3.0 ENVIRONMENTAL NOISE SURVEYS

10. To determine the existing noise climate at the proposed development site and to establish existing noise levels at positions representative of the nearest noise sensitive dwellings, environmental noise surveys have been carried out by Red Acoustics. Measurements were undertaken at monitoring positions MP1 and MP2 for this purpose. The location of the monitoring positions is shown in Figure 3.1 below.

Figure 3.1: Environmental Noise Survey Positions

Figure 3.2: Survey Results MP1

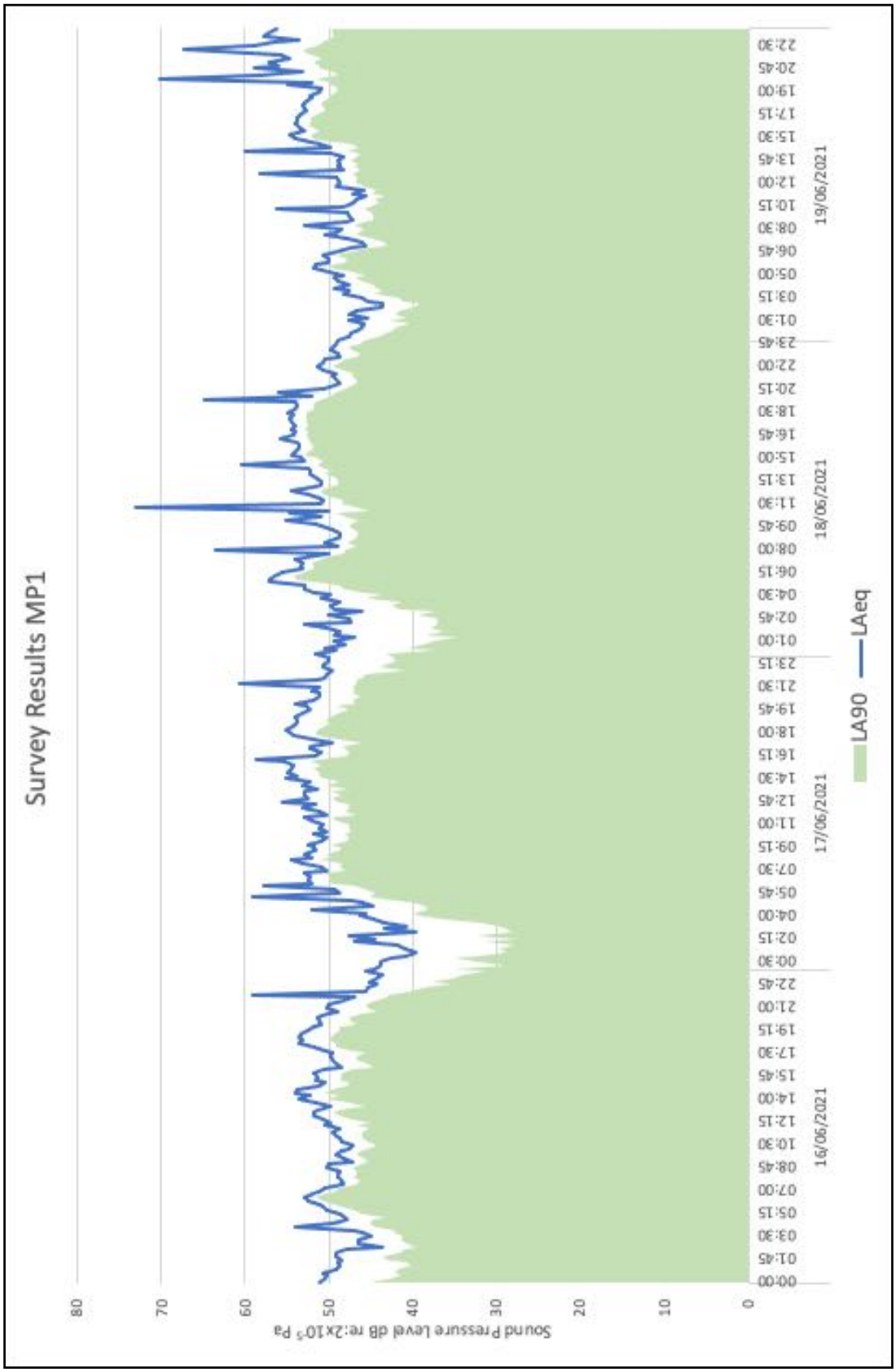

Figure 3.3: Survey Results MP2

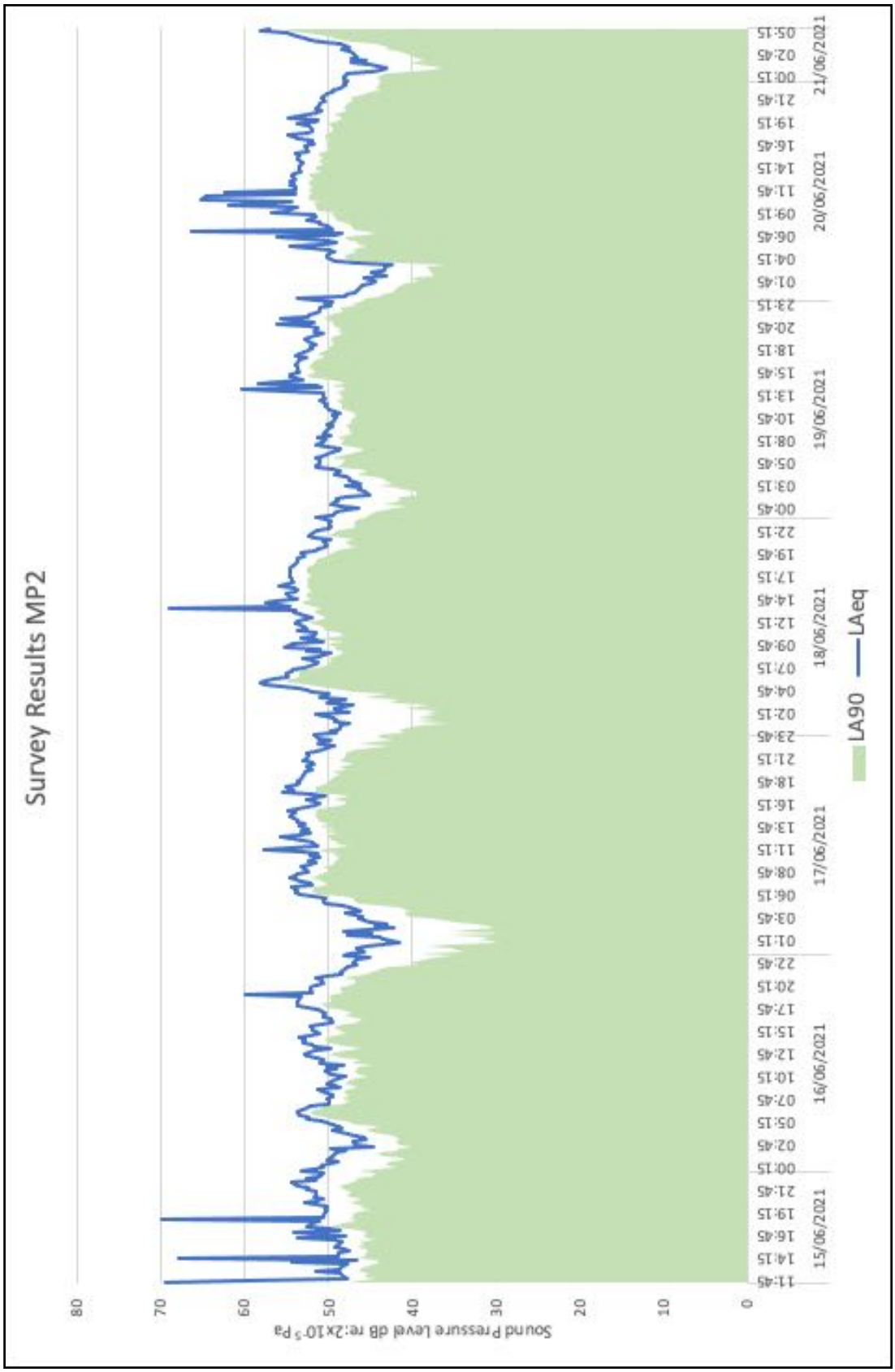

Table 3.1: Survey Summary Results

Location	Time Period	Level Range dB	
		$L_{Aeq,t}$	$L_{A90,t}$
MP1	Daytime (07:00 - 23:00)	44 - 73	35 - 53
	Daytime (08:00 - 20:00)	46 - 73 (Typically 52)	43 - 53 (Typically 49)
	Evening (19:00 - 23:00)	44 - 70 (Typically 53)	35 - 53 (Typically 48)
	Night-time (23:00 - 07:00)	40 - 59 (Typically 44)	28 - 54 (Typically 35)
MP2	Daytime (07:00 - 23:00)	47 - 70	39 - 56
	Daytime (08:00 - 20:00)	47 - 70 (Typically 53)	44 - 55 (Typically 50)
	Evening (19:00 - 23:00)	47 - 60 (Typically 52)	39 - 52 (Typically 48)
	Night-time (23:00 - 07:00)	42 - 58 (Typically 45)	29 - 57 (Typically 36)

11. The measured data presented above, along with the data summary enables typical existing noise levels at the site to be determined for time periods where operational activities would be expected to be taking place. These are used for comparison with predicted impact for such activities and to provide target noise limits in relation to plant items.

12. Measurement positions MP1 and MP2 were selected as suitable secure locations for long term measurement at positions representative of the most relevant NSPs, and being centrally located within the Site were likely to provide the lowest background sound levels as the site is more affected by road traffic at positions closer to the roads. Two positions were selected to show whether the levels of environmental noise were consistent due to noise from distant road traffic. On the basis that existing noise levels are expected to be higher at positions closer to the road traffic sources, including the location of the pavilion (which is in closer proximity to the A582), the use of these measurements to establish the background sound level is considered to be robust.

13. It can be seen in the summarised data presented in Table 3.1, that the measured noise levels at both positions are similar as the noise climate at the site is driven by the proximity of the busy local road network. The full 16 hour and 8 hour daytime and night-time periods have been summarised for clarity with this broken down into the typical 8am to 8pm daytime period when the majority of site activity would be expected to take place. Typical levels for the daytime period at positions representative of the nearest noise sensitive receptors are 52dBA L_{Aeq} and 49dBA L_{A90} during the daytime period. Evening levels for the site are typically 52dBA L_{Aeq} and 48dBA L_{A90}. Measured existing noise levels during the night time period when no on-site activity would be expected to take place but some plant items might be expected to operate are typically 44dBA L_{Aeq} and 35dBA L_{A90}.

4.0 NOISE PROPAGATION MODELLING

Noise Modelling

14. To predict noise levels from activities across the site, CadnaA 3D noise propagation modelling software has been used, which implements the calculation procedure specified within ISO9613-2.

15. The model has been calibrated using measured data held on file by Red Acoustics for the various noise sources used within the noise propagation model. Table 4.1 below presents the broadband sound power and internal noise levels utilised within the model. This is the combination of the octave band data for each noise source. In each case the sound power data is calibrated by measuring a representative noise source and using the CadnaA noise propagation software to calibrate the source as measured to the measurement position with the appropriate corrections for distance etc. Sound power data can then be used within the noise propagation model for the proposed development site to predict the likely noise impact from activities taking place.

16. In this case measured sound source data has been used for typical activities including:

- Match day noise levels from the Lancashire vs. Sussex Match held at Sedburgh School Cricket ground on 23rd July 2021[1]. The Sedbergh School Cricket pitch was ideally suited to undertaking representative match day noise monitoring as this location is remote from major roads and removes contamination from other environmental noise sources
- Old Trafford cricket ground practice nets
- Youth training activity measured at Energy Coast College (Workington)
- Coach movements at National Express coach station (Blackpool)
- Vehicle pass-by and door slam events held on file by Red Acoustics
- Restaurant service and activity levels held on file by Red Acoustics

17. The model was constructed by modelling the existing buildings, proposed buildings/facilities and the surroundings using Google Earth imagery, terrain height data from DEFRA/Environment Agency data sources, proposed height data and drawn details.

[1] Match day live stream - https://www.youtube.com/watch?v=Fr1Rc3rDY2c

18. The calibrated noise sources are then inputted into the built model and divided/duplicated into the relevant use scenarios. The model is then used to predict noise propagation across the proposed development site to the nearby existing receptors for each scenario. Appendix C presents a list of assumptions about the individual uses that are made within the model for each scenario.

Table 4.1: Sound Source Levels

Sound Source	Source Level Type	Sound Level dBA
Vehicle Pass-by	L_{WA}	85.8
Coach Pass-by	L_{WA}	95.1
Coach Accelerating	L_{WA}	93.0
Car Door Slam	L_{WA}	79.8
Pavilion Busy Food Service	L_{Aeq}	79.0
Cricket Pitch Busy Age Group Match/ Training Session	L_{WA}	63.7
Cricket Pitch Pre-match with Crowd Arriving	L_{WA}	72.4
Cricket Pitch During Match with Crowd	L_{WA}	68.0
PA Announcement	L_{WA}	97.8
Cricket Ball Hit on Pitch	L_{WA}	110.5
Batsman Using Cricket Nets	L_{WA}	86.7
Bowler Using Cricket Nets	L_{WA}	78.0
Person Talking Normally	L_{WA}	74.5
Person Talking with Occasional Raised Voice	L_{WA}	82.7

19. Appendix B presents the results of the modelling and predicted noise levels across the site. Predicted levels can then be compared to the existing measured typical levels on site to determine the level of impact that will be generated by the use of the proposed development site in each scenario.

5.0 POLICY CONTEXT & ASSESSMENT GUIDANCE

Planning Policy

National Planning Policy Framework

20. The National Planning Policy Framework (NPPF[2]) was updated in 2021 and sets out the Government's planning policies for England and how these should be applied. Where issues of noise impact are relevant the NPPF provides guidance. In paragraph 174 it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

    'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of noise pollution'.

21. Paragraph 185 also advises:

    'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: 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 quality of life'.

22. The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NSPE) which reinforces and supplements the NPPF guidance.

Noise Policy Statement for England

23. The Noise Policy Statement for England[3] (NPSE) sets out the long term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This vision is supported by the following aims:

- Avoid Significant adverse impacts on health and quality of life.
- Mitigate and minimise adverse impacts on health and quality of life.
- Where possible, contribute to the improvement of health and quality of life.

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[2] National Planning Policy Framework. Ministry of Housing, Communities & Local Government (2021)

[3] Noise Policy Statement for England - Department for Environment, Food & Rural Affairs (2010)

24. The NPSE describes the following levels at which noise impacts may be identified:

- 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.
- LOAEL - Lowest Observed Adverse Effect Level : This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL - Significant Observed Adverse Effect Level : This is the level above which significant adverse effects on health and quality of life occur.

25. According to the explanatory notes in the statement, where a noise level falls between LOAEL and a level which represents SOAEL then:

'all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur'.

Planning Practice Guidance on Noise

26. Planning Practice Guidance (PPG) - Noise[4] is an online www.gov.uk resource (last updated 2019) to provide additional guidance on the NPPF. It discusses:

- *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.*

27. In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, inline with the NPSE, no objective noise levels are provided although the PPG states that:

'the subjective nature of noise means that there is not a simple relationship between noise levels and impact on those effected. This will depend on how various factors combine in any particular situation'

28. Table 3.1 below summarises the PGG noise expose hierarchy.

[4] Planning Practice Guidance on Noise (https://www.gov.uk/guidance/noise--2). Ministry of Housing, Communities & Local Government

Table 3.1: Explanation of Noise Exposure Hierarchy - PPG

Perception	Examples of Outcomes	Increasing Effect Levels	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable 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
		Lowest Observed Adverse Effect Level	
Noticeable 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; closing windows for some of the time because of the noise. Potential for non-awakening sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. having to keep windows closed most of the time, avoiding certain activities during periods of intrusion. 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.	Significant Observed Adverse Effect	Avoid
Noticeable 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

Assessment Guidance - British Standard 4142

29. BS 4142:2014+A1:2019[5] presents methods for rating and assessing the potential impact of commercial and industrial sound upon noise sensitive receptors. In order to assess impact using BS 4142, the 'rating level' of the new sound source is compared with the existing contextual 'background sound level'.

- Typically, the greater this 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.
- 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 sound level, this is an indication of the specific sound source having a low impact, depending on the context.

30. The 'rating level' is determined by assessing the 'ambient sound level', distinguishing the 'specific sound level' from the 'residual sound level' and applying any sound specific penalties for acoustic features that would subjectively cause the sound to be perceived differently.

31. The 'specific sound level' of the commercial / industrial sound source is determined by either; measurement or calculation with regard to the appropriate reference time interval (for daytime or night-time periods). The standard requires separate analysis for daytime and night-time periods, evaluating the 'rating level' over an appropriate reference time interval (T_r) of: 1hr for daytime (07:00 - 23:00 hrs) and 15min for night time (23:00 - 07:00 hrs). The 'specific sound level' is defined as equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, *T* (determined either by calculation or deducting the measured 'residual sound level' from the measured 'ambient sound level').

32. 'Ambient sound' is defined as the totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far (The ambient sound comprises the residual sound and the specific sound when present).

33. 'Residual sound' is defined as the ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.

[5] BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

34. Where appropriate, a rating penalty can be applied to the specific noise level to account for the character of the noise, namely: tonality, impulsivity and intermittency. Such acoustic feature corrections can be added together linearly.

35. Tonality can be determined objectively (using adjacent third octave band analysis or the Joint Nordic method) or subjectively as described below:

- +2dB penalty: Just perceptible
- +4dB penalty: Clearly perceptible
- +6dB penalty: Highly perceptible

36. Impulsivity can be determined objectively (using Fast Fourier Transform analysis) or subjectively as described below:

- +3dB penalty: Just perceptible
- +6dB penalty: Clearly perceptible
- +9dB penalty: Highly perceptible

37. Where intermittency is present, a +3dB penalty can be applied. Where the acoustic feature characteristics are neither tonal nor impulsive, but are clearly distinguishable against the residual noise, a +3dB penalty can be applied.

BS8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

38. BS8233:2014 provides noise design targets for internal habitable spaces and gardens and these are summarised in Table 5.2 below.

Table 5.2: BS8223:2014 - Design Targets

Space	$L_{Aeq,16hr}$ (07:00 - 23:00)	$L_{Aeq,8hr}$ (23:00 - 07:00)	L_{Amax} (23:00 - 07:00)
Living Room & Kitchen	35dB	-	-
Dining Room & Study	40dB	-	-
Bedroom	35dB	30dB	≤45dB

39. For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dB $L_{Aeq,16hour}$, with an upper guideline value of 55dB $L_{Aeq,16hour}$ which would be acceptable in noisier environments. These levels are given as a time weighed 'average level' over the course of the full 16 hour daytime period (07:00 - 23:00)

Design Targets

40. Given the unique nature of the proposal, and that the development is taking place in an area of open farming land which has been partially developed by several residences, with road traffic noise being the main source of environmental noise, current guidance may be difficult to apply to the specific situation. It is therefore proposed that the site be assessed with consideration to the available guidance, existing site levels and the level of increase that the proposed development may cause in each of the scenarios assessed. It is accepted that for such a development within an open area of land that the introduction of the proposed facility will result in some noise impact which will vary depending on the use scenario and so noise propagation modelling has been used to provide the comparison with existing site levels and the predicted levels due to a given scenario.

41. It is proposed that items of fixed plant associated with the proposed development be assessed in line with the guidance in BS4142:2014+A1:2019 which is directly applicable to the specific sound sources of interest. It is therefore proposed that in line with this guidance that the operational plant items be targeted to achieve a level of 5dBA below the existing L_{A90} sound level at each of the relevant time periods so as to cause no impact to the nearby residences. This is presented as a design target at this stage in the design of the development, as plant items have not yet been specified.

42. It is however noted that a space within the lower ground floor of the pavilion building has been identified as a proposed indoor plant location with a single facade and door, as this is partially below ground level. It is further noted that external plant items may consist of 2no. Air source heat pumps. This design target is proposed therefore to be achieved in relation to any breakout through this door/facade and in relation to any externally mounted/venting plant items and it is proposed that the target be specified to the boundary of the nearest noise sensitive dwelling. Acoustic louvred doors and acoustic screening may be required once M&E design proposals are available.

43. Table 5.3 below presents the proposed design targets for externally mounted and vented plant items, and it is recommended that all internal and external plant be designed to achieve the proposed design targets. Plant noise target limits have been proposed in Table 5.3 for the relevant time periods of the day, evening and night when different plant items may be operating to enable specification and design of plant items and any acoustic mitigation measures. It is recommended that advice is sought from Red Acoustics during the design stage to ensure target noise levels will be met.

Table 5.3: Plant Noise Limits at Nearest Dwelling

	Measured Noise Levels & Target Noise Limits					
	Day Time (07:00 - 19:00)		Evening (19:00 - 23:00)		Night-time (23:00 - 07:00)	
Location	Typical Measured L_{A90}, dB	Target Noise Limit, dB L_{Aeq}	Typical Measured L_{A90}, dB	Target Noise Limit, dB L_{Aeq}	Typical Measured L_{A90}, dB	Target Noise Limit, dB L_{Aeq}
Nearest Noise Sensitive Facade	49	≤ 44	48	≤ 43	35	≤ 30

6.0 NOISE MODELLING PREDICTION RESULTS

44. Appendix B presents the results of the CadnaA noise propagation model for the various scenarios considered following discussion with the client and design team regarding the likely uses for the proposed development. In each case the variability in the number of noise sources that may be operating at different times of the day is likely to result in an inaccurate prediction of a 16 hour time weighted average level for the given daytime period. As a 16 hour level prediction which would typically be used for assessing noise impact (e.g to BS8233:2014 targets) may also be inappropriate to the type of use proposed, we have assessed each scenario to a typical worst case 1 hour period with all anticipated noise sources operating during this 1 hour period, with the assumptions presented in Appendix B. This results in a worst case assessment with actual real time levels expected to be lower than predicted.

45. The scenarios considered are, following discussion with the project development team, considered to be the typical worst case uses. These include:

- Typical day to day use of the facility including cars entering and leaving site with doors opening and closing, use of the cricket nets by LCCC team members, use of the main pitches for practice or youth age group sessions and daytime use of the pavilion.
- Typical 'match day' usage prior to commencement of the game, covering the larger (up to 5000 capacity) spectator capacity events including full use of the proposed parking facilities, coaches entering and leaving the site, the pre-match activity and associated crowd noise including PA system use.
- Typical 'match day' usage covering the larger (up to 5000 capacity) spectator capacity events including the match playing and associated crowd noise including PA system use.

46. In each case, predicted external levels and levels at the facades of the relevant noise sensitive properties have been predicted for comparison against the typical existing noise levels on site.

47. Appendix B presents the following figures detailing the predicted noise impact for each scenario:

- Figure B1 - B3: CadnaA noise propagation model results for a typical normal day with all predicted activity taking place within the 1 hour assessment period (typical worst case). This is broken down in each figure to show groups of NSPs in more detail. This is based on both pitches being used for supervised youth training activity (based on measured busy youth training session) with cricket ball hits at the creases, cars entering/leaving site with door slams, parents spectating and talking/shouting and cricket nets in full use (based on measured data at Old Trafford cricket nets).
- Figure B4 - B8: CadnaA noise propagation model results for a pre-match period with all predicted activity taking place within the 1 hour assessment period (typical worst case). This is broken down in each figure to show groups of NSPs in more detail. This is based on measured data for the pre-match period at Sedbergh Cricket Ground (Lancashire vs. Sussex) including crowd arriving and on pitch pre-match activity. The model includes PA announcements, player and spectator coaches arriving and departing as well as car park capacity being filled by cars arriving and pavilion in use for busy food service. The level can also be assumed for post-match activity.
- Figure B9 - B13: CadnaA noise propagation model results for worst case 1hr period during a match with all predicted activity taking place within the 1 hour assessment period (typical worst case). This is broken down in each figure to show groups of NSPs in more detail. This is based on measured data for the loudest 1hr match period at Sedbergh Cricket Ground (Lancashire vs. Sussex) including crowd and ancillary activity with an addition of +3dB to account for a doubling in sound energy due to larger crowd capacity (this is likely an over-compensation as the match itself remains the same however this results in worst case assumption).
- Figure B14: CadnaA noise propagation model results for specific assessment of use of the cricket nets only. This has been used to inform pre-application decisions on location of cricket nets. This shows the predicted noise level with 5m acoustic mitigation in place.

7.0 RECOMMENDATIONS

48. Based on the results of the noise propagation modelling, the following comments are made in relation to management of noise impact.

49. Following discussion with the client it is understood that the optimum location for the cricket nets has been identified as proposed. As a result of noise propagation modelling of this element a 5m acoustic barrier/fence has been proposed around the Northern, Western and Southern boundaries of the cricket nets to provide acoustic noise mitigation to the nearest NSPs. This is assessed from the proposed ground level at the location of the nets to provide protection to properties that are in the region of 1.5m higher in terms of ground level.

50. With regard to normal day to day operation, the noise impact is predicted to be 52dBA for the worst case 1 hour assessment period at the worst affected residential facade. The majority of residential facades are below this level as shown in Appendix B.

51. As the daytime L_{Aeq} is typically 52dBA, this is considered to be in line with the existing noise climate during a typical daytime period, and as activity is likely to be spread out over the course of the whole day, the actual impact is expected to be lower and no additional mitigation options are proposed.

52. In line with BS8233, which is not directly applicable, the 16 hour daytime external level is not expected to exceed targets.

53. With regard to cricket practice nets, the current proposed location incorporates a 5m barrier/fence to provide acoustic mitigation that results in the normal daytime use of the site being at or below the existing typical daytime noise level across the site.

54. With regards to pre-match activity for the larger capacity events, the main source of noise is activity on and around the pitch. The noise impact at the closest NSPs is 63dBA with the typical existing daytime level being 52dBA. This results in an increase of 11dBA on the existing noise levels. With regards to activity during the match for the larger capacity events, the main source of noise is activity on and around the pitch. The noise impact at the closest NSPs is 62dBA with the typical existing daytime level being 52dBA. This results in an increase of 10dBA on the existing noise levels. As the site is an outdoor venue, it is not practical to mitigate the impact using barriers. It is therefore proposed (through use parameters set out within the Planning Statement) to limit to the number of days that large events can

take place which in turn will be carefully managed (in line with the submitted Event Management Framework) to minimise noise impact.

55. With regards to match day and normal day to day activity that may take place in the pavilion building, noise impact predictions for each scenario incorporate noise breakout from this building. This level is below the existing noise levels and the typical daytime L_{A90} background sound level level. Impact is therefore predicted to be low subject to the following recommendations.

- The noise propagation model assumes that the pavilion windows are closed.
- The proposed drawn information shows that access to the pavilion space is via corridors from the pavilion entrances, providing a lobbied access that would prevent noise breakout to the external environment.
- It is further recommended that music noise limiters be incorporated into the design of the sound system to enable limits to be set for music noise as well as limiting music levels further should any external doors or windows be opened. Music limiting options will vary depending on the day to day operational requirements, and the type sound system to be installed and should be specified at the design stage. This could also be managed through conditions on a premises licence and the use of a noise management plan.
- The M&E design should account for cooling of the function space without the need for opening doors or windows to the external environment.
- Specific design details to give a minimum sound reduction from the building fabric should be specified in relation to the glazed, wall and roof elements to the external facades and roof of the building as necessary depending on the design of any sound system and limiting device. Additional sound reduction can be achieved from the ceiling at the design stage (e.g. Gyproc 15mm SoundBloc layers, CasoLine MF ceiling and acoustic hanger supports).

56. Basic assumptions have been made in the noise propagation model for the glazed elements based on the performance of a standard 4-12-6 double glazed unit and a lightweight thermal roof.

57. Table 7.1 below presents the minimum sound reduction performances assumed within the CadnaA noise model. It is recommended that design proposals be checked by Red Acoustics to ensure that the sound reduction performances have been met.

Table 7.1: Minimum Facade Element Performance Requirements

Facade Element	Octave Band Sound Reduction Performance Data dB (R)								
	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Pavilion Main Seating Area Roof	8	10	18	20	24	20	29	39	47
Pavilion Main Seating Area External Wall	15	21	22	40	53	60	63	74	74
Pavilion Main Seating Area Glazed Areas	15	21	22	40	53	60	63	74	74

58. With regard to the proposed PA system to be used during cricket match events, design details have not yet been developed. However, it has been assumed that a single PA location as observed at the Sedbergh cricket ground is proposed next to the pavilion. This has been assumed to be located in front of the pavilion at a height of 4m. It is recommended that options for the PA system be explored to provide the necessary coverage for announcements while minimising the impact to nearby residences. This may involve distributed, quieter PA positions or suitable positioning of a single location with high directivity towards the pitch and away from NSP locations.

8.0 CONCLUSIONS

59. An assessment has been undertaken to predict the level of noise impact from the proposed cricket facility at Woodcock Estate Farington. Noise impact has been predicted to the nearest noise sensitive properties and compared to the existing measured noise climate at the proposed development site.

60. It is concluded that the day to day operation of the site can be managed to a level at or below the existing noise climate however there will be noise impact associated with large capacity match days at the observed adverse effect threshold which in line with the Noise Exposure Hierarchy should be limited as far as is practicable. This is limited by controlling the number of events and suitable event management procedures being put in place.

61. Recommendations have been made during the design stage to reduce noise impact and further recommendations have been made in relation to managing, where practicable noise impact from the proposed development. It is recommended that all finalised design proposals in relation to the site, in particular the construction buildups for the external facades of the pavilion and the specification of the PA system are checked by Red Acoustics to ensure noise impact is minimised as far as is practicable.

62. Plant noise target limits have been set in accordance with the relevant applicable guidance to inform the M&E design and specification process. It is recommended that design proposals are checked by Red Acoustics to confirm compliance with the proposed target noise limits.

APPENDIX A: NOISE SURVEY DETAILS

Location

Woodcock Estate, Farington

Survey Dates

15 - 21 June 2021 - Farington Site

23 July 2021 - Lancashire vs. Sussex Cricket Match Source Level Assessment

25 January 2021 - Old Trafford Practice Nets Source Level Assessment

Weather

Dry with light cloud and wind speeds <5m/s.

Personnel Present During Measurement Set-up

Johnathan Whittle AMIOA MCIEH (Environmental Surveys)

Simon Webster BEng. (Hons) MIOA (Source Level Measurements)

Instrumentation

Kit No	Equipment Description	Type Number	Manufacturer	Serial Number	Date of Last Calibration	Calibration Certificate Number
RED04	Sound Level Meter	CR:171B Type 1	Cirrus	G081108	21-Aug-20	145222
	Sound Calibrator	CR:515 Type 1	Cirrus	88023	21-Aug-20	145224
RED11	Sound Level Meter	Type 140 Type 1	Norsonic	1402968	29-Jul-19	U32441
	Sound Calibrator	Type 1251 Class 1	Norsonic	34390	21-Aug-20	35531

Methodology

Before and after the measurements, the sound level meters were check calibrated to an accuracy of ±0.3dB using their associated Class 1 Calibrators. No drift in the instruments' sensitivities were noted across any of the survey periods.

Calibration Certificates

Copies of all calibration certificates are kept on file by Red Acoustics Ltd and can be supplied if requested.

APPENDIX B: CADNAA NOISE MODEL OUTPUTS

Figure B1: Proposed Cricket Facility, Farington
Typical Day

Predicted LAeq,1hour dBA
Typical Worst Case

- >= 0.0
- >= 40.0
- >= 42.0
- >= 44.0
- >= 46.0
- >= 48.0
- >= 50.0
- >= 52.0
- >= 54.0
- >= 56.0
- >= 58.0
- >= 60.0
- >= 62.0
- >= 64.0
- >= 66.0

Notes:

Typical Existing Daytime LAeq,t = 52dBA
Typical Existing Daytime LA90 = 49dBA

Based on noise sources operating simultaneously all occurrences taking place during 1 hour assessment period however these may actually take place during different periods throughout the day resulting in lower levels than predicted.

See Appendix B for activity assumptions.

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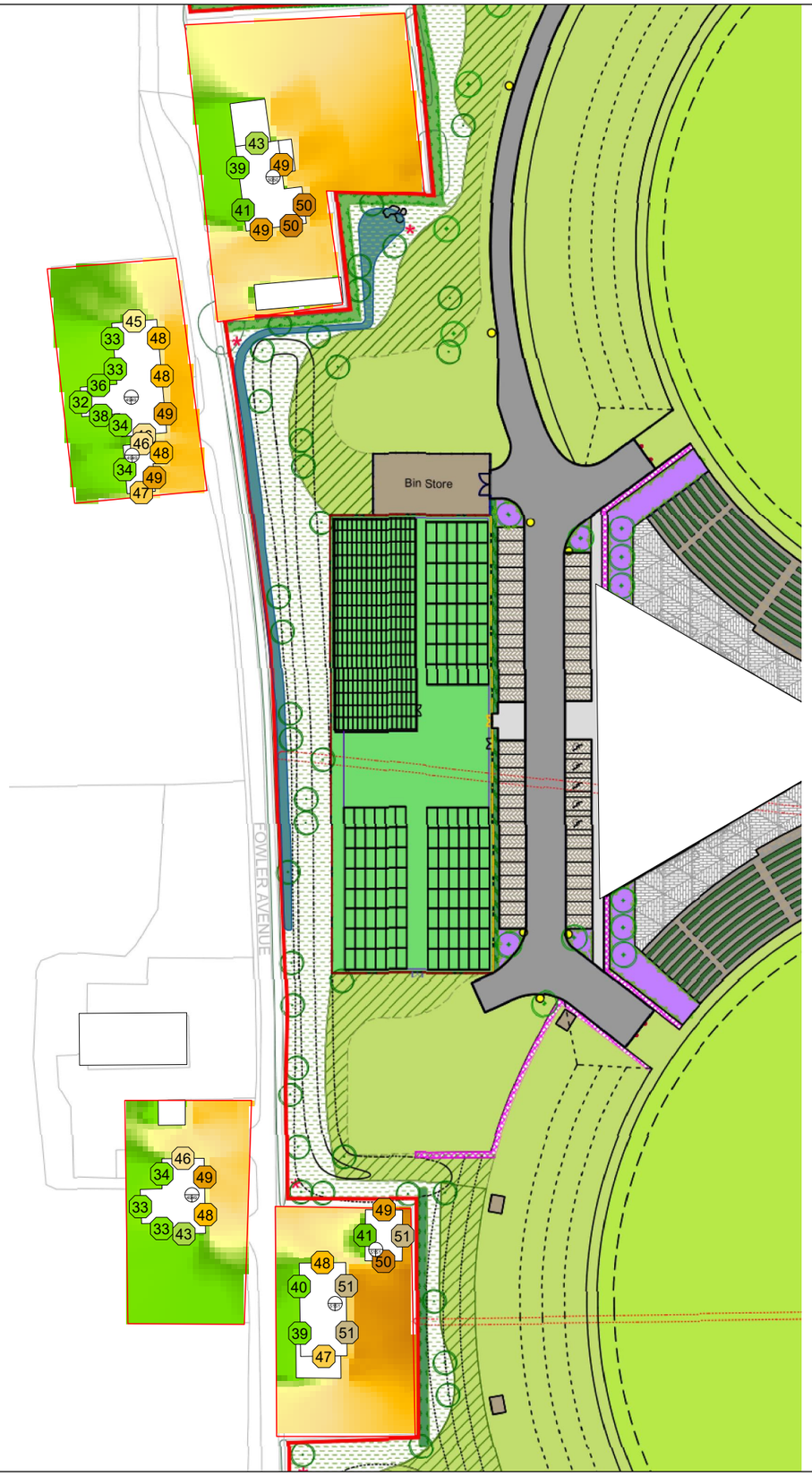

Figure B2: Proposed Cricket Facility, Farington Typical Day

Predicted LAeq,1hour dBA
Typical Worst Case

- >= 0.0
- >= 40.0
- >= 42.0
- >= 44.0
- >= 46.0
- >= 48.0
- >= 50.0
- >= 52.0
- >= 54.0
- >= 56.0
- >= 58.0
- >= 60.0
- >= 62.0
- >= 64.0
- >= 66.0

Notes:

Typical Existing Daytime LAeq,t = 52dBA
Typical Existing Daytime LA90 = 49dBA

Based on noise sources operating simultaneously all occurrences taking place during 1 hour assessment period however these may actually take place during different periods throughout the day resulting in lower levels than predicted.

See Appendix B for activity assumptions.

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