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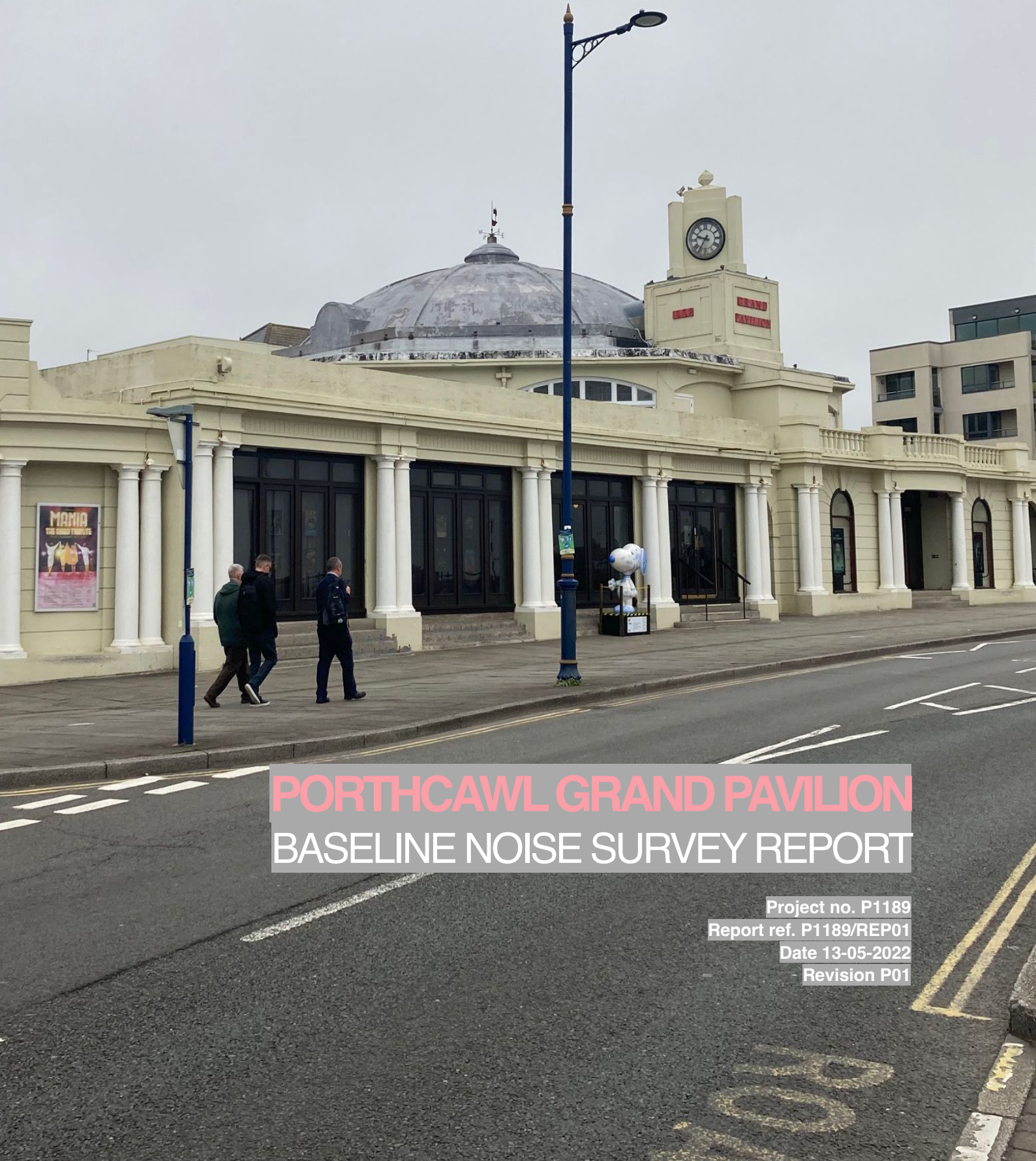
STRAIGHTFORWARD ACOUSTIC DESIGN



PORTHCAWL GRAND PAVILION

BASELINE NOISE SURVEY REPORT

Project no. P1189
Report ref. P1189/REP01
Date 13-05-2022
Revision P01

FORMANT.
STRAIGHTFORWARD ACOUSTIC DESIGN

CONTENTS

REVISION HISTORY

Date	Revision	Notes
13/05/2022	P01	For information

EXECUTIVE SUMMARY

Formant has been appointed to undertake a baseline noise survey in connection with the proposed refurbishment and extension of the existing Grand Pavilion in Porthcawl. The proposed development comprises the refurbishment of the existing building and a new extension housing an auditorium and new building services plant. The proposed development has the potential for adverse noise impacts on nearby noise sensitive receptors (NSRs), which are located to the west, north and east of the existing building. The venue itself will also be sensitive to environmental noise break-in.

BASELINE SURVEY RESULTS

The most significant noise source at the site is traffic on the Esplanade, resulting in ambient sound levels of around 63 dBL_{Aeq} at the front of the site and around 55 dBL_{Aeq} towards the rear. Background sound levels were affected by traffic noise and waves on the sea, ranging from 45 dBL_{A90} at night up to 52 dBL_{A90} during the day.

Music noise break-out from the existing auditorium was measured and was clearly audible at NSRs to the north. The measured levels exceed the limits in nearly all relevant guidance documents.

Room acoustic measurements were undertaken in the existing auditorium and they showed significant issues with room acoustic anomalies such as focussing and flutter echoes.

DESIGN IMPLICATIONS

Music break-out from the existing auditorium should be reduced. Key issues to address are:

a) Flanking via the existing auditorium ventilation system
b) The sound insulation of the auditorium windows
c) A weakness at the rear of the stage where it overhangs above the LG floor level.

Design criteria for noise break-out from the new Studio Theatre are proposed, taking account of the range of relevant guidance documents. The limits have informed some initial design guidance on the building envelope sound insulation.

Noise break-in to the existing building and the new studio theatre will be adequately mitigated by the measures described above for controlling music break-out. Therefore no extra-over costs are anticipated to address this particular issue.

Initial guidance has been provided on improving the room acoustic conditions in the existing auditorium and this will need further investigation/development during Stage 2.

Plant noise emissions limits have been set and no extra-over costs are envisaged above the standard screening/attenuation measures one would expect on a building of this nature.

1 INTRODUCTION

Formant has been appointed to review the potential noise impacts arising from the proposed refurbishment and extension of the Grand Pavilion, Esplanade, Porthcawl CF36 3YW. The project involves changes to the internal spaces and the existing building fabric, as well as a new extension to the rear of the building housing a new Studio Theatre, co-working spaces and bar/foyer/offices. The existing building services plant will also be overhauled as part of the project.

The proposed development has the potential to result in adverse noise impacts for noise sensitive receptors (NSRs) outside the site in term of music break-out and plant noise emissions. The environmental noise levels at the site also have the potential to affect the use of the proposed development.

Formant has undertaken a baseline noise survey at the site and benchmarking measurements of a simulated live music event in the existing auditorium. The results of these measurements will be used to inform a future noise impact assessment for the proposed development.

This report provides:

1) A description of the proposed development and its potential noise impacts.
2) A summary of applicable legislation, policy and guidance.
3) Details of the baseline noise survey and benchmarking tests undertaken at the site.
4) Analysis of the measurement results and guidance on the next steps in acoustic design.

2 PROPOSED DEVELOPMENT

2.1 EXISTING SITE

The existing site comprises a purpose-built arts/entertainment venue which was constructed in the 1930s. The building has operated as a live music venue throughout this time and we understand from conversations with the Local Authority EHO, that it has not been subject to any complaints from neighbours about music break-out (copies of the email communications are provided in the Appendix to this report).

The building comprises a concrete frame domed auditorium with a foyer/café running along its front elevation and car parks to the rear. The site is bounded by the Esplanade to the south, with the public footpath and the beach beyond that. Residential properties on Esplanade Avenue and Mary St form the northern boundary of the site and further residential properties are located on the opposite side of Esplanade Avenue and Mary St to the west and east respectively.

The Esplanade is a fairly busy local road and bus route, whereas Esplanade Avenue and Mary St are fairly quiet local access roads. No other significant noise sources are located in proximity to the site, but waves on the sea do provide a contribution to the underlying background sound levels.

A site location plan of the existing site is provided in Figure 1 overleaf, including a mark-up of the location of nearby residential NSRs and the measurement positions used in the noise survey (MP1-10).

2.2 PROPOSED DEVELOPMENT

REFURBISHED AREAS

The proposed refurbishment will not involve any fundamental changes to the use of the venue, i.e. it will remain as a community arts/entertainment hub and live music venue. The days and hours of operation and the types of event are also expected to remain largely the same as the existing venue. This means that live music events will typically not continue beyond 23:00 hrs, but as per the existing licence, live music is permitted until midnight, with recorded music permitted until 01:00 hrs.

The existing building envelope will be improved for both thermal and acoustic reasons. The specific improvements have not been determined at this stage, and the results of the noise survey will be used to identify key areas requiring improvements. It is important to note that there may also be historic building constraints which could restrict upgrade options in some areas.

The room acoustic conditions in the main auditorium will also require attention during the refurbishment because the existing space suffers from acoustic anomalies due to the domed roof, hexagonal plan and lack of acoustic surface finishes.

NEW EXTENSIONS

The design of the proposed extensions is not finalised at this stage but it is understood to house a new Studio Theatre to the east of the existing auditorium, with co-working spaces and associated spaces. The café/function space along the road frontage will also be expanded back over the existing car park to the north.

NEW BUILDING SERVICES PLANT

The proposed development will feature new building services plant which has the potential to cause adverse noise impacts for nearby NSRs. The location of the plant is not finalised but it is anticipated that significant items may include air-handling units (AHUs) on the eastern side of the building to supply air to the new Studio Theatre and air-source heat-pumps (ASHPs) to provide heating/cooling.

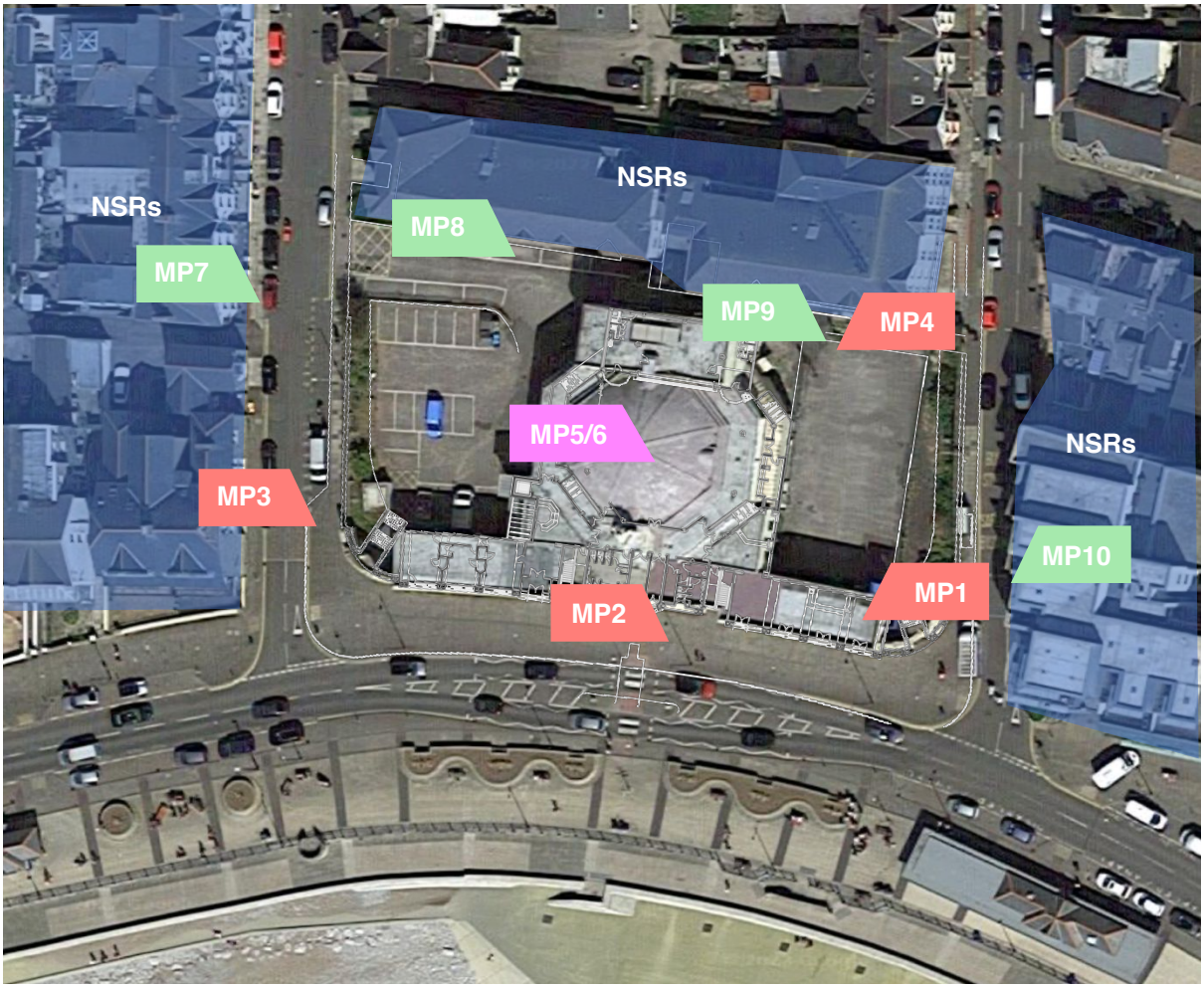


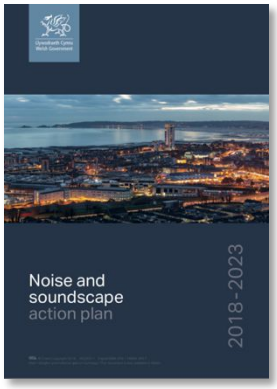
Figure 1 Site aerial view showing nearest noise sensitive receptor locations (NSRs), external ambient measurement positions (MP1-4), internal measurement positions (MP5-6) and music noise break-out measurement positions (MP7-10).

3 LEGISLATION, POLICY AND GUIDANCE

3.1 NATIONAL AND LOCAL POLICY

PLANNING POLICY WALES (PPW)

The Government's planning policies for Wales are contained in Planning Policy Wales (2018, updated Feb 2021). The policy provides overarching requirements for developments to adequately control noise pollution, to provide appropriate soundscapes and to incorporate good acoustic design.



NOISE AND SOUNDSCAPE ACTION PLAN

PPW is supplemented by the Noise and Soundscape Action Plan 2018-2023, which provides more detailed guidance on planning for a new development. The guidance has been used to when considering the context of the soundscape at the site in connection with event noise in a town centre location.

TECHNICAL ADVICE NOTE 11 (TAN11)

TAN11 sets out the Welsh Assembly Government's policies on noise-related planning issues. It sets out the policy context for the management of noise within the planning system, covering both noise-generating developments and noise-sensitive developments.

CONSULTATION WITH THE LOCAL AUTHORITY

Paul Driscoll of Formant consulted Emma Aston (Environmental Health Officer at Shared Regulatory Services) by telephone and follow-up email on 04 May 2022, regarding the methodology to be used to assess potential noise impacts. A copy of the consultation emails is provided in Appendix A to this report.

3.2 GUIDANCE

NOISE BREAK-IN

BS 8233:2014 ***Guidance on sound insulation and noise reduction for buildings*** provides a method which has been adopted for calculating noise break-in to the proposed development, however it does not contain design criteria for this type of building. On the basis that no legislative or policy requirements exist the provision of suitable design criteria have therefore been based on industry best practice and past project experience rather than a specific guidance document.

MUSIC BREAK-OUT

There is no one specific guidance document which provides a methodology for assessing entertainment noise from this type of development. Therefore guidance from various related documents has been considered:

- **The Noise Council's** ***Code of Practice on Noise Control for Concerts*** **(The Code)** was written to provide guidance on *"large music events involving high powered amplification ... held in sporting stadia, arenas, open air sites and within lightweight buildings".* Whilst some of the guidance contained within The Code is relevant, the document was not intended for local theatres and arts centres with regular events. However The Code's noise criteria for <12 events per year are a useful in assessing the magnitude of noise impact arising from the existing venue.

- **The IOA's** ***Good Practice Guide*** **(The IOA Guide)** provides guidance for the assessment and control of noise affecting noise-sensitive properties, from the public and private use of public houses, clubs, hotels, discothèques, restaurants, cafés, community or village halls and other similar premises. The IOA Guide states that its original intention was to include objective noise criteria, however it was not possible to subject the new criteria to a satisfactory validation process. Instead it focusses on music noise being 'inaudible' within NSRs. However, inaudibility is subjective and is therefore not a practical criterion for the design-stage assessment of proposed new buildings. The IOA Guide provides a list of mitigation measures to be considered at the design stage for new premises and these have been considered in this assessment. It also includes guidance on music noise criteria (albeit in an unpublished annex) which has been considered when assessing noise from the existing venue.

- **The IEMA Guidelines** provide a method for assessing the change in sound level at a NSR location as a result of a proposed development. The metrics relate to well established human responses to noise, but not specifically to music or entertainment noise. However they are considered a useful guide for assessing the relative *change* arising from the event noise in the venue.

PLANT NOISE

BS 4142:2014 ***Methods for Rating Industrial and Commercial Sound*** has been adopted as the method to assess potential noise impacts from M&E plant associated with the proposed development.

4 BASELINE NOISE SURVEY

4.1 MEASUREMENT METHODOLOGY

A baseline noise survey was undertaken by Formant between 05-09 May 2022. Attended short-term measurements were made between 10:30-13:30 hrs on 04 May 2022 at three locations around the site (MP2-4). An unattended noise logger was left running at the site at position MP1 between 05 and 09 May 2022. Additional measurements of music noise break-out from the auditorium were made on 09 May 2022, with measurement positions inside the building (MP5-6) and at each of the nearby NSR locations (MP7-10). All measurement positions are shown in Figure 1.

All external measurements were taken at approximately 1.5 metres above local ground/floor level, and in line with BS 7445:2003 *Description of Environmental Noise*. Unless otherwise stated in the results, measurements were made at a distance of at least 3 metres from the façade of buildings or any other reflecting surfaces and are considered representative of free field conditions.

The weather conditions during the attended survey were generally overcast and mild with no precipitation or perceptible wind. Some periods of rainfall may have occurred during the unattended noise survey but in general the weather conditions did not adversely affect the noise measurements and the results are considered to be representative of 'typical' conditions at the site.

4.2 EQUIPMENT

All measurement equipment owned or hired and operated by Formant has annual or bi-annual calibration checks carried out by external companies traceable to UKAS or national standards. Copies of all calibration records are kept and can be provided upon request. The following measurement equipment was used to conduct the survey:

- Nti XL2 Class 1 Sound level meter, SNo. A2A-18665-E0,
- Nti Larson Davies CAL200 Calibrator, SNo. 18652

4.3 ACOUSTIC PARAMETERS

Four noise metrics are relevant to this assessment:

L_{Aeq} Time averaged sound pressure level. It is generally considered to be an acceptable representative descriptor of environmental noise.

L_{AFmax} The maximum sound pressure level measured during each measurement time period. It represents the level of the single loudest event which occurred during the measurement.

L_{A90} The level exceeded for 90% of the measurement period. This is generally considered to be an acceptable descriptor of the underlying background noise level.

4.4 DESCRIPTION OF EXISTING SOUNDSCAPE

In general, the existing ambient sound levels around the site are dominated by traffic on the Esplanade. Background sound levels are affected by the noise of waves on the sea and by distant road traffic around the town. The nearby NSRs to the west and east are exposed to traffic on the Esplanade to a similar degree as the Grand Pavilion, whereas the residential properties to the north are partially screened by the existing Grand Pavilion building. The soundscape at each measurement position is described in the table below, along with the measurement results.

4.5 MEASUREMENT RESULTS

The key results at each position are shown in the table below and in the time history graph in Figure 2.

Location/Time	Time	Period T	$L_{Aeq,T}$ (dB)	$L_{Amax(F)}$ (dB)	$L_{A90,T}$ (dB)	Photo
MP1 Unattended logging position on roof of existing building, southeast corner of site, representative of NSRs on corner of Mary St and the Esplanade.	Day	12h	**58**	91	52	
	Eve-ning	4h	**56**	83	50*	
	Night	8h	**50**	93	45	
MP2 In front of main entrance, approx. 5 m from edge of the Esplanade. Soundscape dominated by road vehicles, pedestrians, activity within the café and low level building services noise from the Pavilion building itself. Noise from waves on the sea occasionally just audible.	09:12	15m	**63**	73	50	
MP3 Southwest corner of Grand Pavilion site, representative of NSRs on Esplanade Avenue. Soundscape dominated by traffic on the Esplanade (approx. 20 m away) as well as lower vehicle numbers on Esplanade Avenue (approx. 2.5 m away).	09:28	15m	**59**	75	47	

Location/Time	Time	Period T	$L_{Aeq,T}$ (dB)	$L_{Amax(F)}$ (dB)	$L_{A90,T}$ (dB)	Photo
MP4 Northeast corner of Pavilion site, representative of NSRs on Mary St to the north. Soundscape totally dominated by noise of existing kitchen extract plant on the Pavilion building, approx. 15 m away from measurement position.	09:49	7m	**59**	68	58	
MP7 Music break-out measurement at location of western NSR. Soundscape was dominated by traffic on the Esplanade, with low/mid frequency music just audible. Waves on the sea just perceptible in gaps between traffic. 3 cars passed on Esplanade Ave close to the measurement position.	10:39	3m	**55**	65	51	
MP8 Music break-out measurement in the Pavilion west car park, close to the northern NSRs. Music break-out dominated, especially at low/mid frequencies. Weak points in building envelope appear to be external vent grilles, auditorium windows and the stage overhang on the north elevation.	10:49	3m	**55**	64	52	
MP9 Music break-out measurement in the eastern car park of the Pavilion, at the location of northern NSRs. Soundscape as per the measurement at MP8.	10:56	3m	**58**	64	56	

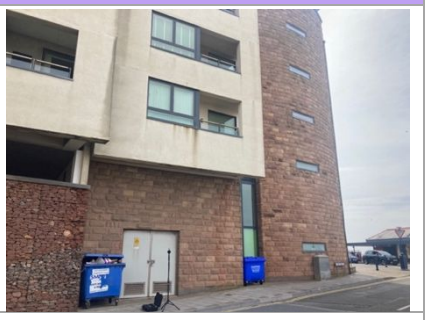
Location/Time	Time	Period T	$L_{Aeq,T}$ (dB)	$L_{Amax(F)}$ (dB)	$L_{A90,T}$ (dB)	Photo
MP10 Music break-out measurement at the location of NSRs on Mary St. Soundscape as per the measurement at MP7.	11:00	3m	**63**	74	53	
Notes: *The modal average during evening hours was 56 dB but this appeared to be due to plant noise from the Pavilion during a performance, therefore these figures have been removed from the data.						

Table 1: Noise survey results summary

4.6 INTERNAL MUSIC LEVELS

Typical 'noisy event' levels were simulated within the venue using the in-house sound system operated by the client (Awen Cultural Trust). The source noise was a music track which is typical of the type and level of music performed at the venue (as selected by the client).

The music was played on a loop in order to ensure that the measurements at each NSR location were repeatable and contain a consistent sound level regardless of when the track starts or stops. With the music playing, the internal sound pressure levels were measured with a spatial average around the ground floor of the auditorium (MP5 on the plan in Figure 1) and a fixed point in the lower ground floor flexible space (MP6 on the plant in Figure 1).

The octave band frequency results of the measurements were as follows:

Position	Sound pressure level, Leq (dB) Octave band centre frequency (Hz)								Overall A-weighted sound pressure level (dB)
	63	125	250	500	1000	2000	4000	8000	
MP5 (Auditorium)	106	106	96	95	97	95	90	86	101
MP6 (LG floor beneath auditorium)	85	70	51	44	40	38	33	26	60

Table 2: Internal noise measurement results during live music simulation

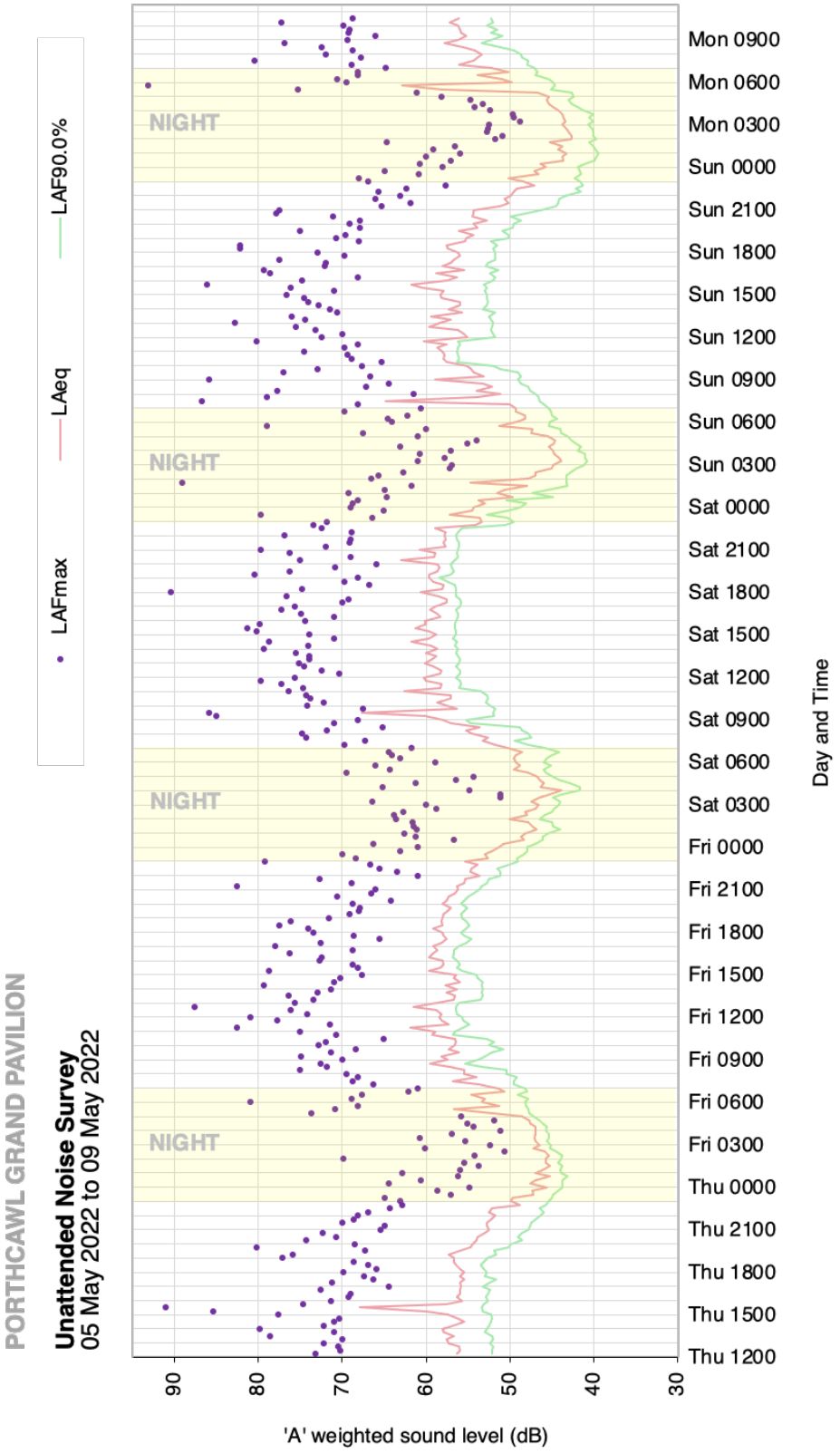


Figure 2: Time history graph showing the results from the unattended noise logger

4.7 ROOM ACOUSTIC MEASUREMENTS

In addition to the noise measurements, a series of reverberation time measurements were made in the main auditorium. An impulsive pink noise source was used on the stage, and three individual measurements were made at each of 8 receiver positions around the ground floor and balcony level of the auditorium. The results are shown in the graph below:

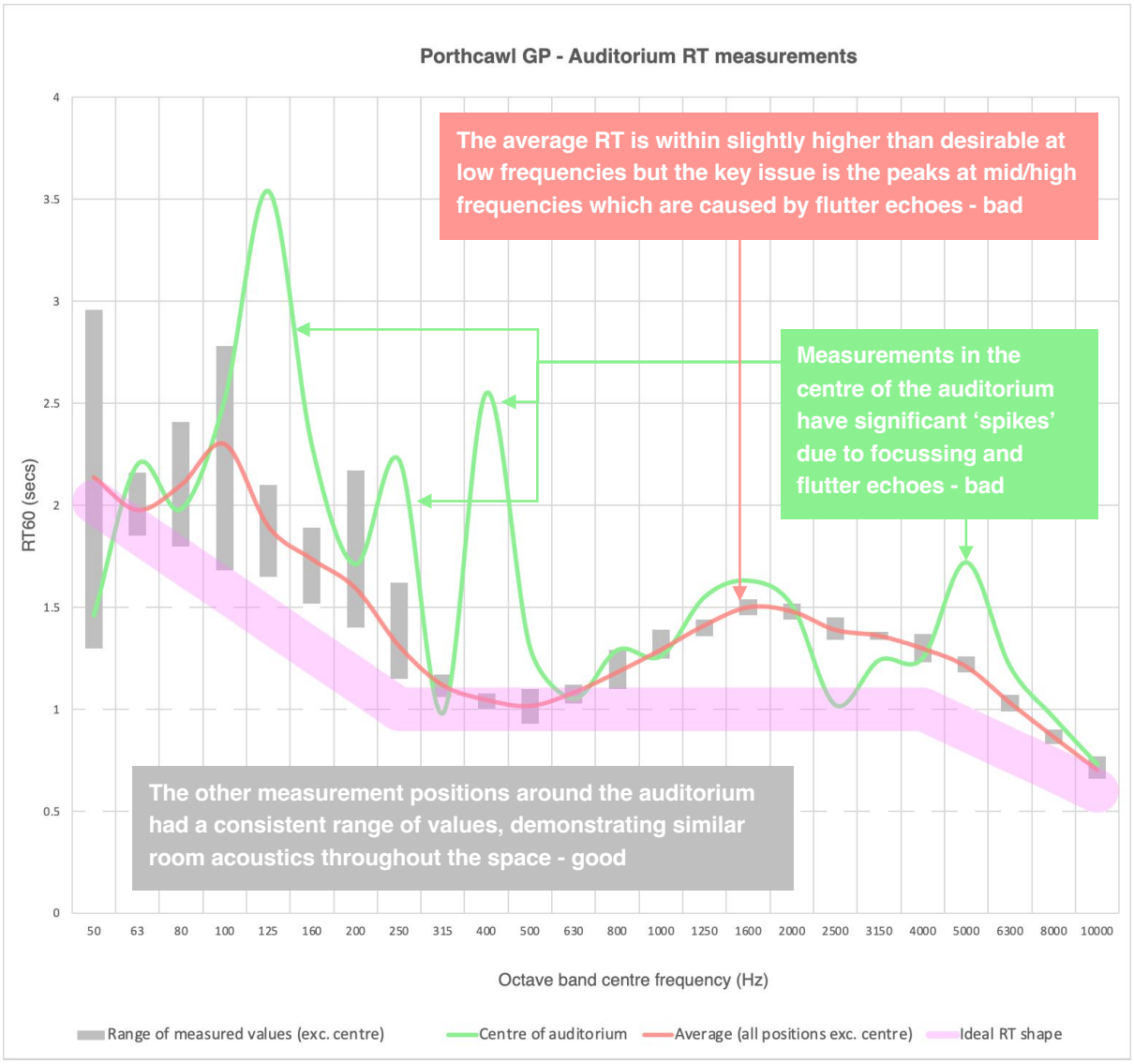


Figure 3: Auditorium room acoustic measurement results

5 ANALYSIS OF SURVEY RESULTS

5.1 EXISTING BUILDING MUSIC BREAK-OUT

CALCULATING THE MUSIC NOISE LEVEL (MNL)

The MNL excludes all other environmental noise at the site, and this can be tricky to measure in practice because one cannot isolate the different sources of noise when making a measurement.

However, the music break-out measurements at MP8 and MP9 (58 and 55 dBL_{Aeq} respectively) were both subjectively considered to be dominated by music noise, therefore conservative worst-case approximation is that the MNL would be the same as the measured ambient levels. For the purposes of an initial assessment, we have therefore considered the following levels:

- **MNL outside NSRs: 58 dBL_{Aeq}**
- **MNL inside NSRs:**
  - **43 dBL_{Aeq} (windows open)** and
  - **33 dBL_{Aeq} (windows closed, trickle vents open)**[1]

ABSOLUTE MUSIC LEVELS AT NSRs

We have compared the approximate MNLs to the BS 8233 indoor noise criteria for new-build residential properties and to the IOA Good Practice Guide's 'just unacceptable' level for music inside dwellings. The results of the comparison are shown below:

Guidance	Criteria L_{Aeq} (dB)	Approximate MNL inside NSR, L_{Aeq} (dB)			
		Windows open	Comparison with criteria	Windows closed	Comparison with criteria
BS 8233 (daytime)	35	43	+8	33	-2
BS 8233 (night time)	30		+13		+3
IOA GPG '*just unacceptable*' level	34		+9		-1

Table 3: Comparison between predicted MNL inside NSRs and various guidance documents

The comparison shows that the MNL inside the NSRs significantly exceeds the relevant guidance when the windows are open, but is closer to the design criteria when they are closed. However with the background noise levels being fairly low at the site, the music may still be audible, hence it is necessary to also consider the external levels relative to the background levels.

MNL COMPARED TO EXISTING SITE SOUND LEVELS

One method which takes account of the existing site soundscape is to calculate the *change* in ambient noise level when a music event takes place. To do this, the external MNL is logarithmically added to the measured ambient noise levels at MP1 and then compared with the ambient level. The results of the calculations are shown below:

[1] Assumes approx. 15 dB reduction through a partially open window and approx. 25 dB reduction through a closed double-glazed window with an open trickle vent.

Time period	Ambient sound level, L_{Aeq} (dB)		
	Music OFF	Music ON	+/- change
Day (0700-1900 hrs)	58	61	+3
Evening (1900-2300)	55	60	+5
Night (2300-0700)	50	59	+9

Table 4 Summary of music measurement results and change in sound levels at worst-case NSR

The +/- change can be compared with the IEMA Guidelines, which indicate:

- a '*noticeable change*' during daytime and evening hours, indicating a '*moderate impact*' and
- '*up to a doubling of loudness'* during night time hours, indicating a '*substantial impact*'.

The MNL can also be compared with thresholds in The Code of Practice and the IOA Good Practice Guide Annex, both of which are relative to the background levels at the site. However it is important to note that The Code is only intended for occasional concerts and the GPG Annex was never published, arguably because it is overly onerous for existing venue operators to comply with. Nonetheless, for information, the comparison is shown below:

Time period	Background level, L_{A90} (dB)	External MNL, L_{Aeq} (dB)	MNL - Background	Comparison with The Code thresholds	Comparison with IOA GPG Annex thresholds
Day	52	58	+6	Complies with 'Up to 12 concerts per year' threshold.	Just exceeds threshold for <30 events per year
Evening	50	58	+8	Complies with 'Up to 12 concerts per year' threshold.	Exceeds all GPG thresholds.
Night	45	58	+13	Complies with 'Up to 12 concerts per year' threshold.	Significantly exceeds all GPG thresholds.

Table 5 Summary of music measurement results and change in sound levels at worst-case NSR

SUMMARY OF EXISTING MUSIC NOISE IMPACT

Although the EHO has not cited any complaints about noise from the venue, there are significant sound insulation weaknesses in the building envelope and these lead to music from the auditorium being clearly audible outside the northern NSRs.

The music levels have been compared to various relevant guidance documents and they all point towards potentially significant adverse noise impacts for nearby NSRs, especially at night time and when NSR windows are open.

On this basis we conclude that the refurbishment should aim to reduce the levels of music break-out by targeting the weakest parts of the building envelope. These have been initially identified as:

a) the ventilation openings on the rear/side walls of the auditorium
b) the auditorium windows and
c) the overhang at the rear of the auditorium stage.

During the next stage we will work with the architect to identify design solutions to upgrade these areas.

Once these issues have been addressed, along with the removal of noise from the existing kitchen extract and the construction of the new extension, we would expect a significant reduction in noise impacts from plant noise and music break-out for all nearby NSRs. However it may not be possible to achieve 'new-build' standards of noise attenuation, and some degree of audible music break-out may still occur at the NSRs.

5.2 NEW EXTENSION MUSIC BREAK-OUT

In order to provide the client with the maximum flexibility, we propose to design the building envelope of the new studio theatre to enable compliance with the IOA Good Practice Guide Annex figures for entertainment > once/week or continues beyond 2300 hrs. This would result in noise criteria at NSRs of **MNL ≤45 dB.**

The IOA Annex also includes a guideline that the MNL should not exceed L_{90} in any 1/3 octave band between 40-160 Hz. This is not a practical criterion to adopt for the design of the building envelope because of the difficulties in assessing material sound insulation with that level of detail/accuracy. Instead we propose a simplified criterion based on the low frequency MNL in the 125 Hz octave bands being at least 10 dB below the measured ambient levels in that octave band. **The low frequency criteria would therefore be MNL <52 dB$L_{eq,125Hz}$.** This is an onerous level and may not be practically achievable with NSRs in such close proximity to the new building, but it is suitable as an initial design target.

To achieve the above criteria, we estimate that **the Studio Theatre building envelope will need to provide sound insulation performance of around R_w 65 dB overall and R_{125Hz} 50-55 dB at low frequencies.** This level of performance will likely require significant mass and air voids within the external walls and roof build-ups. We will work with the architect and structural engineer in Stage 2 to develop options which are capable of meeting these performance requirements.

5.3 ENVIRONMENTAL NOISE BREAK-IN

The levels of environmental noise around the site are not problematic in terms of the proposed uses of the building and we anticipate that the internal noise criteria will be achieved as a result of the building envelope performance standards required to control music break-out (see above).

5.4 BUILDING SERVICES PLANT NOISE LIMITS

The existing building services plant were clearly audible outside the building which indicates that they are significantly in excess of the background sound levels at the NSRs. However the proposed development will involve the replacement of the plant, which offers an opportunity to significantly reduce the existing noise impact on NSRs.

BS 4142 states that a rating sound level equal to or lower than the background noise level at the NSR constitutes a 'low impact'. In line with local policy (See the Appendix to this report) we propose to conservatively set the noise limits at '10 dB below background'.

The representative background noise levels at the NSR locations is based on the results from the noise logger at MP1. Therefore **the building services plant noise emissions limits are 42, 40 and 35 dB$L_{A,r}$ during daytime, evening and night time respectively**.

These limits are considered to be achievable with standard plant screening/attenuation measures and no 'extra-over' costs are envisaged at this stage.

5.5 AUDITORIUM ROOM ACOUSTIC ISSUES

The room acoustic test results indicate that there are significant room acoustic anomalies due to focussing and flutter echoes. This concurs with the Awen sound engineer's feedback on working in the existing venue and is not a surprise, considering the hexagonal plan layout, the domed roof and the lack of acoustic surface finishes in the auditorium.

In order to improve the existing room acoustic conditions we recommend the following measures be considered:

1) The dome should be lined on the underside with a highly acoustically absorptive finish to minimise focussing. A suitable finish could be acoustic plaster if there are heritage concerns or an acoustic stretched fabric could be used. Either way, the depth of the acoustic treatment behind (e.g. mineral wool or acoustic foam) will need to be at least 50 mm, preferably more, in order to provide broadband absorption.

2) The parallel side walls of the auditorium at both ground and first floor level should be treated with acoustically absorptive or diffusive finishes in order to reduce the flutter echoes.

3) Overall the target should be to achieve a 'flat' reverberation time in line with the 'ideal RT shape' shown in Figure 3 of this report. This will require all surface finishes in the room to be considered, but items (1) and (2) above will make the most significant difference.

During Stage 2 we will calculate the optimum areas of acoustic absorption to achieve the above aims and will identify potential products for use in the cost plan.

6 NEXT STEPS

We will review the proposed plans for the development and provide comments on key acoustic issues, including how to address the issues identified in this report.

We will also update the EHO on the outcome of the survey and set out our proposed assessment criteria for music break-out. Assuming those criteria can be agreed, we will work with the architect to develop the acoustic design and we will then adapt this report to provide a noise impact assessment for submission with the planning application.

APPENDIX A: COPY OF EHO CONSULTATION EMAILS

From: Paul Driscoll
Date: Wednesday, 4 May 2022 at 12:19
To: "Aston, Emma"
Cc: "Pembridge, Helen", "Blanka-Kumar, Laila"
Subject: Re: Porthcawl Grand Pavilion

Thanks Emma

That's all fine. Also thanks for your suggestion about benchmarking the noise break-out from the existing auditorium (which you believe has not been the cause of any complaints) in order to set appropriate limits for the new theatre. I'll speak to the venue operator about trying to do a simulation event with the sound system in the existing auditorium.

I'll try and keep you posted on progress so that you are aware of what's proposed ahead of the planning application.

Regards,

Paul Driscoll
Acoustics Director, Formant Ltd.
W www.formant.co.uk

From: "Aston, Emma"
Date: Wednesday, 4 May 2022 at 11:01
To: "paul.driscoll@formant.co.uk"
Cc: "Pembridge, Helen", "Blanka-Kumar, Laila"
Subject: FW: Porthcawl Grand Pavilion

Dear Mr Driscoll,

I refer to our telephone conversation today regarding your email. We had a brief discussion on the methodology and noise limits you will be using. We would usually look at between 10db – 5db below background level to ensure no adverse impact from noise. We would expect to see representative background level used. I do understand that there is limited guidance on entertainment noise.

Happy to discuss again when you have completed the noise surveys or have any further queries.

Kind regards

Emma Aston I Swyddog Gwasanaethau'r Gymdogaeth I Neighbourhood Services officer
Gwasanaethau Rheoliadol a Rennir I Shared Regulatory Services
Pen-y-bont ar Ogwr, Caerdydd ar Bro Morgannwg **I** Bridgend, Cardiff and the Vale of Glamorgan

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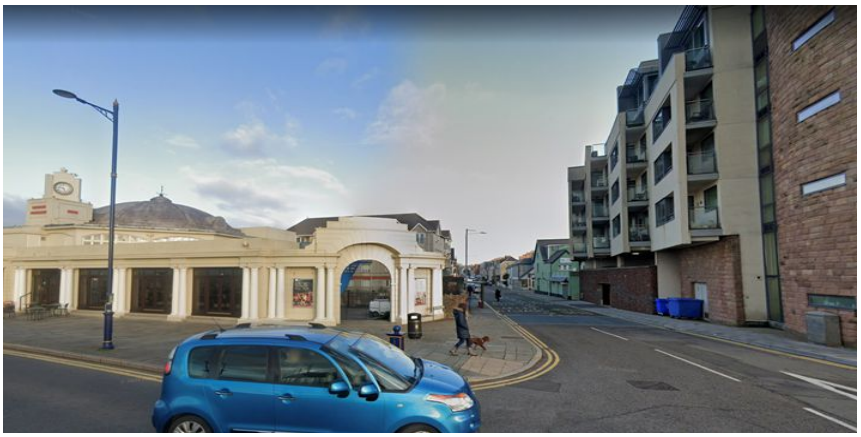
From: Paul Driscoll
Sent: 03 May 2022 16:26
To: Pembridge, Helen
Subject: Re: Porthcawl Grand Pavilion

Hi Helen

I emailed you last week regarding the noise assessment we are planning for the Grand Pavilion Porthcawl, but haven't yet received a response.

We are proceeding with the survey starting this Thursday am and we intend to undertake a series of attended measurements around the site supplemented with an unattended logger left on the roof of the existing building, near the adjacent block of flats:



The logger will be left over the weekend and we intend to use the data from it in order to set plant noise emissions limits and to inform the assessment of entertainment noise break-out.

We're not aware of any noise complaints relating to the existing venue so don't intend to do any investigation of entertainment noise break-out. If this is incorrect, please let us know asap.

If you have any other issues you'd like us to consider during the survey, you will need to let us know no later than tomorrow Weds 4th May.

Regards,

Paul Driscoll
Acoustics Director, Formant Ltd.
W www.formant.co.uk

From: Paul Driscoll
Date: Tuesday, 26 April 2022 at 16:07
To: Pembridge, Helen
Subject: Porthcawl Grand Pavilion

Hi Helen

We've been appointed to provide acoustic consultancy services on the proposed refurbishment and extension of the Grand Pavilion in Porthcawl.

I've been given your email address as I'm hoping to consult Environmental Health about the proposed scheme and the potential noise impacts which we will be assessing for planning.

We are hoping to undertake a noise survey next week, details TBC, and I would be grateful if you or one of your colleagues could give me a call so I can give you a brief introduction to the proposed scheme and to agree the assessment methodology. My number is 07557231998.

Many thanks in advance,

Paul Driscoll
Acoustics Director, Formant Ltd.
W www.formant.co.uk