3	
Sat 16/09/2023 23:45	53.8	47.5	57.0	64.9	
Sun 17/09/2023 00:00	52.2	46.4	54.9	73.0	
Sun 17/09/2023 00:15	52.8	47.1	55.3	73.8	
Sun 17/09/2023 00:30	51.5	46.2	54.5	66.3	
Sun 17/09/2023 00:45	50.8	45.5	53.3	71.7	
Sun 17/09/2023 01:00	62.7	47.6	68.3	78.7	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Sun 17/09/2023 01:15	51.2	45.2	54.0	73.6	
Sun 17/09/2023 01:30	50.7	45.4	52.7	73.1	
Sun 17/09/2023 01:45	51.9	45.1	53.6	77.2	
Sun 17/09/2023 02:00	50.4	44.4	51.7	71.1	
Sun 17/09/2023 02:15	51.8	45.2	54.7	72.1	
Sun 17/09/2023 02:30	48.4	44.4	51.2	63.1	
Sun 17/09/2023 02:45	47.7	44.5	50.2	59.6	
Sun 17/09/2023 03:00	48.5	44.5	51.3	69.1	
Sun 17/09/2023 03:15	54.5	44.9	54.5	83.8	
Sun 17/09/2023 03:30	49.7	44.4	52.6	71.9	
Sun 17/09/2023 03:45	48.9	43.7	50.5	71.6	
Sun 17/09/2023 04:00	47.5	43.9	50.0	61.8	
Sun 17/09/2023 04:15	49.4	43.5	52.2	70.8	
Sun 17/09/2023 04:30	52.3	43.9	54.7	74.0	
Sun 17/09/2023 04:45	48.2	43.9	50.8	60.8	
Sun 17/09/2023 05:00	54.9	45.3	59.3	78.3	
Sun 17/09/2023 05:15	53.6	44.0	54.8	77.7	
Sun 17/09/2023 05:30	52.1	44.6	53.2	78.4	
Sun 17/09/2023 05:45	55.9	44.4	60.2	76.1	
Sun 17/09/2023 06:00	48.3	44.6	51.6	61.1	
Sun 17/09/2023 06:15	51.5	45.6	54.0	69.0	
Sun 17/09/2023 06:30	51.5	46.3	54.5	68.1	
Sun 17/09/2023 06:45	58.1	46.3	62.4	74.9	
Sun 17/09/2023 07:00	60.9	47.1	67.4	72.7	
Sun 17/09/2023 07:15	51.9	46.7	55.1	63.9	
Sun 17/09/2023 07:30	65.7	47.6	70.9	75.9	
Sun 17/09/2023 07:45	53.2	48.7	56.1	65.4	
Sun 17/09/2023 08:00	52.4	47.4	55.2	67.8	
Sun 17/09/2023 08:15	54.5	48.7	57.2	75.1	
Sun 17/09/2023 08:30	61.6	49.8	68.6	80.9	
Sun 17/09/2023 08:45	55.9	49.5	58.2	75.6	
Sun 17/09/2023 09:00	67.7	53.4	70.1	84.3	
Sun 17/09/2023 09:15	66.2	53.4	70.5	74.3	
Sun 17/09/2023 09:30	66.3	53.6	71.0	75.7	
Sun 17/09/2023 09:45	65.2	53.6	70.6	73.3	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Sun 17/09/2023 10:00	69.4	56.6	71.6	75.7	
Sun 17/09/2023 10:15	63.7	55.4	70.6	74.7	
Sun 17/09/2023 10:30	61.1	54.1	60.7	72.6	
Sun 17/09/2023 10:45	66.4	55.0	71.0	85.8	
Sun 17/09/2023 11:00	68.2	55.0	71.8	74.2	
Sun 17/09/2023 11:15	58.8	54.4	59.2	82.0	
Sun 17/09/2023 11:30	58.5	55.2	60.0	74.8	
Sun 17/09/2023 11:45	67.0	55.3	70.9	89.1	
Sun 17/09/2023 12:00	57.7	54.6	59.7	69.9	
Sun 17/09/2023 12:15	63.0	53.8	62.1	78.1	
Sun 17/09/2023 12:30	64.7	54.3	70.6	76.5	
Sun 17/09/2023 12:45	57.2	53.9	58.9	74.6	
Sun 17/09/2023 13:00	58.0	55.0	60.3	71.1	*
Sun 17/09/2023 13:15	64.0	56.1	69.6	80.2	*
Sun 17/09/2023 13:30	59.6	56.7	61.7	70.3	*
Sun 17/09/2023 13:45	65.2	57.6	70.0	79.2	*
Sun 17/09/2023 14:00	65.9	60.3	70.3	74.8	*
Sun 17/09/2023 14:15	61.1	57.7	63.0	76.8	*
Sun 17/09/2023 14:30	59.0	56.6	60.9	67.6	*
Sun 17/09/2023 14:45	59.0	56.1	60.5	80.6	
Sun 17/09/2023 15:00	58.5	55.5	60.4	74.7	
Sun 17/09/2023 15:15	62.9	55.5	68.6	77.3	
Sun 17/09/2023 15:30	65.6	56.3	69.6	82.0	
Sun 17/09/2023 15:45	66.2	56.0	70.7	76.9	
Sun 17/09/2023 16:00	65.6	55.4	70.5	77.4	
Sun 17/09/2023 16:15	68.3	56.8	71.0	83.6	
Sun 17/09/2023 16:30	60.8	54.3	62.4	72.1	
Sun 17/09/2023 16:45	68.2	55.6	71.1	75.8	
Sun 17/09/2023 17:00	61.2	52.9	61.7	77.7	
Sun 17/09/2023 17:15	56.1	52.7	58.4	64.3	
Sun 17/09/2023 17:30	63.4	52.4	59.8	89.9	
Sun 17/09/2023 17:45	56.4	52.4	58.7	71.2	
Sun 17/09/2023 18:00	58.0	52.6	59.8	77.2	
Sun 17/09/2023 18:15	56.6	53.0	58.5	76.4	
Sun 17/09/2023 18:30	57.9	52.4	59.6	76.2	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Sun 17/09/2023 18:45	56.9	52.0	59.0	74.9	
Sun 17/09/2023 19:00	57.6	52.2	59.3	74.9	
Sun 17/09/2023 19:15	56.5	51.9	58.6	70.3	
Sun 17/09/2023 19:30	64.3	50.8	70.3	78.6	
Sun 17/09/2023 19:45	57.8	50.5	58.4	79.2	
Sun 17/09/2023 20:00	56.0	50.6	58.3	77.0	
Sun 17/09/2023 20:15	64.4	50.7	70.3	76.6	
Sun 17/09/2023 20:30	54.8	50.5	57.0	73.7	
Sun 17/09/2023 20:45	66.5	49.9	71.4	91.8	
Sun 17/09/2023 21:00	56.2	49.7	58.0	83.4	
Sun 17/09/2023 21:15	55.0	48.7	57.3	75.8	
Sun 17/09/2023 21:30	54.5	48.9	57.1	75.6	
Sun 17/09/2023 21:45	55.7	49.2	57.4	79.2	
Sun 17/09/2023 22:00	53.9	49.1	56.4	68.7	
Sun 17/09/2023 22:15	54.3	49.6	57.2	74.9	
Sun 17/09/2023 22:30	53.4	46.5	56.9	68.9	
Sun 17/09/2023 22:45	52.7	46.3	55.5	70.5	
Sun 17/09/2023 23:00	52.8	47.2	55.5	67.4	
Sun 17/09/2023 23:15	61.3	46.2	68.3	73.0	
Sun 17/09/2023 23:30	51.4	45.4	53.4	71.3	
Sun 17/09/2023 23:45	50.6	45.4	53.0	63.9	*
Mon 18/09/2023 00:00	65.0	46.1	69.9	81.1	*
Mon 18/09/2023 00:15	56.0	48.8	57.4	78.3	*
Mon 18/09/2023 00:30	58.0	50.4	60.9	77.9	*
Mon 18/09/2023 00:45	55.1	47.6	57.7	73.2	*
Mon 18/09/2023 01:00	50.0	45.5	52.6	70.3	*
Mon 18/09/2023 01:15	63.9	46.7	67.8	85.0	*
Mon 18/09/2023 01:30	60.4	55.2	63.5	78.7	*
Mon 18/09/2023 01:45	57.3	48.5	61.3	70.8	*
Mon 18/09/2023 02:00	63.0	45.4	68.8	84.9	*
Mon 18/09/2023 02:15	59.7	43.4	59.8	84.9	
Mon 18/09/2023 02:30	54.6	44.6	52.3	72.3	
Mon 18/09/2023 02:45	49.7	44.6	52.2	67.3	
Mon 18/09/2023 03:00	48.7	44.3	50.6	64.8	
Mon 18/09/2023 03:15	48.4	44.4	50.7	62.5	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Mon 18/09/2023 03:30	48.0	44.3	50.4	61.2	
Mon 18/09/2023 03:45	47.1	44.2	49.4	63.7	
Mon 18/09/2023 04:00	49.8	44.5	51.3	72.0	
Mon 18/09/2023 04:15	62.1	45.2	68.3	75.2	
Mon 18/09/2023 04:30	49.3	44.3	52.1	65.7	
Mon 18/09/2023 04:45	49.2	44.4	51.8	64.7	
Mon 18/09/2023 05:00	52.0	45.1	54.5	72.0	
Mon 18/09/2023 05:15	51.3	45.5	54.8	64.7	
Mon 18/09/2023 05:30	54.3	48.9	57.4	65.7	
Mon 18/09/2023 05:45	54.3	48.4	57.4	66.9	
Mon 18/09/2023 06:00	57.0	49.6	60.1	75.2	
Mon 18/09/2023 06:15	57.6	51.3	60.1	75.5	
Mon 18/09/2023 06:30	67.1	51.5	60.3	92.0	
Mon 18/09/2023 06:45	62.7	52.7	66.5	83.4	
Mon 18/09/2023 07:00	64.8	54.4	69.2	88.6	
Mon 18/09/2023 07:15	60.1	55.7	61.4	85.0	
Mon 18/09/2023 07:30	57.9	55.0	59.8	72.5	
Mon 18/09/2023 07:45	58.3	55.0	60.5	70.3	
Mon 18/09/2023 08:00	58.4	55.0	60.3	72.2	
Mon 18/09/2023 08:15	58.4	54.7	60.7	71.7	
Mon 18/09/2023 08:30	59.9	54.7	60.9	81.1	
Mon 18/09/2023 08:45	66.5	56.3	69.0	74.7	
Mon 18/09/2023 09:00	66.1	55.8	71.0	81.4	
Mon 18/09/2023 09:15	66.6	55.0	69.7	89.8	
Mon 18/09/2023 09:30	67.8	56.2	71.5	79.4	
Mon 18/09/2023 09:45	76.8	54.3	61.6	93.6	*
Mon 18/09/2023 10:00	57.7	54.2	59.7	71.0	
Mon 18/09/2023 10:15	59.3	55.2	60.7	81.1	
Mon 18/09/2023 10:30	61.3	56.4	62.0	79.9	*
Mon 18/09/2023 10:45	68.0	60.0	71.6	83.8	
Mon 18/09/2023 11:00	63.9	56.7	65.4	88.4	
Mon 18/09/2023 11:15	64.1	56.0	69.6	75.5	
Mon 18/09/2023 11:30	66.5	55.7	71.8	81.4	
Mon 18/09/2023 11:45	82.8	55.2	89.9	93.4	
Mon 18/09/2023 12:00	65.6	54.5	70.5	86.4	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Mon 18/09/2023 12:15	57.7	54.4	59.8	77.1	
Mon 18/09/2023 12:30	69.4	54.4	65.3	85.5	
Mon 18/09/2023 12:45	73.6	54.3	76.8	87.0	
Mon 18/09/2023 13:00	58.1	54.9	59.9	80.5	
Mon 18/09/2023 13:15	58.5	55.1	60.7	70.5	
Mon 18/09/2023 13:30	65.2	56.1	70.0	78.2	
Mon 18/09/2023 13:45	75.8	55.6	82.3	91.9	
Mon 18/09/2023 14:00	59.1	55.4	60.7	84.7	
Mon 18/09/2023 14:15	70.4	55.9	71.9	87.3	
Mon 18/09/2023 14:30	75.6	55.2	80.6	91.9	
Mon 18/09/2023 14:45	75.6	56.0	80.1	88.7	
Mon 18/09/2023 15:00	73.2	56.6	77.9	87.9	
Mon 18/09/2023 15:15	62.7	55.2	63.6	91.8	
Mon 18/09/2023 15:30	62.9	54.4	69.4	80.3	
Mon 18/09/2023 15:45	76.5	55.1	80.1	93.2	
Mon 18/09/2023 16:00	64.4	54.5	60.7	84.2	
Mon 18/09/2023 16:15	58.6	55.0	60.2	84.6	
Mon 18/09/2023 16:30	74.0	55.5	70.3	91.5	
Mon 18/09/2023 16:45	65.7	56.1	70.0	83.6	
Mon 18/09/2023 17:00	64.9	54.9	64.0	85.2	
Mon 18/09/2023 17:15	58.8	54.3	60.4	76.2	
Mon 18/09/2023 17:30	58.7	55.2	59.9	76.2	
Mon 18/09/2023 17:45	66.0	55.6	70.4	79.9	
Mon 18/09/2023 18:00	62.9	54.8	69.3	79.6	
Mon 18/09/2023 18:15	58.0	54.3	60.5	73.8	
Mon 18/09/2023 18:30	62.3	54.2	61.0	88.3	
Mon 18/09/2023 18:45	60.2	53.8	61.7	83.7	
Mon 18/09/2023 19:00	63.7	54.3	66.2	82.8	
Mon 18/09/2023 19:15	57.5	54.4	59.5	69.5	
Mon 18/09/2023 19:30	62.5	53.8	68.6	79.4	
Mon 18/09/2023 19:45	67.3	54.7	71.8	84.0	
Mon 18/09/2023 20:00	64.0	53.2	69.6	78.3	
Mon 18/09/2023 20:15	56.1	52.5	58.2	73.8	
Mon 18/09/2023 20:30	56.8	52.3	58.6	77.7	
Mon 18/09/2023 20:45	55.7	51.2	58.6	68.6	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Mon 18/09/2023 21:00	55.4	51.8	58.0	74.4	
Mon 18/09/2023 21:15	56.6	50.6	59.1	78.6	
Mon 18/09/2023 21:30	65.0	50.7	68.8	90.2	
Mon 18/09/2023 21:45	54.1	49.3	56.9	68.3	
Mon 18/09/2023 22:00	57.0	50.9	59.1	72.1	
Mon 18/09/2023 22:15	55.8	49.1	57.8	78.6	*
Mon 18/09/2023 22:30	53.6	48.5	56.8	69.3	
Mon 18/09/2023 22:45	54.1	47.4	57.1	71.8	
Mon 18/09/2023 23:00	54.9	47.2	56.8	76.0	
Mon 18/09/2023 23:15	56.0	46.3	56.6	73.3	
Mon 18/09/2023 23:30	62.9	46.0	68.4	75.9	
Mon 18/09/2023 23:45	50.6	44.8	53.4	70.1	
Tue 19/09/2023 00:00	50.9	45.3	53.4	68.9	
Tue 19/09/2023 00:15	51.3	45.4	53.9	72.3	
Tue 19/09/2023 00:30	65.2	44.1	71.0	81.7	
Tue 19/09/2023 00:45	49.9	43.8	53.1	65.9	
Tue 19/09/2023 01:00	60.5	44.4	66.6	84.7	
Tue 19/09/2023 01:15	61.1	43.7	68.1	87.1	
Tue 19/09/2023 01:30	48.8	43.8	51.5	64.2	
Tue 19/09/2023 01:45	54.0	44.0	55.5	83.1	
Tue 19/09/2023 02:00	59.9	43.8	64.1	82.9	
Tue 19/09/2023 02:15	47.4	43.5	50.1	61.7	
Tue 19/09/2023 02:30	49.0	43.7	51.6	72.8	
Tue 19/09/2023 02:45	48.7	43.5	51.1	65.6	
Tue 19/09/2023 03:00	50.0	44.0	52.6	65.6	
Tue 19/09/2023 03:15	50.9	44.6	53.7	67.7	
Tue 19/09/2023 03:30	49.8	44.1	52.7	66.7	
Tue 19/09/2023 03:45	51.7	44.8	54.2	68.6	
Tue 19/09/2023 04:00	51.2	43.8	53.2	71.2	
Tue 19/09/2023 04:15	53.3	43.7	54.0	73.3	
Tue 19/09/2023 04:30	49.8	44.2	52.6	66.0	
Tue 19/09/2023 04:45	49.8	44.6	52.2	64.9	
Tue 19/09/2023 05:00	52.0	44.7	53.8	70.7	
Tue 19/09/2023 05:15	52.0	45.7	55.1	63.9	
Tue 19/09/2023 05:30	54.4	47.2	56.6	75.9	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Tue 19/09/2023 05:45	54.3	49.1	57.3	69.9	
Tue 19/09/2023 06:00	55.1	47.4	58.1	73.6	
Tue 19/09/2023 06:15	65.2	50.6	70.5	78.8	
Tue 19/09/2023 06:30	63.0	51.9	64.8	80.0	
Tue 19/09/2023 06:45	64.9	53.1	69.6	79.5	
Tue 19/09/2023 07:00	61.5	54.7	62.6	86.9	
Tue 19/09/2023 07:15	60.3	55.6	61.7	81.9	
Tue 19/09/2023 07:30	63.4	55.5	68.6	81.3	
Tue 19/09/2023 07:45	62.6	54.4	65.4	83.0	
Tue 19/09/2023 08:00	59.9	54.6	63.1	77.1	
Tue 19/09/2023 08:15	58.4	54.7	60.1	78.9	
Tue 19/09/2023 08:30	59.3	55.2	60.3	82.9	
Tue 19/09/2023 08:45	64.3	55.9	68.9	74.7	
Tue 19/09/2023 09:00	64.7	55.7	69.2	77.4	
Tue 19/09/2023 09:15	58.5	54.9	60.4	83.0	
Tue 19/09/2023 09:30	61.9	55.3	66.2	78.9	
Tue 19/09/2023 09:45	64.3	55.3	70.2	80.6	
Tue 19/09/2023 10:00	77.4	55.3	84.1	87.6	
Tue 19/09/2023 10:15	78.3	55.8	84.7	88.7	
Tue 19/09/2023 10:30	76.5	56.0	83.5	87.8	
Tue 19/09/2023 10:45	58.2	55.2	60.0	70.5	
Tue 19/09/2023 11:00	58.9	55.0	61.0	78.5	
Tue 19/09/2023 11:15	77.7	56.3	83.7	90.6	
Tue 19/09/2023 11:30	76.5	56.9	81.1	86.4	
Tue 19/09/2023 11:45	76.9	57.5	81.4	88.8	
Tue 19/09/2023 12:00	73.3	55.5	79.3	85.4	
Tue 19/09/2023 12:15	61.7	55.0	63.6	73.4	
Tue 19/09/2023 12:30	70.9	55.1	71.0	87.0	
Tue 19/09/2023 12:45	63.2	55.2	62.2	86.4	
Tue 19/09/2023 13:00	75.2	55.3	80.3	86.3	
Tue 19/09/2023 13:15	77.1	56.4	81.9	87.3	
Tue 19/09/2023 13:30	78.4	66.0	81.6	86.1	
Tue 19/09/2023 13:45	77.6	55.5	82.2	88.3	
Tue 19/09/2023 14:00	77.3	54.9	84.3	89.3	
Tue 19/09/2023 14:15	73.0	54.9	73.3	87.9	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Tue 19/09/2023 14:30	58.2	54.5	59.9	82.0	
Tue 19/09/2023 14:45	58.7	54.0	60.6	76.8	
Tue 19/09/2023 15:00	61.9	54.9	65.6	77.4	
Tue 19/09/2023 15:15	71.8	55.0	72.4	87.8	
Tue 19/09/2023 15:30	76.1	54.5	82.0	88.1	
Tue 19/09/2023 15:45	77.6	54.3	83.8	88.3	
Tue 19/09/2023 16:00	74.3	55.2	79.2	87.8	
Tue 19/09/2023 16:15	72.9	54.2	77.0	92.0	
Tue 19/09/2023 16:30	57.4	54.0	59.3	74.0	
Tue 19/09/2023 16:45	62.1	54.2	60.7	87.8	
Tue 19/09/2023 17:00	59.9	54.5	60.4	85.9	
Tue 19/09/2023 17:15	60.2	54.5	61.0	83.2	
Tue 19/09/2023 17:30	59.4	53.6	61.8	78.4	
Tue 19/09/2023 17:45	64.3	55.1	68.7	82.5	
Tue 19/09/2023 18:00	64.8	54.1	69.7	74.5	
Tue 19/09/2023 18:15	64.1	54.7	69.9	79.6	
Tue 19/09/2023 18:30	66.5	54.3	71.7	79.0	
Tue 19/09/2023 18:45	56.7	53.4	58.5	76.9	
Tue 19/09/2023 19:00	57.2	53.6	58.6	76.1	
Tue 19/09/2023 19:15	65.2	53.6	70.7	78.3	
Tue 19/09/2023 19:30	59.2	53.4	60.6	77.0	
Tue 19/09/2023 19:45	56.9	52.5	58.9	74.7	
Tue 19/09/2023 20:00	56.6	52.2	58.9	75.3	
Tue 19/09/2023 20:15	63.3	53.3	68.8	86.7	
Tue 19/09/2023 20:30	62.5	52.2	69.3	78.3	
Tue 19/09/2023 20:45	67.9	53.3	71.0	77.9	
Tue 19/09/2023 21:00	56.9	51.6	58.2	80.2	
Tue 19/09/2023 21:15	56.3	51.3	58.9	75.6	
Tue 19/09/2023 21:30	58.4	51.3	60.7	77.9	
Tue 19/09/2023 21:45	54.8	50.3	57.3	71.6	
Tue 19/09/2023 22:00	54.7	50.1	57.1	73.1	
Tue 19/09/2023 22:15	54.7	50.0	56.9	69.4	
Tue 19/09/2023 22:30	54.8	49.3	57.3	75.5	
Tue 19/09/2023 22:45	53.5	47.7	56.0	70.2	
Tue 19/09/2023 23:00	53.8	48.8	56.0	75.9	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Tue 19/09/2023 23:15	54.5	49.3	56.9	70.7	
Tue 19/09/2023 23:30	53.1	46.3	55.6	73.9	
Tue 19/09/2023 23:45	54.8	46.4	58.2	75.9	
Wed 20/09/2023 00:00	51.7	46.4	54.5	69.0	
Wed 20/09/2023 00:15	52.9	47.3	55.6	69.1	
Wed 20/09/2023 00:30	51.6	45.2	54.0	69.4	
Wed 20/09/2023 00:45	48.3	44.6	51.0	60.4	
Wed 20/09/2023 01:00	48.4	44.6	50.2	65.5	
Wed 20/09/2023 01:15	50.2	45.2	52.5	69.3	
Wed 20/09/2023 01:30	55.5	45.5	59.2	64.5	
Wed 20/09/2023 01:45	51.3	45.9	55.2	67.9	
Wed 20/09/2023 02:00	50.0	45.0	52.4	68.9	
Wed 20/09/2023 02:15	48.3	44.6	51.1	62.3	
Wed 20/09/2023 02:30	48.2	44.6	50.9	61.7	
Wed 20/09/2023 02:45	46.7	44.0	48.9	60.7	
Wed 20/09/2023 03:00	47.6	44.7	49.2	63.9	
Wed 20/09/2023 03:15	48.4	44.4	51.1	60.6	
Wed 20/09/2023 03:30	48.4	44.5	50.5	61.5	
Wed 20/09/2023 03:45	49.7	45.2	52.1	64.6	
Wed 20/09/2023 04:00	51.0	45.4	52.5	72.3	
Wed 20/09/2023 04:15	56.8	45.4	55.2	80.9	
Wed 20/09/2023 04:30	50.9	45.1	53.2	71.7	
Wed 20/09/2023 04:45	50.5	45.4	53.0	67.7	
Wed 20/09/2023 05:00	51.2	46.2	54.0	67.4	
Wed 20/09/2023 05:15	52.6	46.8	55.2	69.0	
Wed 20/09/2023 05:30	61.3	48.2	58.6	89.4	
Wed 20/09/2023 05:45	54.9	48.8	56.7	80.4	
Wed 20/09/2023 06:00	64.7	52.0	69.8	81.2	
Wed 20/09/2023 06:15	56.4	51.7	59.1	77.6	
Wed 20/09/2023 06:30	62.0	52.3	66.1	82.2	
Wed 20/09/2023 06:45	60.6	53.9	63.5	74.9	
Wed 20/09/2023 07:00	62.9	54.0	68.5	77.5	
Wed 20/09/2023 07:15	63.6	55.1	69.9	77.4	
Wed 20/09/2023 07:30	58.2	54.7	60.0	76.2	
Wed 20/09/2023 07:45	58.3	54.5	60.4	71.3	



Day, Date and Time	$L_{Aeq,15min}$	$L_{A90,15min}$	$L_{A10,15min}$	$L_{Amax(F)}$	Weather Excl.
Wed 20/09/2023 08:00	60.5	54.5	61.2	82.7	
Wed 20/09/2023 08:15	58.3	54.8	60.3	73.8	
Wed 20/09/2023 08:30	65.9	55.4	70.7	77.4	
Wed 20/09/2023 08:45	62.5	54.5	61.4	80.9	
Wed 20/09/2023 09:00	64.7	55.3	68.8	92.5	
Wed 20/09/2023 09:15	66.0	56.1	70.0	82.3	
Wed 20/09/2023 09:30	57.6	54.2	59.4	72.5	
Wed 20/09/2023 09:45	62.8	54.5	60.5	88.5	
Wed 20/09/2023 10:00	63.1	55.1	64.3	82.7	
Wed 20/09/2023 10:15	66.4	55.5	65.3	86.7	
Wed 20/09/2023 10:30	59.0	54.8	60.9	75.1	
Wed 20/09/2023 10:45	58.3	54.7	60.7	73.0	
Wed 20/09/2023 11:00	64.2	55.3	69.4	77.8	
Wed 20/09/2023 11:15	66.4	56.0	70.4	82.0	
Wed 20/09/2023 11:30	67.7	55.7	71.0	87.1	
Wed 20/09/2023 11:45	58.3	55.2	60.4	73.2	
Wed 20/09/2023 12:00	57.7	54.5	59.6	76.5	
Wed 20/09/2023 12:15	64.0	55.6	69.7	75.0	
Wed 20/09/2023 12:30	68.9	55.0	62.5	86.9	
Wed 20/09/2023 12:45	72.5	56.6	77.4	85.5	*
Wed 20/09/2023 13:00	59.1	55.6	61.3	70.3	*
Wed 20/09/2023 13:15	60.6	58.1	62.3	74.1	*
Wed 20/09/2023 13:30	59.6	56.1	61.5	75.7	*
Wed 20/09/2023 13:45	59.6	56.6	61.6	70.3	*
Wed 20/09/2023 14:00	62.3	58.4	64.9	80.0	*
Wed 20/09/2023 14:15	70.6	59.9	73.3	84.4	*



Figure C-1: Time History Graph – Location 1, dB

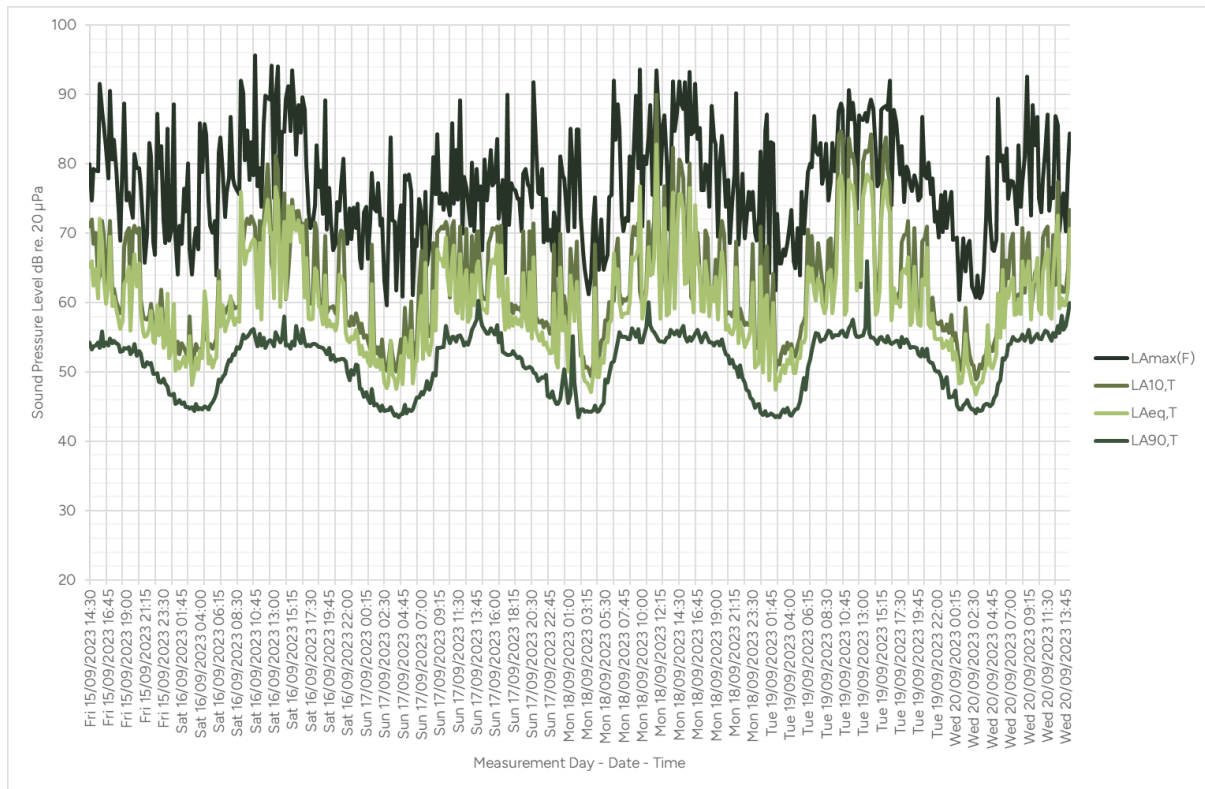


Figure C-2: Background Sound Level Histogram – Day, Evening, Night – Weather Excluded – Location 1, dB

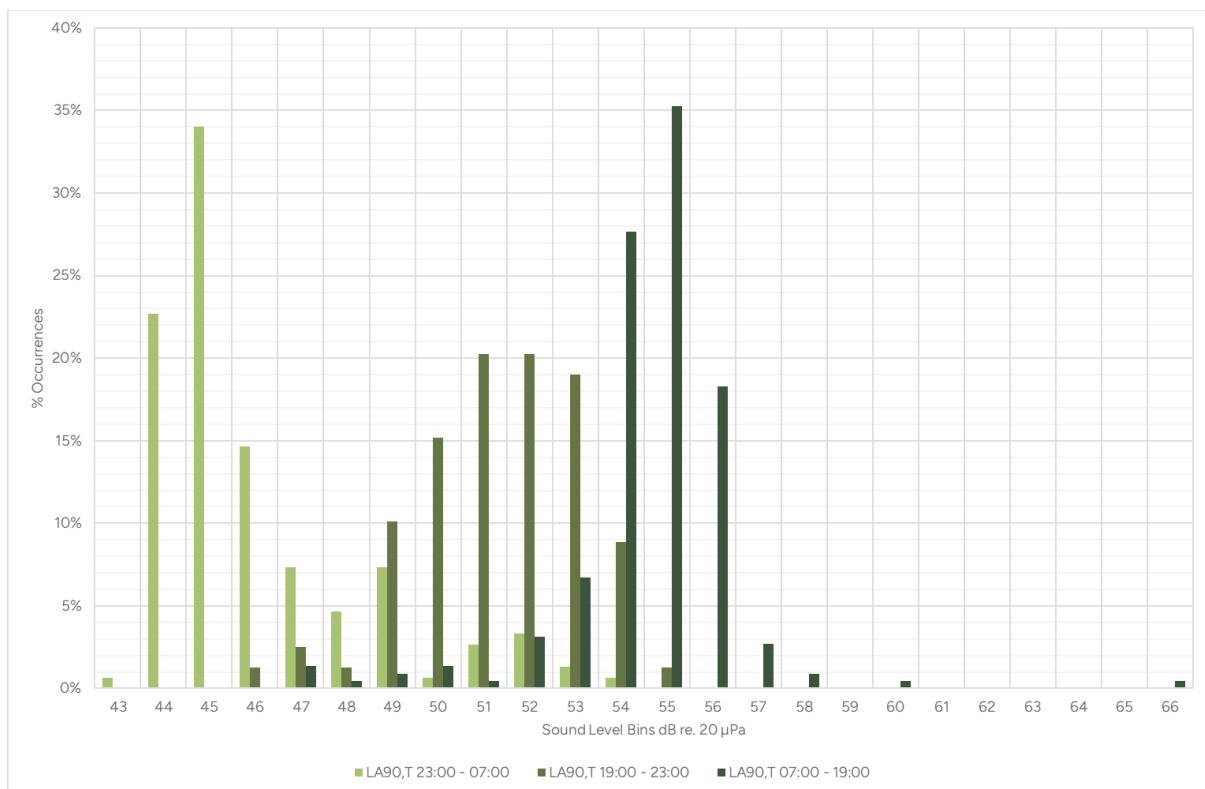
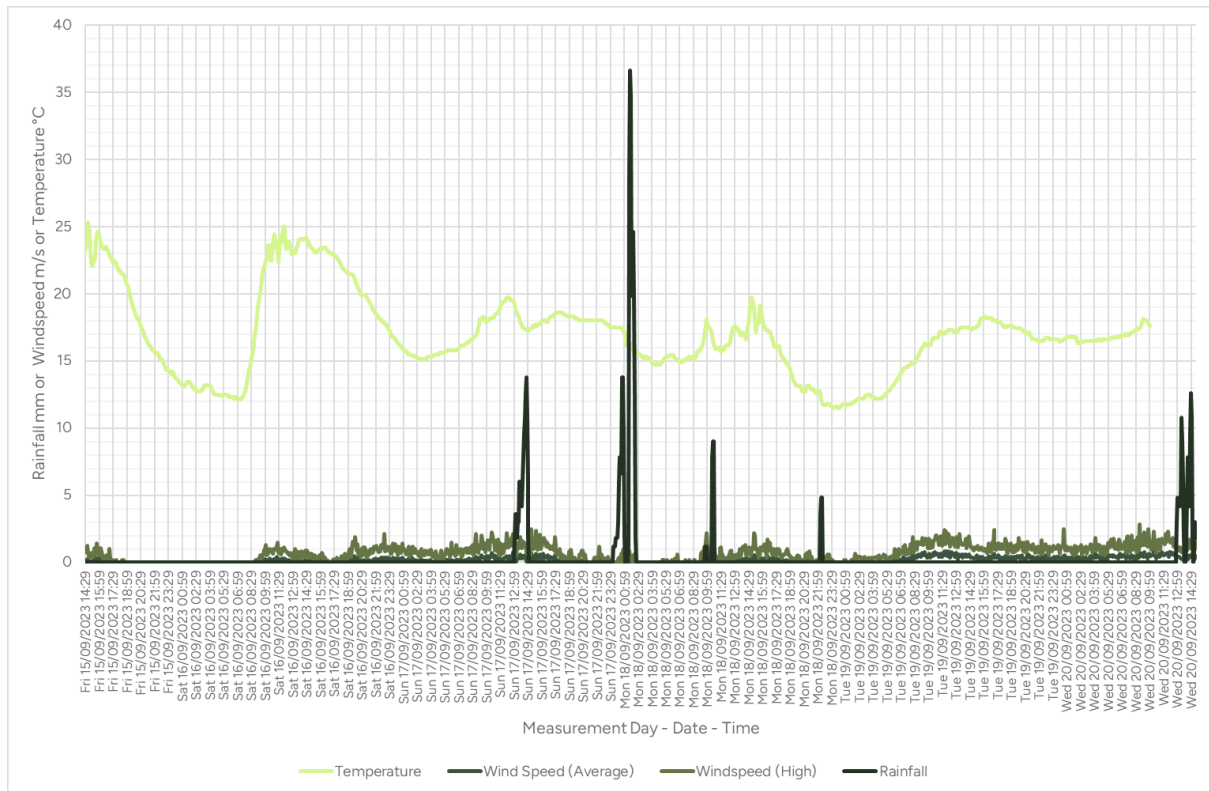


Figure C-3: Weather Time History Graph



Data referenced from local weather station¹ approximately 2 km away.

¹ <https://www.wunderground.com/dashboard/pws/IREADI3>





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