"HACKNEY BRIDGE", EAST BAY LANE, LONDON E15
LICENSING SUB-COMMITTEE SUPPLEMENTARY PACK1. Overview Document
2. Feasibility Study
3. Noise Assessment
4. Dispersal Policy
5. Letter of Support
6. Site Boundary Plan
7. Dispersal Map

## The Purpose of the scheme

The aim of the Hackney Bridge project is to transform and regenerate an underused urban space to unlock new opportunities for local people and independent businesses. Hackney Bridge will support local employment and offer lasting opportunities to small businesses, creative workers and the wider community. It will transform an empty 6110 sqm development site to offer space for small manufacturing businesses, studios for designers and artists, event venues to host cultural activity, and retail units for independent food and drink businesses. With regard to Licensing, the site will consist of three separate licensed blocks which will be curated by the Landlord "Hackney Bridge". The Blocks will be licensed separately and will have staggered closing times in line with current guidance to assist with dispersal. The licensed areas will consist of the following as 3 separate applications:

Application 1- Block A-

1. Public House and two restaurants

Application 2 - Block B-
2. Food Hall

Application 3 - Block C-
3. Event space and cocktail Bar

As mentioned above the aim of the scheme is to provide Business opportunities, employment and regeneration to the local area. Our planning and our Lease provisions ensure we must allocate $70 \%$ of the space within the project to local businesses and ensure that everyone involved is paid the London Living Wage or higher. The event space will be free for community use $25 \%$ of the time (as it is with our other projects www.peckhamlevels.org/ and www.popbrixton.org/) where they currently run everything from free karate classes for kids, to free IT support for seniors)

## Change of trading name

The feasibility study, noise report and letter of support came whilst working under the name Clarnico Quay. This project will be trading under the name Hackney Bridge.

We thank you for considering our applications and if you have any questions or require any further information please contact us on the details below.
Regards
Roanna and Nathan
Roanna Fawcett Roanna@makeshift.org 07751285114
Nathan Gee Nathan@makeshift.org 07957550957
CLARNICO QUAY,
a LOcally informed masterplan
FEASIBILITY REPORT // 27.06.2017


CTA have been appointed as design consultants to support MakeShift carrying out a feasibility study, investigating the potential for a temporary $5+$ years development at Clarnico Quay. The site is known as Phase 4 of the East Wick development, and dwellings are planned to be built there in 2023
as part of the aforementioned development.
This feasibility study was commissioned by LLDC (London Legacy Development Corporation) and EWS (East Wick and Sweetwater) to conduct community engagement and a design proposal. The final design was influenced by the local community feedback through a series of targeted consultationeventsatrelevantstagesofthestudy. Interviews, workshops, focus groups were led by Jan Kattein, appointed as consultation research team employed by CTA. This consultation process aims to assess the needs of locals people and ascertain how these can be answered through place-making and the provision of temporary spaces for local entrepreneurs, creatives and community groups.

In parallel with the consultation process, CTA
identified site specific constraints, defining
the physical and virtual barriers of the direct
surrounding, the main access points and the
existing services.
CTA's thinking was constantly fed with comments and an updated brief throughout the process, which helped refine the proposed design towards a more local and appropriate answer.

| Rev A | 7.04.17 |  |  |  |  |  |  |  |  |  |
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| 6.04 .17 |  | 20.04.17 |  | 2.05 .17 |  | 16.05.17 |  | 1.06.17 |  | 13.06.17 |

> Carl
> Turner
> Architects
Stage 2 Design Commences
Explore up to 3 alternative masterplan options Design Charrette with invited practices
Preferred Stage 2 Option developed
Interim Makeshift Draft Report
Stage 3 Design Commences
Stage 3
Final site Masterplan Layouts, scale \&
Exemplar Buildings detailed design
Visualisation / models
Final Design / Report \& Business Plan Adjustments / final comments / input
Scheme Announced
Consultation (CTA and others) Design/ agree consultation process
Stage 2 consultation
Stage 3 consultation
CTA/MS design progress meetings


 The Daylight Study ( Summer \&
Winter) helps understand the
different atmospheres of the
site throughout the season constraints, from the physical site qualities to the socio-economic aspect focused around
planned future housing and retail areas on and planned future housing and retail areas on and
around the site. This includes an understanding of orientation, noise onto and from the site, daylight and sunlight, access and people flows and several other physical considerations. The team have also been made aware of the planning constraints such as proximity to conservation areas. Key considerations are the relationship with neighbours such as businesses along the Hackney Wick side of the canal, Mossbourne
Riverside Academy and Here East.
We are also mindful of the phased development of the East Wick sites of which Clarnico Quay is the final phase. Considerations here are to complement not compete with existing and future businesses and organisations, and to be be delivered in phase I, and which will be in close proximity to Clarnico Quay.

The initial brief set by Make Shift was a high level parallel with the top down process. Feedback from evaluation of a quantum of space requirements based on specific use categories allied to an initial evaluation of income, running and delivery costs to scope out the feasibility of this interim use. These are evidently very generic categorisations such as work space, retail space, food and drink space, maker space, events and community space. This initial brief contains the DNA of components Make Shift typically include within their projects.
An approximate split of these types of space was
given to the design team as a starting point to be tested by the master plan process. The designteam were also tasked with limiting the use of recycled
shipping containers to no more than $30 \%$ of the $\dot{\circ}$
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$\vdots$
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0 initial stakeholder and open public consultation of provision suitable for the potential members or tenants) of Clarnico Quay. For instance, when we discuss 'maker space' or 'artist studios' we collected feedback on what size of space is generally required, if it is heated, noisy or messy space. The team produced a diagram to visualise
these more subjective descriptions of space.
The design team receive Make Shift and LLDC feedback (in addition to feedback through the consultation process) and this is a process of design evolution. Make Shift is working with checking and advising on cost and deliverability checking and advising on cost and deliverability
issues,measuredagainstagiven budgetand project program. This involves a process of rationalisation and simplification to hit cost and time constraints, which are evolving with feedback from planning officers, and local communities into a complex matrix of pushes and pulls for the design team. This process is ongoing, working towards a fixed
proposal, and then forwards into planning.
So far conversations with Make Shift resulted in decreasing first floor area and increasing outdoor market space provision. Changes have also been made to the landscaping of the scheme, allowing wider terraces in the food and beverage area or more pavement space by shifting some of the buildings. Plans and proposed location of the Mobile Garden have additionally been affected by the feedback from LLDC and layouts of some of and suitable for letting after conversations with the cost consultant.

4.1 USE CLASS SUB-GROUPS


The main spaces we have listed from the sub-
The main spaces we have listed from the sub-
division of the use classes are:
Manffacturivg
WORRSSOPs
MRISN PRouction





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[^0]




2.0 Consultation
Community informing Brief informing Design informing Community
built.
aking an innovative approach to traditional This is not a scientific approach, but rather the opening of channels of communication where we start building mutually beneficial relationships, find out what's happening on the ground and look for 'nuggets' of information or chance encounters that cantrulyground the project in its'local human context and make it special.

The design team and client organisations are masterplanning by combining a simultaneous top down and bottom up approach.

Primary research and consultation is fed into the masterplan in real time, and carried out in a coordinated way by teams working together. Importantly, the architect teams are involved in the consultation process (rather than this being carried out independently) and so directly hear the concerns and ambitions of local people and
communities. We call this a locally informed master plan.

## Top Down Approach

Unlike most traditional developers, we would see this process as a continuous one, not stopping at the end of the design process but one which runs
 of those who engage through the consultation process will become proactively involved with
the project at some stage in its' evolution.
This process has several components, including
the brief, site constraints, site testing and refinement of brief categories and design.

## Bottom Up Approach

Make Shift as an organisation are trying to create a stronger link between local communities and the way space is developed by taking an active approach to listening and implementing as many suggestions as possible. Their business model is
built around providing space for local people - for built around providing space for local people - for
entrepreneurs, organisation and members of the public. To an extent, it can be argued that space s generic, but Makes Shift's locally targeted space provision means they need to get out into communities and find out what's required to help



| Over the last few months Make Shift have been organising meetings with local community groups, residents and potential stakeholders in order to hear what is needed at the site. Contacts collected through that process formed the mailing list during the main consultation events, which aimed to communicate both community members' and design team's ideas in the wider public gatherings. | Three public consultation events have been planned, with the first two completed and the third due on 6th July 2017. The Launch Event on 23rd March 2017, was an introduction of Make Shift and design teams to the local attendees and an opportunity to ask the first questions about types of spaces needed. All comments collected from the public have been noted down on colourful pieces of card and attached to the walls underneath three key questions: 'What do you want more of?' 'What do you want less of?' and 'What is missing?'. The Launch Event informed the design team about existing groups of potential users, the location of their homes and workspaces, everyday routes as well as use requirements, which were very useful on the following consultation and design stages. Make Shift team was able to reach a wider community group, having collected the data and contacts, whereas the answers given on the cards gave direction to further design process, allowing the division of initial proposed categories of uses into more specific spaces, answering the requirements raised during the event. Make Shift team led further consultation meetings with wider group of interviewees identified during the Launch Event which resulted in a number of reports and meetings with the design team enriching the proposed plans further with new spaces' types, for example cheese factory, coffee roastery or library. |
| :---: | :---: |



At the second public event (18th of May 2017) we revealed early design proposals for the site to an external audience. Importantly, many of the proposed 'uses' had been identified at the Launch Event (such as cheese factory, ATM, post office). 'Speed-dating' allowed attendees to address their comments to the CTA and JKA team members at four tables, each focused on a different proposed use - the workspace, the event space, the external public space and the public facilities. The presented scheme has been met with lots of enthusiasm and further comments which this time responded to specific areas of the scheme provided the design team with feedback which informed design development. A lot of interest has been raised about the proposed main event space and ideas have been shared about how it could be used and therefore what spatial qualities it should represent. This feedback led to the decision of the events space's size increasement. Design team also decided that this space must be as flexible as possible, due to the demand to use it for many different activities (music events, theatre, lectures, presentations, display shows, etc). Previously proposed spaces such as the library have been discussed at much moredetail, with the event'sattendees expressing what types of services would be necessary there (power, Internet) and what could be avoided (for example kitchenette area with water supply).

The 'Bug Hotel' workshop with Mossbourne Riverside Academy's kids could be considered as the first step for the future relationship/ partnership with Clarnico Quay project.
Over three afternoons (7th - 15th May 2017) the kids made, painted and installed 'bug hotel' structures onto one of the site's trees. The workshop responded to the school's curriculum and gave the pupils time to get involved and passionate about the project. It was also based on collaboration with the head teacher, school staff and parents, giving them the chance to gain information about the planned scheme.
Each of the pupils were given a short booklet at the end of the workshop as a keepsake and record for the school. Clear project's description was included at the end of the booklet which would additionally inform the parents.
The general feedback after the 'Bug Hotel' workshop has been very positive, with the school's receptionist claiming that kids were still sharing
 day.
The proximity of the school to the site creates an easy access and connection opportunity with Clarnico Quay. Moreover, ecological topics which are widely represented within the school's curriculum, bring an opportunity to include such workshops and activities within the future Mobile Garden operator as well as future businesses working on site.

2.0 Consultation
Mobile Garden Workshop

On 27th May Jan Kattein team ran an additional workshop focused on urban gardening at the existing Mobile Garden site. Modelmaking with the use of plants served as medium to start the conversation about ways to integrate gardening with architecture. Apart from the group modelmaking, the workshop included a short presentation prepared by Jan Kattein Architects, which combined architectural precedents, gardening techniques and plant species. Group discussions helped to develop the model further and present possible approaches to the proposed scheme's landscape design.

Community workshops provided feasible set of guidelines to inform Clarnico Quay design as well as establishing relationship with the first users and stakeholders. The school workshop enabled communication with the local residents (kids and their parents) and school staff-possible frequent visitors ofClarnico Quayofferedfood and beverage or play areas. Workshop with Mobile Garden served as a way of creating relationship with one of the possible future stakeholder and allowed to highlight the opportunities that incorporating of Mobile Garden within the Clarnico Quay scheme bring - such as gardening sustaining some of elements of the proposed landscaping.


reasons. The main event space is also placed at the furthest point away from future housing. These are pragmatic decisions based on an understanding
of site context and constraints.
The design team have progressed through a series oftraditional master plan testing exercises looking at three differentapproaches to the layout of space on the proposed site. These were:
The Street - a linear route with secondary streets or mews
Blocks-a small number of large buildings arranged
irregularly on the site (inward looking).
The team also tested the quantum of space required for the site (as set in the high level briefing document) and concluded that a mix of single and double storey spaces could provide the quantum of spacewith asufficientamount of the site remaining for open space. A low lying development was seen as a requirement in order to have minimal impact / requirement for foundations etc. given the short term nature of the proposals.
A design charrette was held with CTA and JKA Architects (the design team) using blocks based on a $4 \times 4 \mathrm{~m}$ grid structure. A series of layouts were tested based on the three approaches (grid, street and block). Using a site model, the preferred layout emerged having some of the qualities of all three typologies.
Fewer buildings were proposed than originally envisaged (so an element of the block model), with a main central 'street' combined and juxtaposed with outer buildings creating a series of 'squares'
or outside rooms as proposed in the grid option.
The team have then set out to initially place different functions within specific buildings and site these with respect to site context, so that the more industrial 'maker' type space is at the 'rear' of the site were deliveries are easier with
the adjacency of the service road, and the more public facing functions such as food and drink space is overlooking the canal towpath for obvious



[^1]




21042017 -Redefinition of the boundaries







$\underline{26042017}$

07042017 -Three options





The axo is cut in order to show the
internaluses tothe public, during



Views evolving throughout the process

The main entrance


The view from the canal side











| Project | Clarrico Quay | Drawn by AF Date e 27.06.17 |  |
| :--- | :--- | :--- | :--- |
| Drawing Tile | $\begin{array}{l}\text { Block B-- } \\ \text { Plans and Elevations }\end{array}$ | Scale | 1:200@A1 |
| Drawing No. | 16HAC-GA-155-B | Staus | DRAFT |





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limuthent


[^2]

## clarke saunders | acoustics

 specialist consultantsREPORT AS9840.180213.R1

CLARNICO QUAY, LONDON


NOISE ASSESSMENT

Prepared: 28 March 2018

Quod
Ingeni Building
17 Broadwick Street
London
W1F OAX


Tel: +44 (0) 1962872130
mail@clarkesaunders.com
www.clarkesaunders.com

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| :--- | :--- |
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### 1.0 INTRODUCTION

A time-limited planning permission is sought for a new mixed-use development consisting of popup shops, cafes, bars, food hall, workspace and event space. The description of development is as follows:
"Construction of five buildings between 2 and 3 storeys providing 776sqm GIA of workshops/studios (B1); 131sqm GIA of maker/retail space (B1/A1); 417sqm GIA of shops, cafes and bars (A1/A3/A4); 669sqm GIA of pop-up shops, food hall and market stalls (A1/A3/A4); 490sqm GIA event/community space (Sui Generis); 37sqm GIA of community meeting rooms (D1); and associated cycle parking, servicing, management, lighting and landscape, a mobile garden, including associated containers and structures, such as raised planters, storage containers, water tanks, flexible programming space, boundary treatment and associated infrastructure, the buildings, structures and uses shall cease on or before 30th September 2025 when the land shall be restored to its current state."

Clarke Saunders Associates has been commissioned by Quod on behalf of Make Shift to undertake a noise assessment in order to measure the prevailing noise climate at the site and, subsequently, to assess the impact of various noise sources associated with the development on nearby sensitive receptors. The scope and methodology set out in this report has been discussed and agreed with the London Legacy Development Corporation's Policy and Planning Decisions Team (PPDT).

### 2.0 ASSESSMENT: RELEVANT POLICY, GUIDANCE \& CRITERIA

### 2.1 National Planning Policy Framework

On 27th March 2012 the Government published the National Planning Policy Framework (NPPF) which sets out the Government's planning policies for England and how these are expected to be applied. The NPPF is a material consideration in planning decisions (Paragraph 2). It also replaces almost all of the previous national guidance contained within Planning Policy Statements (PPS) and Planning Policy Guidance (PPG).

Paragraph 123 refers to noise impact:

## 123. Planning policies and decisions should aim to:

- avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;
and
- identify and protect areas of tranquility which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason

With regards to mitigation, reference is made to the Noise Policy Statement for England (DEFRA, 2010) [NPSE]. The Policy aims are defined as,

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of government policy on sustainable development:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.

Clarification of the terms adverse and significant adverse are given as follows,
There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

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.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

## SOAEL - Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

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.

In order to enable assessment of impacts in line with these requirements, reference should be made to other currently available guidance.

### 2.2 Building Bulletin 93 Acoustic Design of Schools: performance standards (2014)

Building Bulletin 93 Acoustic Design of Schools: performance standards [BB93] provides guidance on suitable indoor ambient noise levels [IANL] in a variety of teaching and ancillary spaces within school environments, in order to promote clear communication between students and teachers and to allow uninterrupted learning and study.

The IANL includes contributions from both external noise sources outside of the school premises and from building services, (where a mechanical ventilation strategy is utilised).

BB93 is clear that the previous guidance levels are appropriate in respect of a variety of external noise sources including noise from commercial premises.

Table 2.1 features a selected extraction from BB93, summarising the most onerous limiting noise criteria for various primary school rooms types, with respect to external noise source intrusion.

| Type of Room | Upper limit for the indoor ambient noise level, <br> LAeq,30mins, dB, <br> in new build school buildings |
| :--- | :---: |
| Primary School: classroom, class base, general teaching <br> area, small group room | 35 |
| Primary school music room | 35 |
| Teaching space intended specifically for students with <br> special hearing and communication needs | 30 |
| SEN calming room | 35 |
| Drama studio, assembly hall, multi-purpose hall (drama, PE, <br> audio/visual presentations, occasional music) | 35 |

Table 2.1 - selected BB93 limiting IANL criteria for external noise intrusion
[dB ref. $20 \mu \mathrm{~Pa}$ ]

The guidance goes on to state:
In order to protect students from regular discrete noise events, e.g., aircraft or trains, indoor ambient noise levels should not exceed $60 \mathrm{~dB} L_{A 1,30 m i n s .}$

This is achieved by default for spaces with IANLs up to $40 d B L_{A e q}, 30 \mathrm{~min}$, but requires assessment in spaces with higher IANL limits, eg, 45 and 50 dB .

### 2.3 Liaison with PPDT

Consultation with those advising the LPA indicates that the noise impact of various sources associated with Clarnico Quay should be considered at nearby receptors.

Noise sources to be assessed include:

- Plant noise emissions
- Patron and music/entertainment noise from internal and external spaces such as bars, venues and associated terraces

Identified nearby noise sensitive receptors include:

- Proposed Phase 1 residential development
- Mossbourne Riverside Primary Academy [MRPA]
- Adjacent riverboats moored on the River Lee Navigation (residential receptors)

Consultation indicates that noise impact at the MRPA should assessed in the context of the requirements of BB93.

Plant noise should be assessed following procedures discussed in BS4142:2014 Methods for rating and assessing industrial and commercial sound. Typical requirements for other nearby local authorities, such as London Borough of Hackney [LBH] and London Borough of Tower Hamlets [LBTH], indicate that plant noise emissions should target a level of around 10 dB below the background sound level at the receptors.

Planning conditions typically used by these local authorities with regard to patron and entertainment noise indicate a general requirement that inaudibility should be targeted. Specific requirements are also provided, indicating that entertainment noise should not exceed absolute levels of $L_{\text {eq, } 5 \text { min }}$ NR25 ( 9 am to 11 pm ) or $L_{\text {eq, } 5 \text { min }}$ NR20 (11pm to 9am) at 1 metre from a receptor facade, or within a habitable room of a receptor.

### 2.4 Proposed Entertainment Noise Guidance

With the exception of the MRPA receptor (where entertainment and patron noise will be separately assessed against criteria discussed Section 2.2), it is proposed to adopt guidance presented in Code of Practice on Environmental Noise at Concerts, published (in draft form) by The Noise Council, with regard to pre- and post-23:00 hours concert noise impact at noise sensitive receptors in the locality.

Although this guidance has never been formally published, it is, nonetheless, widely referenced in the context of concert noise.

The relevant sections state:

For indoor venues used for up to about 30 events per calendar year an MNL [Music Noise Level] not exceeding the background noise by more than $5 d B(A)$ over a fifteen minute period is recommended for events finishing no later than 23:00 hours.

For events continuing or held between the hours 23:00 and 09:00 the music noise should not be audible within noise-sensitive premises with windows open in a typical manner for ventilation.

It is suggested that this guidance represents a good standard of protection for nearby noise sensitive receptors, without placing an unduly onerous burden on the development in the form of absolute noise limits in the pre-23:00 hours period.

The definition of 'inaudibility' is difficult to objectively define and is typically described in the context of the existing background noise climate.

An Institute of Acoustics working group undertook research into the subject which was collected in a Working Draft Annex to the Good Practice Guide on the Control of Noise from Pubs and Clubs [loA 2006]. Although not formally adopted by the loA, the guidance was published in Vol 28 No. 6 of its quarterly journal, Acoustics Bulletin.

In the article, 'virtual inaudibility' is defined as:

Criteria applicable for both external and internal assessments at noise-sensitive properties:

The $L_{\text {Aeq }}$ of the entertainment noise should not exceed the representative background noise level $L_{\text {A90 }}$ (without entertainment noise), and

The $L_{10}$ of the entertainment noise should not exceed the representative background noise level $L_{90}($ without entertainment noise) in any $1 / 3$ octave band between 40 Hz and 160 Hz .

It should be noted that human hearing is less sensitive at the extremely low frequencies discussed. This subject is well researched and can be summarised by the threshold of hearing values presented in ISO 389-7: 2005 Acoustics - Reference zero for the calibration of audiometric equipment - Part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions.

Therefore, when considering 'inaudibility' at any nearby noise sensitive receptor, where any onethird octave band threshold of hearing value between 40 Hz and 160 Hz is higher than the corresponding measured background L90 value, the threshold of hearing value should instead be used for the assessment.

The values representing threshold of hearing in the frequency range of interest are reproduced in the following table. Please note, there is no difference in the values for free-field listening ( $T_{f}$, frontal incidence) and diffuse-field listening ( $\mathrm{T}_{\mathrm{f}}^{\prime}$ ) in the frequency range under consideration.

| Human threshold of hearing, $\mathrm{L}_{\mathrm{p}}, \mathrm{dB}$ |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{4 0 H z}$ | $\mathbf{5 0 H z}$ | $\mathbf{6 3 H z}$ | $\mathbf{8 0 H z}$ | $\mathbf{1 0 0 H z}$ | $\mathbf{1 2 5 H z}$ | $\mathbf{1 6 0 H z}$ |  |
| 51.1 | 44.0 | 37.5 | 31.5 | 26.5 | 22.1 | 17.9 |  |

Table 2.2-ISO 389-7:2005, selected threshold of hearing values
[dB ref. $20 \mu \mathrm{~Pa}$ ]

The 'virtual inaudibility' definition described above, combined with the guidance on threshold of hearing is proposed to define 'inaudibility' for 23:00-09:00 hours entertainment noise operation.

### 2.5 Proposed Patron Noise Guidance

The Working Draft Annex to the Good Practice Guide on the Control of Noise from Pubs and Clubs, also features guidance on patron noise. This again was published in Vol 28 No. 6 of the loA Acoustics Bulletin. The guidance states the following in respect of 'rowdy behaviour':

If noise from rowdy behaviour regularly produces $L_{\text {Amax,F }}$ levels in excess of 70 dB 1 metre outside windows of a noise sensitive property between 2300 and 0700 hours, then this may be an indication that unacceptable disturbance could occur or is occurring.

It is acknowledged in the derivation of this figure that these guideline noise levels are based on the receptor window being closed at night.

It is the view of CSA that this may not always be comfortable or realistic for the occupant(s) and that a better standard of protection should be sought, where possible, by limiting patron noise to levels not exceeding $L_{\text {Amax, fast }} 60 \mathrm{~dB}$. This would typically result in internal noise levels of around $L_{\text {Amax, fast }}$ 45 dB via a partially open window ${ }^{1}$. For information, guidance presented in World Health Organisation Guidelines for Community Noise (1999), states:

For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB LAmax more than 10-15 times a night (Vallet \& Vernet 1991)".

It should be noted that the scope of this guidance extends only to transportation sources, but nonetheless provides useful context into the effects of noise on sleep disturbance.

[^3]It is also the view of CSA that, wherever possible to avoid disturbance and adverse comment, average noise levels from patrons should be limited so that they do not exceed the existing background noise level at receptor locations.

### 3.0 ENVIRONMENTAL NOISE SURVEY

### 3.1 Survey Procedure and Equipment

An attended survey of the existing noise climate was undertaken at the position indicated in attached site plan AS9840/SP1. Measurements of consecutive 5-minute $L_{\text {Aeq }}, L_{\text {Amax }} L_{\text {A10 }}$ and $L_{\text {A90 }}$ sound pressure levels were taken at 1.5 m above local ground level between 21:25 hours on Friday $3^{\text {rd }}$ November and 06:00 hours on Saturday $4^{\text {th }}$ November 2017.

In order to characterise variation in noise levels across site and, specifically, in close proximity to the moored river boat receptors opposite nightspots 'Grow' and 'No. 90', additional, synchronous attended survey measurements were taken at the measurement positions indicated on the site plan.

Survey duration was limited, due to the security concerns regarding installed equipment and the corresponding necessity for survey attendance.

The following equipment was used during the course of the survey:

- Norsonic data logging sound level meter type 118;
- Rion sound level calibrator type NC-74.

The calibration of the sound level meter was verified before and after use. No significant calibration drift was detected.

The weather during the survey was dry with light winds, which made the conditions suitable for the measurement of environmental noise.

Measurements were made following procedures in BS4142:2014 Methods for rating and assessing industrial and commercial sound and ISO 1996-2:2007 Acoustics - Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels.

Please refer to Appendix A for details of the acoustic terminology used throughout this report.

### 3.2 Survey Results \& Observations

Figure $A S 9840 / T H 1$ shows the $L_{\text {Aeq }}, L_{\text {Amax, }} L_{A 10}$ and $L_{\text {A90 }}$ sound pressure levels as a time history at the measurement position.

Nightspots, 'Number 90' and 'Grow' are located on the opposite bank of the River Lee Navigation from the Clarnico Quay site. These feature outdoor seating areas on the bank-side, which were both observed as being busy with patrons from early evening until late. Music break-out from these bars and patron noise from the terrace areas were audible at the development side of the river bank until around 01:00 hours.

Air traffic and rail noise was also noted. The nearest station is Hackney Wick. Air traffic stopped in late evening, so did not affect the quietest peroids of the survey. Similarly, noise from passenger trains appeared to stop shortly after 23:00. Freight trains continued to run intermittently throughout the night, which were audible from site but were not particularly loud due to the slow speed at which they were travelling. Several train events were monitored and can be identified on the measured noise data.

Occasional pedestrian traffic was noted on the river path and crossing the bridge between Wallis Rd and Copper St. This was not a significant noise source until closing time at Number 90 and Grow, when larger numbers of people passed the site in groups, for a short period, generating more noise.

The last noise source identified was distant music (low frequency-dominated), possibly from a distant club or late-night stadium event. The premises could not be identified, but it appeared to come from south of Clarnico Quay, beyond the railway tracks. The music finished at approximately 03:00.

The quietest period of the night appeared to be between 02:50 and 05:20, when background noise levels dropped to around $\mathrm{L}_{\mathrm{A} 90,5 \min } 42$ to 45 dB

Data analysis indicates that riverboats moored on the River Lee Navigation are currently subject to average noise levels of around $\mathrm{L}_{\text {Aeq, } 5 \text { min }} 58 \mathrm{~dB}$ during busy Friday (and probably also Saturday) evenings, when patrons are gathered on the terraces at the back of Number 90 and Grow. Typical maximum noise levels from patrons are currently in the range $L_{\text {Amax,fast }} 70$ to 75 dB .

### 4.0 CUMULATIVE PLANT NOISE EMISSIONS

LLDC liaison indicates that cumulative plant noise emissions associated with the new development should target around 10 dB below the background sound level at sensitive receptors in the locality, during the proposed operational hours of the plant items.

No plant selections have yet been made for the development as it is understood that all plant will be supplied by tenants.

In order to ensure that there is no 'background creep' in the vicinity as new tenants install new plant schemes, it is proposed that the minimum La90 measured during the survey should be used to set the limiting criterion.

On this basis, the measured minimum background noise level and corresponding limiting level which should not be exceeded at these most affected noise-sensitive receptors due to plant operation are shown in Table 4.1.

| Minimum Measured Background Sound Level, $L_{A 90,5 \min , ~ d B}$ | 24 - hour Criterion for Cumulative Plant Noise Emissions |
| :---: | :---: |
| $\begin{gathered} 42 \mathrm{~dB} \\ \left(04: 00-04: 05, \text { Sat } 4^{\text {th }}\right. \text { Nov, 2017) } \end{gathered}$ | $L_{\text {Aeq, }}$ 15min 32 dB |

Table 4.1 - Proposed limiting cumulative plant sound emissions criteria
[dB ref. $20 \mu \mathrm{~Pa}$ ]

Individual plant schemes added by tenants' fit out will be required to comply with this criterion and are not expected to increase the background sound climate or significantly contribute to overall average plant sound levels at the receptors and are likely to remain inaudible at receptor locations for much of the day and night.

As such, emissions from compliant plant schemes will be commensurate with the NOEL or LOAEL, as defined in the NPPF / NPSE.

### 5.0 MUSIC / ENTERTAINMENT NOISE IMPACT

### 5.1 Target Criteria

On the basis of the adopted guidance shown in Section 2.4, entertainment noise emissions at noise sensitive receptors for pre- and post-23:00 hours entertainment should target the limiting criteria shown in Table 5.1 and Table 5.2, respectively.

It should be noted that, due to survey duration limitations, it was not possible to measure the 07:00 - 23:00 hours background noise climate at site in the absence of noise from nightspots Grow, Number 90 and those further afield.

Therefore, the single figure criterion for 09:00-23:00 hours operation is based on background sound levels from the hour after all noise from these nightspots had ceased and patrons had dispersed: 01:00-02:00 hours, ( $L_{A 90,1 h r} 47 \mathrm{~dB}$ ). Although distant low frequency music from further afield was audible during this time, this does not greatly affect the overall $\mathrm{dB}(\mathrm{A})$ levels measured, which are consequently expected to be representative of the typical pre-23:00 hours background sound climate in the area on quieter nights of the week when Clarnico Quay events may still be occurring.

| Assessment Period | Music / Entertainment Criterion at Receptor |
| :---: | :---: |
| $09: 00-23: 00$ hours | $L_{\text {Aeq,15mins }} \leq 52 \mathrm{~dB}$ |

Table 5.1 - Proposed design criteria for 09:00-23:00 hours operation
[dB ref. $20 \mu \mathrm{~Pa}$ ]

The post-23:00 hours criterion is based on background noise levels from 03:00-04:00 hours ( $L_{\text {A90,1hr }}$ 44 dB ), when it had been confirmed absolutely by survey attendees that no music from near or far was audible at site.

This represents the most robust approach possible and assumes that there are no other entertainment events occurring in the locality during the licenced hours of operation proposed for the site.

| Assessment Period | Music / Entertainment Criterion at Receptor, dB L $\mathrm{L}_{10}$, dB |  |  |  |  |  |  | Music / Entertainment Criterion at Receptor, dB LAeq |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 40Hz | 50 Hz | 63 Hz | 80Hz | 100 Hz | 125Hz | 160 Hz |  |
| 23:00-09:00 hours | $\leq 51 *$ | $\leq 47$ | $\leq 45$ | $\leq 43$ | $\leq 43$ | $\leq 40$ | $\leq 42$ | $\leq 44$ |

Table 5.2 - Proposed design criteria for 23:00-09:00 hours operation
[dB ref. $20 \mu \mathrm{~Pa}$ ]

* N.B, threshold of hearing value

It is unlikely that events featuring high volume music / entertainment noise at Clarnico Quay will be concurrent with school hours at the MRPA.

However, this eventuality has also been considered to ensure a thorough assessment. For this receptor, the IANL criteria shown in Table 2.1 and accompanying condition of $\leq 60 \mathrm{~dB} \mathrm{~L}_{\mathrm{A} 1,30 \mathrm{mins}}$ should be the target.

### 5.2 Block A

Block A is a two-storey height building, located at the north of the site. It features a public house and village hall event room, which share roughly half of the unit space each. The pub is situated in the northern half of the building and features two separate restaurant areas at $1^{\text {st }}$ floor level, whilst the event room is in the southern half of the building and is a double-height space.

The pub features a double doorset on the north facade, which will have a direct line of sight to the MRPA (at least 70 m to the north) and the closest Phase 1 residential facades (at least 50 m to the north-east). This doorset is not lobbied. The GF level of the northern facade is also partially glazed with circa 2.5 m high sealed windows either side of this doorset. There is another double doorset on the east facade, which leads to a partitioned area on the east side of the pub where the toilets and first floor level restaurant areas are located. This area features a further internal double doorset which leads to the main bar area.

The west facade features a number of circa 2.5 m high sealed glazing panels at GF level. The nearest moored riverboats to this facade are at least 37 m further west.

Each of the first floor restaurant areas of the pub features two sealed windows on the west facade and there are four lightweight transparent rooflights proposed in the roof of each restaurant area.

The village hall has double doorsets in the east facade and in the south facade, the latter of which allows access to an external terrace area. There are six rooflights proposed in the roof above the space. The length of the west facade features circa 2.5 m high sealed glazing at GF level.

It is assumed that noise levels within the first floor restaurant areas will be limited to patron voices and background music and overall noise levels will therefore not be high.

Noise levels in the GF pub and in the event room could conceivably be higher, however. Noise breakout via un-lobbied double doorsets and glazing will require the limitation of noise generated in these spaces to levels around those shown in Table 5.3 and Table 5.4:

| Assessment Period | Demise | Limiting Entertainment Noise Level |
| :---: | :---: | :---: |
|  | Block A Pub | LAeq,15mins $\leq 108 \mathrm{~dB}$ |
|  | Block A Event Room | LAeq,15mins $\leq 108 \mathrm{~dB}$ |

Table 5.3 - Block A Limiting noise level for 09:00-23:00 hours operation
[dB ref. $20 \mu \mathrm{~Pa}$ ]

| Assessment Period | Demise | Limiting Entertainment Noise Level, $\mathrm{dB}^{\text {L }} 10, \mathrm{~dB}$ |  |  |  |  |  |  | Limiting Level, dB LAeq |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40Hz | 50 Hz | 63 Hz | 80Hz | 100Hz | 125Hz | 160 Hz |  |
| $\begin{gathered} \text { 23:00-09:00 } \\ \text { hours } \end{gathered}$ | Block A Pub | $\leq 75$ | $\leq 71$ | $\leq 74$ | $\leq 77$ | $\leq 82$ | $\leq 85$ | $\leq 87$ | $\leq 101$ |
|  | Block A Event Room | $\leq 75$ | $\leq 71$ | $\leq 74$ | $\leq 77$ | $\leq 82$ | $\leq 85$ | $\leq 87$ | $\leq 101$ |

Table 5.4 - Block A Limiting noise level for 23:00-09:00 hours operation
[dB ref. $20 \mu \mathrm{~Pa}$ ]

Live, or high volume recorded, music in either the bar or event space is likely to result in an exceedance of the relevant criterion at one or more nearby receptors.

Where entertainment noise levels and activity are suitably restricted in Block A, such that compliance with the relevant design criterion is achieved at the most affected receptors in the locality, noise impact will be commensurate with the NOEL or LOAEL.

### 5.3 Block C

Block C is a double height building divided into a bar at the west end of the building, with a multipurpose event space forming the rest of the space.

The bar will be separated from the event space demise by an independent double stud wall and ceiling construction and is accessed from the outside covered terrace area via its own double doorset on the north façade. The west façade of the bar features circa 2.5 m high glazing at ground floor level, several panels of which can be opened at either end. The nearest receptors, being the moored boats on the River Lee Navigation, are at least 40 m from this façade.

The event space is intended for general use and to host a variety of events from indoor markets to a place to eat, to night time live music acts and DJ sets. Licensing for operation is proposed up to 23:00 hours, Monday - Wednesday and up to 01:00 hours, Thursday - Sunday.

Given the need for inaudibility of music events after 23:00 hours, the building includes appropriate sound insulation measures and has been designed as a 'box-in-a-box', featuring a second, free standing lightweight auditorium construction inside the main building..

The nearest receptors to the venue are moored boats on the River Lee Navigation, at least 40 m away. The MRPA is over 130 m away. When construction of the East Wick Phase 1 residential development is complete, the nearest of these receptors will be over 88 m away.

These receptors will be largely screened from both the event venue and bar by other intermediate Clarnico Quay buildings. Receptors at lower levels will not be able to see much of the roof of Block C, but a slightly greater profile will be visible to the top storeys of these receptors.

The Landlord is to provide only the framing and a lightweight timber lining for the internal, freestanding auditorium structure. The intention is then for any prospective future tenant to further line the exterior of the auditorium construction with material suitable for the required type of events anticipated. Doors into the auditorium would be constructed from standard materials of density commensurate with the supporting building fabric, but these should be well sealed at the perimeter and threshold.

With the exception of the glazed elements on the west facade, the external building fabric of Block C (both walls and roof) will be constructed from a steel cassette 'sandwich panel' construction, achieving weighted sound reduction index of the order 48 dB (typically, minimum surface density in the range $35-40 \mathrm{~kg} / \mathrm{m}^{2}$ ). The sandwich panel will feature imperforate profiled steel outer and cavity formed by spacers, with a further imperforate metal sheet lining. The cavity will be circa 200 mm to 250 mm deep, filled, or partially filled with mineral wool insulation. The suitability of the critical low frequency sound insulation performance will be confirmed by a qualified acoustician before final selection.

A wide acoustic 'buffer' zone of approximately 2.5 m is proposed between the auditorium construction and outer skin of the building, which will secure the necessary sound insulation performance for the building.

At ground level, this space is used to house multiple other rooms such as an entrance lobby and ticketing area, cloakroom, plantroom, toilets, green room and backstage area, and the bar at the west end of the building. At higher level and in the roof pitch, the space will simply be left as a void. In order to ensure the best possible sound insulation, it is important that the auditorium structure and outer structure are not mechanically coupled in any way.

For this reason, partitioning between the various perimeter spaces and any ceiling provided will be rigidly attached only to the outer structure and elsewhere will be supported by independent studwork/wind posts which do not touch the inner structure at any point.

For clarity on these concepts, refer to relevant architectural conceptual drawings accompanying the planning submission.

For the purposes of demonstrating feasibility at the planning stage, an auditorium lining of 2 no. layers high density plasterboard (combined minimum density $28 \mathrm{~kg} / \mathrm{m}^{2}$ ) has been assumed in the following analysis in the context of typical, high music volume performances such as rock bands and DJ sets.

It has been calculated that the inner and outer skins discussed are capable of providing the combined sound reduction indices (SRI) shown in Table 5.5, which are anticipated to be achievable with the elements described:

| Frequency (Hz) | $\mathbf{6 3}$ | $\mathbf{1 2 5}$ | $\mathbf{2 5 0}$ | $\mathbf{5 0 0}$ | $\mathbf{1 k}$ | $\mathbf{2 k}$ | $\mathbf{4 k}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Block C fixed building fabric SRI, dB | 39 | 42 | 57 | 70 | $\mathbf{7 5}$ | 78 | 86 |

Table 5.5 Typical SRI for Block C fixed, non-glazed building fabric elements

There are several doors proposed in the external building fabric of the event space demise, including a large sliding door and smaller access door to the side on the north facade and a large sliding door with wicket door on the south facade.

Good quality, well-sealed units are proposed to ensure that sound insulation is not compromised. All doors will be constructed from metal and will be specified to a similar density to the surrounding fixed-building fabric. They will feature good quality perimeter and threshold seals to avoid creating significant weak paths.

There is also a large sliding stage delivery door on the east façade, which will be of a similar quality of construction as for the other door. It should be noted, however, that all receptors in the locality will be heavily screened from this door by other development buildings.

The proposed sound insulation measures for the events venue are expected to be sufficient to allow typical, high music volume concerts to proceed unhindered during pre-23:00 hours.

However, it is expected that, dependant on programme material, some control of music volume, particularly at low frequencies, may be required after 23:00 hours through utilisation of equalisation, dynamic signal processing, or similar.

Noise levels in the bar will need to be limited to ensure that breakout via the glazed façade and unlobbied double doorset does not exceed the pre- and post-23:00 hours design criterion at the moored river boats.

The anticipated limiting levels for the bar and event venue uses, during pre- and post-23:00 hours operation are shown in Table 5.6 and Table 5.7:

| Assessment Period | Demise | Limiting Entertainment Noise Level |
| :---: | :---: | :---: |
|  | Block C Bar | $L_{\text {Aeq,15mins }} \leq 107 \mathrm{~dB}$ |
|  | Block C Event Venue | $L_{\text {Aeq,15mins }} \leq 129 \mathrm{~dB}$ |

Table 5.6 - Block C Limiting noise level for 09:00-23:00 hours operation
[dB ref. $20 \mu \mathrm{~Pa}$ ]

| Assessment Period | Demise | Limiting Entertainment Noise Level, dB L $10, \mathrm{~dB}$ |  |  |  |  |  |  | Limiting Level, dB LAeq |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 40Hz | 50 Hz | 63 Hz | 80 Hz | 100 Hz | 125Hz | 160Hz |  |
| $\begin{gathered} \text { 23:00-09:00 } \\ \text { hours } \end{gathered}$ | Block C Bar | $\leq 73$ | $\leq 70$ | $\leq 72$ | $\leq 76$ | $\leq 80$ | $\leq 84$ | $\leq 85$ | $\leq 99$ |
|  | Block C Event Venue | $\leq 101$ | $\leq 108$ | $\leq 104$ | $\leq 102$ | $\leq 106$ | $\leq 102$ | $\leq 115$ | $\leq 121$ |

Table 5.7 - Block C Limiting noise level for 23:00-09:00 hours operation
[dB ref. $20 \mu \mathrm{~Pa}$ ]

Where appropriate sound insulation measures will be installed and entertainment noise levels and activity would be suitably restricted, such that compliance with the relevant design criteria are achieved at the most affected receptors in the locality, noise impact from Block C will be commensurate with the NOEL or LOAEL.

### 5.4 Mossbourne Riverside Primary Academy Noise Impact

The entertainment noise levels from Clarnico Quay drinking establishments and venues would be properly controlled to ensure the levels indicated in Table 5.3 and Table 5.6 during school hours, breakout levels externally to the nearest facades of the MRPA would not exceed $L_{\text {Aeq, } 30 \text { min }} 30 \mathrm{~dB}$. This level is below the most onerous criterion listed in Table 2.1. Resultant internal noise levels are expected to be at least 10 to 15 dB lower, and will therefore, by default, also be below $60 \mathrm{~dB} \mathrm{~L}_{\mathrm{A}, 30 \mathrm{mins}}$.

This indicates an acceptable level of impact, commensurate with the LOAEL.

### 6.0 PATRON NOISE IMPACT

Clarnico Quay is to feature two external terrace areas on the west side of the development. These will be located between Block A and Block B and between Block B and Block C. The terrace areas are covered by a lightweight pitched roof which acts to link all buildings facing the river and will give the appearance of a single, unbroken roofline and building front.

These terraces are understood to primarily serve the Block B food hall during the daytime and the Block A village hall event space and Block C event space / bar during the evenings.

The east and west ends of each terrace are open and the west ends extend out from under the pitched roof area approximately five metres towards the River Lee Navigation.

Due to the orientation of the building parade and consequent screening afforded to the MRPA and Phase 1 site by the neighbouring buildings and covered pitched roofs, moored river boats are anticipated to the receptors most affected by external patron noise from the terrace areas.

The terraces are each approximately $95 \mathrm{~m}^{2}$ in area. Assuming an average personal space of $1 \mathrm{~m}^{2}$ per person, it is anticipated that up to 95 patrons could be on the terrace on very busy evenings. On this basis, it is anticipated that noise levels at the nearest moored boats could be as high as $L_{\text {Aeq, }} 54$ to 57dB on very busy nights of the week, (anticipated to be some Thursdays, Fridays and weekends, particularly in fair, dry weather during summer). Contextually, survey data indicates that Friday evening noise levels between 22:00-00:00 hours at moored boats are currently around $L_{\text {Aeq,2hr }}$ 56 dB , as a result of patron noise from Number 90 and Grow with the background level of $L_{A 90,2 \mathrm{hr}}$ 51dB

On less-busy weekday nights, or during wet or cold weather, when numbers on the terraces may be closer to 50 patrons, levels are more likely to be in the range of $L_{\text {Aeq, }} 44$ to 46 dB . Contextually, survey data after Number 90 and Grow closed (after 01:00 hours), indicates that quieter weekday evening noise levels at moored boats are likely, at their lowest, to be circa $L_{A 90} 47 d B / L_{A e q} 48 d B$, in the absence of any patron noise from Number 90 and Grow.

Average levels on some very busy evenings at Clarnico Quay bars and venues may, therefore, slightly exceed the background sound levels at the most affected receptors in the vicinity but are likely to be commensurate with the levels and character of noise already experienced at those receptors from patrons on terraces of the existing night spots opposite. More typically, patron noise levels are expected to be similar to, or lower than, the existing background sound climate.

Maximum noise events from patrons on the terraces are anticipated to be typically around $L_{\text {Amax, fast }}$ 52 dB for individual shouts. Resultant $L_{\text {Amax }}$ levels inside moored boats with their windows partially open are likely to be 10 to 15 dB lower than this, which is well below the guidance levels discussed in Section 2.5.

Overall, typical patron noise impact at the most affected receptors is anticipated to commensurate with the LOAEL.

### 7.0 CONCLUSION

Clarnico Quay, an interim use located on Development Parcel 5.3 is located on land the immediate west of the Copper Box Arena, in the Queen Elizabeth Olympic Park.

CSA has undertaken environmental survey work and following analysis to characterise and quantify the noise impact of the proposals at nearby noise sensitive receptors.

The local authority has been consulted with regard to appropriate assessment methodology and appropriate criteria have been adopted for the assessment based on this consultation and other relevant guidance, including the overarching aims of the NPPF and NPSE.

Mitigation, including outline sound insulation schemes and limiting entertainment noise level specifications have been proposed as necessary.

Where these measures are properly adopted, it is anticipated that noise impact from the various noise sources associated with the development will be commensurate with the NOEL or LOAEL, as defined within the NPPF and NPSE.

## Ben Alexander MIOA

CLARKE SAUNDERS ASSOCIATES


## Clarnico Quay, East Wick \& Sweetwater, London



ACOUSTIC TERMINOLOGY \& HUMAN RESPONSE TO BROADBAND SOUND
Frequency The rate per second of vibration constituting a wave, measured in Hertz (Hz), where $1 \mathrm{~Hz}=1$ vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20 Hz to 20 kHz . Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.
$\mathbf{d B}(A)$ : Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the ' $A$ ' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated ' $A$ ' weighted sound level is designated as $d B(A)$ or $L_{A}$.
Leq: A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc). The concept of $L_{e q}$ (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction.
Because $L_{\text {eq }}$ is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.
$L_{10} \& L_{90}: \quad S t a t i s t i c a l L_{n}$ indices are used to describe the level and the degree of fluctuation of non-steady sound. 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 a typical maximum level. Similarly, $L_{90}$ is the typical minimum level and is often used to describe background noise.
It is common practice to use the $L_{10}$ index to describe noise from traffic as, being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic flow.
$L_{\max }$ : The maximum sound pressure level recorded over a given period. Lmax is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged $L_{e q}$ value.

R Sound Reduction Index. Effectively the Level Difference of a building element when measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 101402:2010 and corrected for its size and the reverberant characteristics of the receive room.
$\mathbf{R}_{\mathrm{w}} \mathrm{D}_{\mathrm{w}} \quad$ Value of parameter, determined as above, but weighted in accordance with the procedures laid down $D_{n T}, w D_{n, e, w}$ in BS EN ISO 717-1 to provide a single-figure value.
$D_{n, f, w}$

### 1.10 Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band. In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz . The most commonly used octave bands are:

| Octave Band Centre Frequency Hz | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## 1.2] Human Perception of Broadband Noise

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in $\mathrm{dB}(\mathrm{A})$ do not have a simple linear relationship. For example, $100 \mathrm{~dB}(\mathrm{~A})$ sound level is not twice as loud as $50 \mathrm{~dB}(\mathrm{~A})$. It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3 dB before becoming definitely perceptible to the human ear.

## APPENDIX A

## ACOUSTIC TERMINOLOGY \& HUMAN RESPONSE TO BROADBAND SOUND

Data from other experiments have indicated that a change in sound level of 10 dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

INTERPRETATION

| Change in Sound Level <br> dB | Subjective Impression | Human Response |
| :---: | :---: | :---: |
| 0 to 2 | Imperceptible change in loudness | Marginal |
| 3 to 5 | Perceptible change in loudness | Noticeable |
| 6 to 10 | Up to a doubling or halving of loudness | Significant |
| 11 to 15 | More than a doubling or halving of loudness | Substantial |
| 16 to 20 | Up to a quadrupling or quartering of loudness | Substantial |
| 21 or more | More than a quadrupling or quartering of loudness | Very Substantial |

### 1.3 Earth Bunds and Barriers - Effective Screen Height

When considering the reduction in sound level of a source provided by a barrier, it is necessary to establish the "effective screen height". For example if a tall barrier exists between a sound source and a listener, with the barrier close to the listener, the listener will perceive the sound as being louder if he climbs up a ladder (and is closer to the top of the barrier) than if he were standing at ground level. Equally if he sat on the ground the sound would seem quieter than if he were standing. This is explained by the fact that the "effective screen height" is changing with the three cases above. In general, the greater the effective screen height, the greater the perceived reduction in sound level.

Similarly, the attenuation provided by a barrier will be greater where it is aligned close to either the source or the listener than where the barrier is midway between the two.

## Hackney Bridge.

## DISPERSAL POLICY

This Dispersal Policy has been implemented to assist in the promotion of the four licensing objectives, in particular crime and disorder, public nuisance and public safety. This document is a live document where there can be updates reflecting best working practices via discussions with interested parties, professionals and in particular our neighbours.

Management are aware of the potential for neighbourhood noise and disturbance at closing time when customers leave. Management have agreed to implement a written dispersal policy to move customers from the premises and the immediate vicinity in such a way so as to cause minimum disturbance or nuisance to neighbours. Every effort will be made to minimise any potential nuisance and it will be the responsibility of all members of staff to support this policy.

## Winding-down Period

1. Management have implemented a "wind-down" procedure to facilitate prompt closure of the premises and orderly dispersal pattern by customers.
2. At closing key members of trained staff monitor the exit. Customers are informed that the premises are about to close and are directed towards the nearest exit.
3. The premises will promote controlled dispersal of customers by directions from staff and notices.
4. Internal lighting levels will be adjusted during the last 30 minutes of trading.
5. Music will be played at a lower level.
6. The winding own period encourages customers to disperse gradually prior to cessation of trade.
7. We are proud of the area and we will endeavour to keep the area clean and attractive for our patrons and our neighbours. This means dealing with debris outside our frontage that may have nothing to do with us but in the interests of maintaining good standards in the area we will still clear it up.

## Door Supervisors to assist with dispersal

Door supervisors, when deployed, shall be strategically positioned to help ensure that procedures for promoting public safety and preventing public nuisance are effective

## Notices

## Staff will be trained to be aware of

1. Where the nearest mode of public transport is.
2. Details of taxis and a number is available to customers.
3. General local knowledge so that if customers decide to move on the staff can help them with directions.
4. Where security is deployed, they will help ensure safe dispersal.
5. Litter pickers will be deployed to help keep the area clean.
6. The door supervisors are easily identifiable and before each night there will be a briefing.
7. There is an end of night team meeting to discuss any ways that the premises may improve the dispersal of patrons and any actions points are implemented.
8. Notices shall be displayed at customer exit requesting that patrons respect the needs of local residents and leave the premises and area quietly.
9. All employees are given appropriate instructions and training to encourage customers to leave the premises and the area quietly.

## Incident Reports

10. All incidents of crime or disorder or nuisance are to be reported by the designated premises supervisor or responsible member of staff.
11. The licence holder shall ensure that the details of all complaints are recorded in an occurrence book.

Hackney Bridge will attach the utmost importance to the careful investigation and prompt resolution of any complaint made in respect of the running of the premises. Particular emphasis will be placed on building and maintaining close links with local residents including hosting meetings where necessary to allow our neighbours to raise any issues and for those issues to be quickly resolved. The telephone number of the premises will be provided to all our immediate residential neighbours.

Hackney Bridge will constantly review our Dispersal Policy and respond quickly to the needs of our neighbours.

## To Whom it May Concern,

I am writing to you with regard to the license application for the development known as Clarnico Quay. East Wick and Sweetwater Projects (EWS) is the master developer for the permanent residential led mixed use communities of this name being constructed around the western edge of the Queen Elizabeth Olympic Park, within which this proposal is located.

EWS and London Legacy Development Corporation are working with MAKE SHIFT to deliver a multi- use community space at Clarnico Quay that is fully supported by all parties.

EWS have invested considerable sums enabling the site, and supported the appointment of MAKE SHIFT as meanwhile developer to bring forward Clarnico Quay as an interim phase of our project. The scheme is a central part of our place activation strategy, and in doing so we have worked with them on the bar and event space proposals to ensure these can be developed and operated successfully without impact on our future residents.

Clarnico Quay will offer local people excellent opportunities for both work and recreation, and help both economic and social growth in Hackney Wick. MAKE SHIFT have a proven record in successfully developing new sites that help serve the community and local small businesses in London.

An extensive consultation exercise has been undertaken prior to this application with the community, neighbours and ourselves. A series of controls are in place through our lease of the site to Makeshift, an accompanying service level agreement and the oversight of a community led "Steering Group" to regulate the operation of the project. We are therefore confident that Clarnico Quay will be extremely well managed. Any risk relating to the four Licensing Objectives is mitigated by the operational policies and systems that have been developed to allow the site to deal with any issues quickly and effectively.

I welcome and fully support this license application for Clarnico Quay




[^0]:    4.5 USE CLASS OVERLAPS

[^1]:    The output of the charette
    was the definition of external
    spaces and the break the program on the site

[^2]:    

    Carl
    Turne
    Archi

[^3]:    ${ }^{1}$ Appendix G.2.1 of BS 8233: 2014 Guidance on sound insulation and noise reduction for buildings recommends that a loss of approximately 15 dB is appropriate for external noise ingress through a partially open window

