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Trinity Islands, Trinity Way Manchester

Environmental Noise Study

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1.0 SUMMARY

Fisher Acoustics Ltd has been commissioned by Renaker Build Limited to conduct an environmental noise study relating to minor design changes at the Trinity Islands development, Trinity Way, Manchester. The design change of note from an acoustic perspective is the addition of an internal swimming pool and associated building services plant. The proposed gym within the building has also been relocated from the south east façade to the north east façade.

The relocation of the gym does not affect the impact of the gym on residents, as assessed in the noise and vibration chapter of the Environmental Statement for Trinity Islands.

An assessment of environmental noise has determined the pre-existing environmental noise levels during the day at noise sensitive receptors around the site.

The building services plant associated with the proposed swimming pool will be required to comply with established environmental noise limits such that noise nuisance can be avoided.

Maximum recommended internal noise levels within the swimming pool and gym have been determined such that noise impacts to the apartments above can be avoided.

2.0 INTRODUCTION

Trinity Islands is a large residential-led mixed use development currently under construction on Trinity Way, Manchester. The development includes four residential towers that will provide a total of 1950 apartments (Use Class C3) and internal residential amenity uses, private car parking within a multi-storey basement and cycle parking facilities, together with commercial units, public realm, highway and associated works.

The residential amenity spaces are located on the ground to third floors of each tower and will include lounges, shared workspaces and a gym. The four towers are named Buildings C1, C2, D1 and D2.

Planning for Trinity Islands was originally approved in May 2022 under planning reference 132429/FO/2021. This planning approval was subsequently superseded by Section 73 permission (planning reference 134039/JO/2022).

Fisher Acoustics Ltd has been commissioned by Renaker Build Limited to conduct an environmental noise study relating to a planning application for minor design changes at Site D Trinity Islands. The proposed design change that may have an environmental noise impact is an internal swimming pool at Level 3 of Building D1 and the relocation of the residents gym from the south east façade to the north east façade.

This report examines the pre-existing environmental noise conditions around the site and identifies the potential noise impacts associated with the proposals.

The steps undertaken in compiling this study are as follows:

- Assessment of daytime external noise survey data to determine the typical levels of background noise at noise sensitive receptors around the site
- Establishment of noise limits due to the simultaneous operation of all building services plant at the development, including plant to serve the proposed swimming pool
- Calculation of maximum allowable noise level in swimming pool and gym to comply with noise limits within apartments

3.0 DESCRIPTION OF SITE

General Site Description

Tower D1 forms part of Site D of the Trinity Islands development currently under construction on Trinity Way (A6042). Site D is bounded to the north and west by the River Irwell, to the east by Trinity Way and to the south by Regent Road.

The existing buildings around the site include residential buildings, a hotel and commercial buildings.

Regent Road and Trinity Way are principal roads that are heavily trafficked.

Figure 1 shows the overall Trinity Islands site in the context of the surrounding roads and buildings.

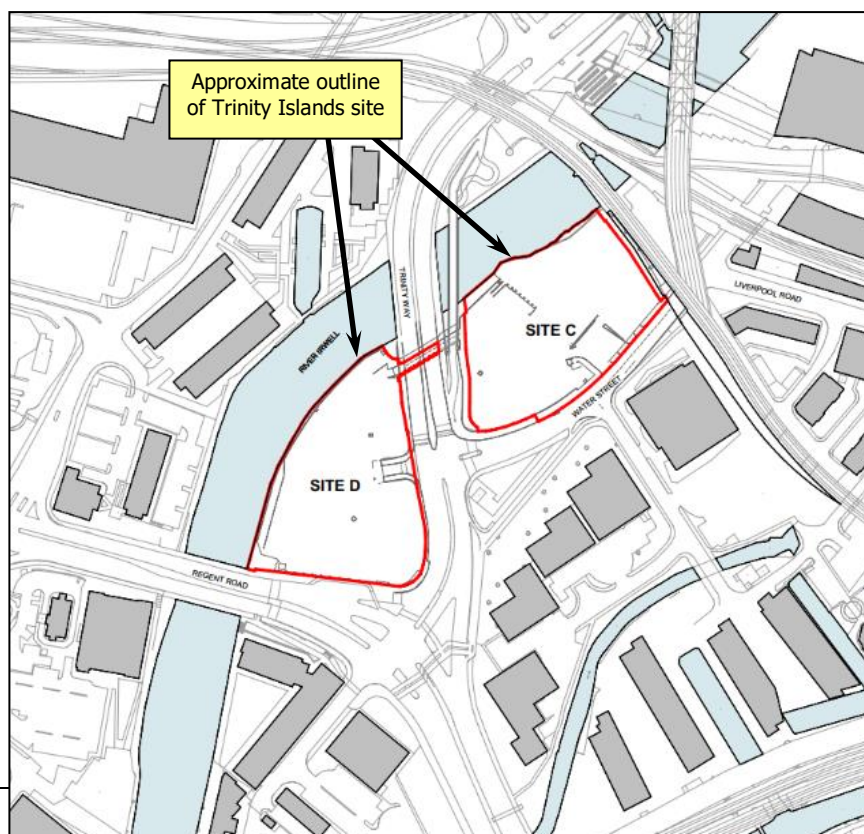


Figure 1: Overall site location plan

Figure 2 shows the location of Building D1.

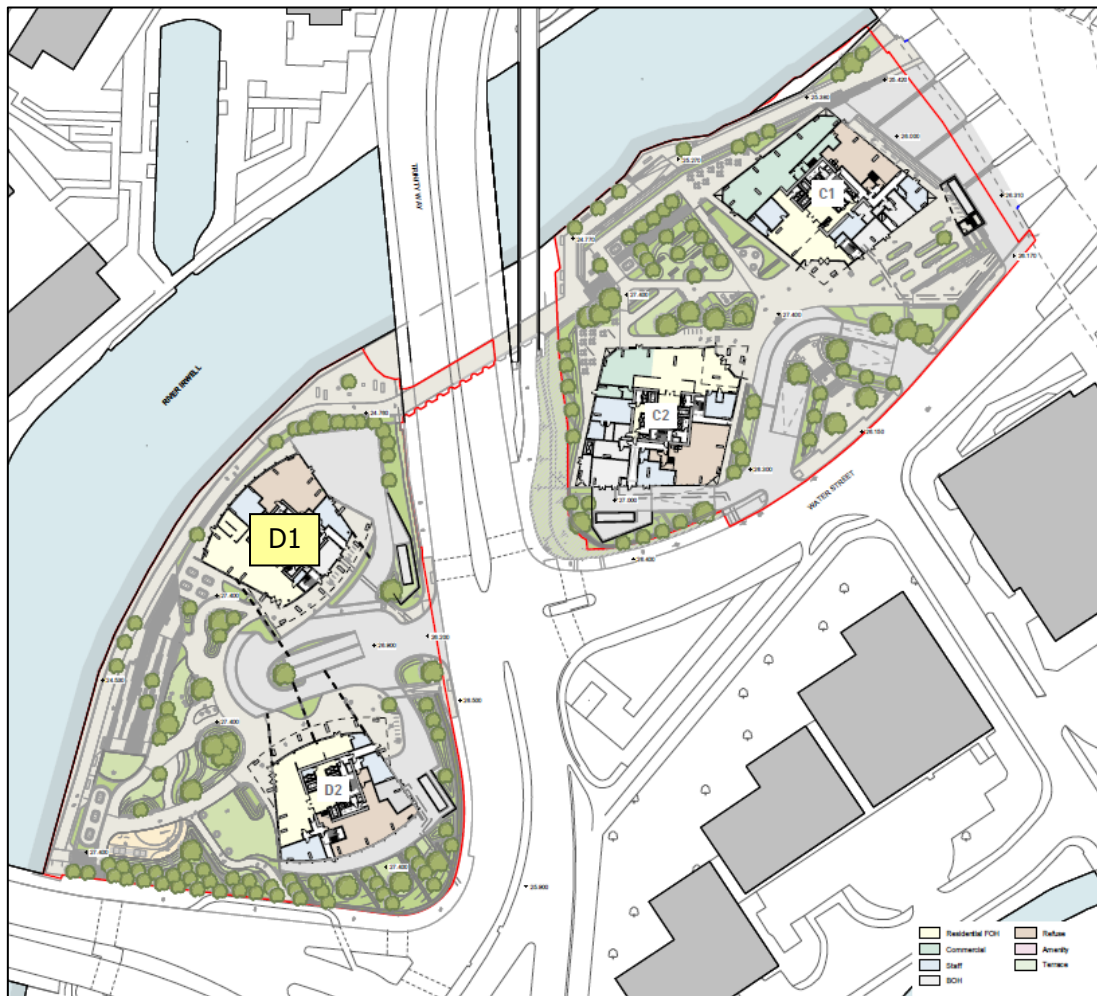


Figure 2: Location of Building D1

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed swimming pool, gym and building services plant associated with the swimming pool are to be located internally on the third floor of Building D1. Figure 3 shows the proposed position of the swimming pool, gym and plant room.



Figure 3: Level 3 floor plan, including location of swimming pool, gym and plant room, Building D1

Figure 4 shows a section through the lower levels of Building D1 and indicates the proposed location of the swimming pool and gym in relation to the closest apartments within the building.

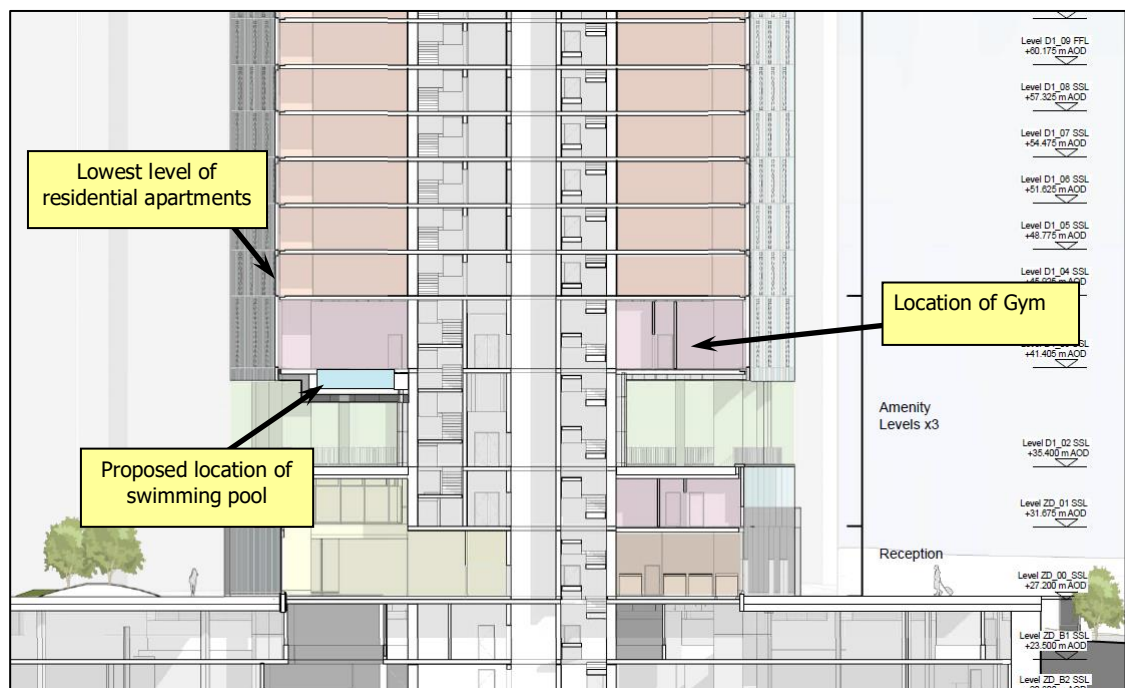


Figure 4: Proposed location of swimming pool and gym

The proposed operating times of the swimming pool and gym are as follows:

- Mon – Sun 0700 hrs – 2200 hrs

5.0 RELEVANT GUIDANCE DOCUMENTS

NATIONAL PLANNING POLICY

The National Planning Policy Framework (NPPF), published in December 2023 by the Ministry of Housing, Communities and Local Government ‘sets out the Government’s planning policies for England and how these should be applied’.

Paragraph 96 of the NPPF states that: ‘Planning policies and decisions should aim to achieve healthy, inclusive and safe places which:

‘promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use developments, strong neighbourhood centres, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages;’

and:

‘enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.’

Paragraph 97 of the NPPF states that: ‘To provide the social, recreational and cultural facilities and services the community needs, planning policies and decisions should:

‘plan positively for the provision and use of shared spaces, community facilities (such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments;

and:

‘take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community.’

Paragraph 102 of the NPPF states that

‘Access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities, and can deliver wider benefits for nature and support efforts to address climate change. Planning policies should be based on robust and up-to-date assessments of the need for open space, sport and recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision. Information gained from the assessments should be used to determine what open space, sport and recreational provision is needed, which plans should then seek to accommodate.

Paragraph 180 of the NPPF states that ‘Planning policies and decisions should contribute to enhance the natural and local environment by:

‘preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability’.

Paragraph 191 of the NPPF states:

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

- a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”

Paragraph 191a of the NPPF cross references the 'Explanatory Note to the Noise Policy Statement for England'. The 'Noise Policy Statement for England' (NPSE) was published by the Department for Environment Food and Rural Affairs in March 2010.

The NPSE does not give suggested external noise criteria for commercial developments. In the absence of specific criteria, reference shall be made in this document to established guidance and principles, as established in British Standards and the local Planning policy.

The NPSE applies to all types of noise apart from noise in the workplace (occupational noise). For the purposes of the NPSE, "noise" includes:

- "environmental noise" which includes noise from transportation sources;
- "neighbour noise" which includes noise from inside and outside people's homes; and
- "neighbourhood noise" which includes noise arising from within the community such as industrial and entertainment premises, trade and business premises, construction sites and noise in the street

The NPPF and the NPSE do not specify noise criteria above which adverse effects would be expected. However, discussion is included within the NPSE relating to 'significant adverse' and 'adverse' effects which seek to guide the Planning process, 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.

The NPSE then introduces 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.

The NPSE states that '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'.

To assist in the formulation of appropriate noise criteria for individual situations, the NPSE sets out the three aims, as follows:

- 1) The first aim of the Noise Policy Statement for England:

Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided while also taking into account the Government's guiding principles of sustainable development as defined in the NPSE.

- 2) The second aim of the Noise Policy Statement for England:

Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the Government's guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.

- 3) The third aim of the Noise Policy Statement for England

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

This aim seeks, where possible, positively to improve health and quality of life through the pro-active management of noise while also taking into account the Government's guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.

In the absence of specific criteria within the NPSE, reference shall be made in this document to established guidance and principles, as established in British Standards and the local planning policy.

National Planning Practice Guidance – Noise

'Planning Practice Guidance – Noise' is a web-based resource provided by the Ministry of Housing, Communities and Local Government (last revision date 22 July 2019) which gives guidance on planning considerations in relation to noise.

The document identifies the subjective grading of noise and the recommended actions and different effect levels as defined in the NPSE. Again, as 'Planning Practice Guidance – Noise' does not refer to objective criteria, reference shall be made in this document to established guidance and principles.

LOCAL PLANNING POLICY

Manchester City Council's Core Strategy was adopted on 11th July 2012 and is the key Development Plan Document in the Local Development Framework (LDF).

Section 13.6 'Development Management' of the Core Strategy states that 'all new developments should follow the 'Development Principles' and accord with the design guidance set out in the Supplementary Planning Documents.

'Policy DM 1, 'Development Management' of the Core Strategy states:

- All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document: Effects on amenity, including noise, vibration.... This could also include proposals which would be sensitive to existing environmental conditions, such as noise.

'Planning & Noise, Technical Guidance', dated October 2022 has been issued by the Environmental Protection, Environmental Health and The Neighbourhoods Service sections of Manchester City Council. The document provides guidance to applicants and consultants concerning the assessment and prediction of environmental noise associated with a particular development.

With regard to external noise due to building services plant, Section 3.7.1.5 of 'Planning & Noise, Technical Guidance' states:

- 'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location'

ProPG: GYM ACOUSTICS GUIDANCE

There is no statutory performance requirement in relation to the transfer of noise from gyms to residential areas. However, guidance has been jointly published by the Institute of Acoustics, the Association of Noise Consultants and the Chartered Institute of Environmental Health. In particular, 'ProPG: Gym Acoustics Guidance', published in March 2023, provides suggested maximum noise levels in residential dwellings due to both airborne and impact noise transfer from gyms.

The guidance relates to all gyms, including commercial gyms. It could therefore be argued that the guidance is necessarily more onerous than needs to be the case for a gym that is solely for the use of the residents of the building, as the users of a residents-only gym can be instructed in the safe use of weights such that the dropping of weights on the floor does not occur frequently. In addition, the publication post-dates the planning approval date for the development at Trinity Islands.

On this basis, it is not proposed to design for the impact noise targets of the ProPG. However, it is recommended that reasonable and practicable measures are taken to mitigate occasional weight drops by users, as described in this report.

6.0 PLANNING CONDITIONS

The planning approval for the development (planning reference 134039/JO/2022) includes a number of conditions relating to noise. Of particular relevance to the proposed swimming pool are conditions 118a and 119a, reproduced below:

- 118) Notwithstanding Chapter 11 - Noise and Vibration Matt Fisher Acoustics of the ES stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021

(a) Prior to the first occupation of the residential element of phase D1 of the development hereby approved, details of any externally mounted ancillary plant, equipment and servicing shall be submitted for approval in writing by the City Council, as Local Planning Authority. For the avoidance of doubt, externally mounted plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5 dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location.

- 119) (a) Notwithstanding Chapter 11 - Noise and Vibration Matt Fisher Acoustics of the ES stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021, prior to the first use of residents lounge, co working spaces and gymnasium in phase D1 as indicated on drawings D1-SHP-G200-PL-GRD-B5D801 P01, D1-SHP-G200-PL-01-B5D801 P01, D1-SHP-G200-PL-02-B5D801 P01 and D1- SHP-G200-PL-03-B5D801 P01 stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021, a scheme of acoustic insulation for those spaces shall be submitted for approval in writing by the City Council, as Local Planning Authority.

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 5dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.

7.0 NOISE SENSITIVE RECEPTORS

Figure 5 identifies the nearest noise sensitive receptors to Building D1. The buildings that are not identified as 'noise sensitive receptors' in Figure 5 are at a greater distance from the proposed development than the identified receptors and are subject to similar levels of pre-existing ambient noise. Thus, if satisfactory conditions are expected at the assessed receptors, then satisfactory conditions can also be expected at any other buildings.

It should be noted that Building D1 itself is a noise-sensitive receptor due to the residential dwellings at and above Level 4 of the building.

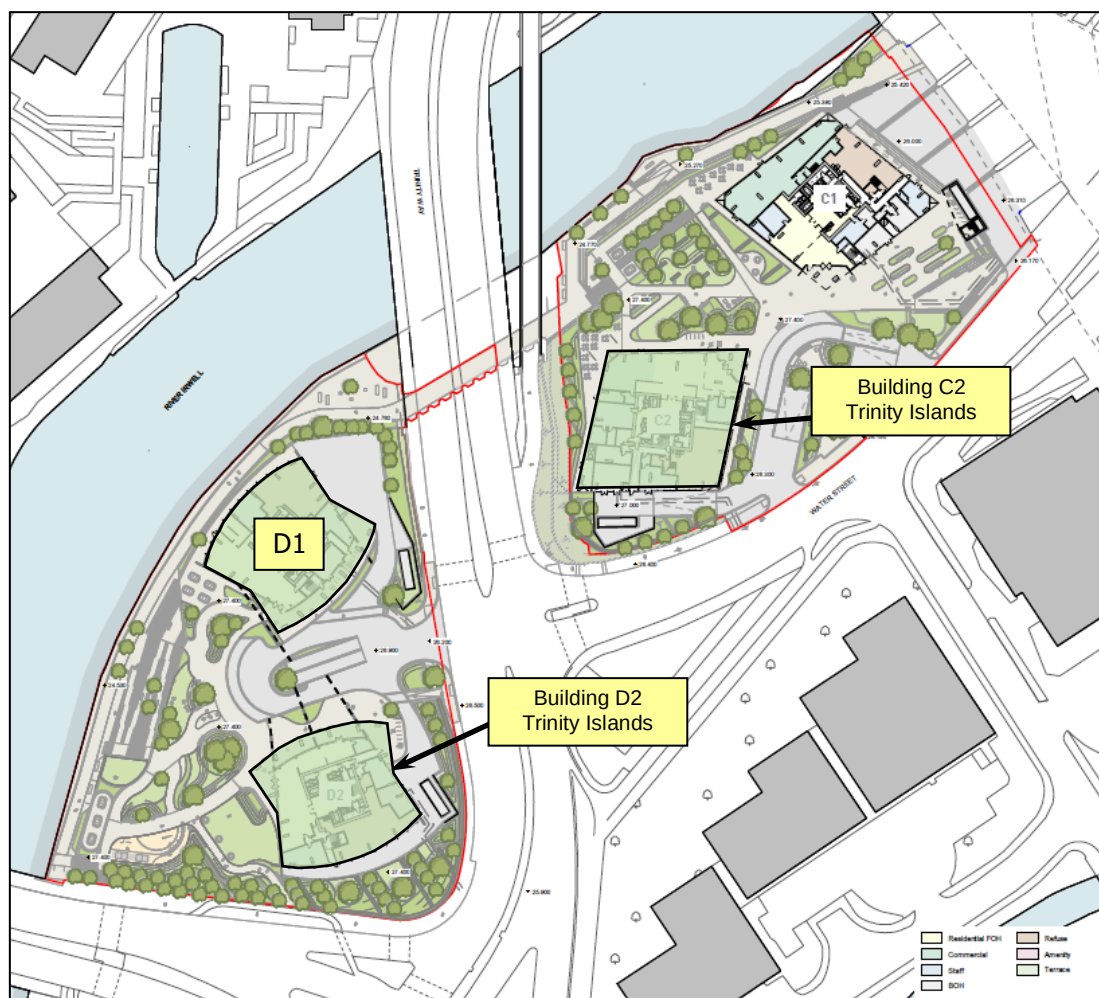


Figure 5: Noise sensitive receptors in the vicinity of the development

8.0 ENVIRONMENTAL NOISE SURVEYS AND EXTERNAL NOISE CRITERIA

The environmental noise study that was conducted as part of the planning submission for Trinity Islands included noise surveys within and around the site. The results of the noise surveys allow the establishment of the maximum allowable external noise levels at residential receptors within the Trinity Islands development due to building services plant noise and activity noise breakout. Appendix 11.1 of the Environmental Statement for Trinity Islands identified these allowable noise levels (planning reference 134039/JO/2022).

Building services plant noise limits

The mechanical services design and building services plant selections for the swimming pool have not yet been completed. Therefore, an assessment of noise from the potential installations cannot yet be carried out. However, in the absence of specific selection of plant items, overall plant noise limits can be provided such that compliance with the noise criterion of Manchester City Council is achieved.

In particular, with reference to the Appendix 11.1 of the Environmental Statement for Trinity Islands and planning condition 118a of the planning approval, Table 1 identifies the allowable combined free-field noise level at the nearest residential receptors due to all simultaneously-operating non-emergency building services plant and equipment at the Trinity Islands development.

Location	Rating level (dB LAeq)	
	Daytime (07:00 hrs to 23:00 hrs)	Night time (23:00 hrs to 07:00 hrs)
Tower C2	46	40
Tower D1	55	40
Tower D2	55	49

Table 1: Environmental noise limits for non-emergency building services plant

Upon confirmation of all building services plant within Building D1, including plant related to the proposed swimming pool, a noise study will be conducted to ensure that the noise limits identified in Table 1 will be achieved.

Amenity activity noise breakout limits

Table 2 identifies the maximum allowable cumulative daytime and night time free-field external noise levels at the closest residential façades due to activity noise from the amenity spaces and commercial units within the proposed development to comply with planning condition 119.

Location/period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Tower C2 (0700 to 2300)	64	58	57	56	57	51	40
Tower C2 (2300 to 0700)	44	40	38	36	37	31	25
Tower D1 (0700 to 2300)	59	55	53	51	53	47	36
Tower D1 (2300 to 0700)	48	40	38	36	37	31	25
Tower D2 (0700 to 2300)	63	57	55	53	55	49	42
Tower D2 (2300 to 0700)	48	44	44	44	47	41	28

Table 2: Maximum allowable external music noise levels due to proposed commercial units

9.0 INTERNAL NOISE TRANSFER

There are residential apartments within the building that lie directly above the proposed swimming pool and gym. There is therefore the possibility of internal noise transfer between both the swimming pool and gym and the apartments above via the party floor structural slab.

The party floor between the pool and gym and the apartments directly above is a 250 mm thick flat concrete slab.

Planning condition 119 (see Section 6 above) identifies the maximum allowable noise levels at 63 Hz and 125 Hz in structurally-connected dwellings due to entertainment noise transfer from amenity spaces within the building. The condition does not stipulate allowable noise levels at frequency bands above 125 Hz. However, section 3.7.1.2 'Entertainment Venues' of 'Planning & Noise, Technical Guidance' issued by Manchester City Council in October 2022 states that in relation to entertainment noise 'the [NR15] curve may be too stringent at mid and higher frequencies'. It is therefore suggested that at frequency bands above 125 Hz, the allowable noise level in apartments due to entertainment (music) noise from adjoining amenity spaces lies between NR15 and NR20.

With reference to the above, in order to comply with the requirements of condition 119, the internal noise levels within an apartment due solely to music replay in the non-residential spaces should not exceed the values given in Table 3.

Location	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Apartments above swimming pool & gym	47	41	26	20	17	15	12

Table 3: Maximum recommended noise levels in apartments due to music replay in swimming pool and gym

It should be noted that the values in Table 3 to comply with the requirements of Manchester City Council are more onerous than the upper noise limits of 'ProPG: Gym Acoustics Guidance' for daytime airborne noise transfer and similar to the upper noise limits of 'ProPG: Gym Acoustics Guidance' for night time airborne noise transfer.

Given the party floor slab and associated structures, Table 4 identifies the calculated maximum allowable music noise levels in the swimming pool and gym without exceeding the noise limits given in Table 3. Within the body of the main gym, a gym studio is proposed which would hold specific gym classes. Separate noise limits for the gym studio have been identified as this space is to be provided with a suspended solid ceiling to provide additional sound insulation to the residential areas above.

Room	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Swimming Pool	82	82	73	70	73	80	85
Gym	82	82	73	70	73	80	85
Gym Studio	85	88	83	80	80	83	85

Table 4: Maximum allowable noise levels in D1 swimming pool and gym– re internal noise transfer

The allowable music noise levels in the swimming pool and gym would allow background music replay in keeping with the proposed use.

The allowable music noise levels in the gym studio would allow reasonably high music replay levels in keeping with the proposed use.

10.0 ACTIVITY NOISE BREAKOUT FROM SWIMMING POOL AND GYM

Noise egress calculations have been carried out to determine the expected noise level at the closest residential properties due to activity noise breakout from the proposed swimming pool and gym.

The swimming pool and gym are to be fully mechanically ventilated and cooled spaces such that opening panels are not required in the façade to ventilate the spaces. Therefore the determinant of the sound insulation performance of the external envelope will be the curtain wall and associated glazing.

The glazing specification to the swimming pool and gym curtain wall, to be installed as part of the main construction contract for Trinity Islands, is as follows:

- Triple glazing of 12.8 mm acoustic laminate glass / 14 mm cavity / 5 mm glass / 16 mm cavity 16.8 mm laminate glass

The expected minimum weighted sound reduction index performance values of the curtain wall when glazed with the above glazing specification are given in Table 5.

Building element	Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)						
	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
Curtain wall, including glazing of 12.8 mm acoustic laminate / 14 mm cavity / 5 mm glass / 16 mm cavity 16.8 mm laminate	25	31	38	43	46	50	63

Table 5: Expected sound reduction index of swimming pool curtain wall

Calculations have been carried out to determine the external noise level at the closest residential receptors to the swimming pool, gym and gym studio on the basis that the allowable internal noise levels given in Table 4 are generated. Table 6 identifies the results of the calculations.

Location	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Level 4 apartment façade due to swimming pool breakout	49	38	20	10	10	12	9
Level 4 apartment façade due to main gym breakout	49	38	20	10	10	12	9
Level 4 apartment façade due to gym studio breakout	46	43	33	24	17	17	11

Table 6: Calculated external noise levels due to maximum allowable internal noise level-swimming pool & gym

With reference to the values in Table 2 and Table 6, It can be seen that compliance with the applicable daytime external noise limits is fully expected to be achieved given the maximum allowable internal noise levels within the swimming pool, gym and main gym.

11.0 IMPACT SOUND TRANSFER FROM GYM

There is the potential for disturbance of residents due to the dropping of weights on the floor of the proposed gym. The commentary provided herein is a result of the proposed relocation of the gym from the south east façade to the north east façade and follows from design development of the gym, including the gym layout.

As discussed above, there is no statutory performance requirement in relation to the transfer of impact sound from gyms to residential areas. The ProPG Gym Acoustics Guidance is considered to be more onerous than required for a gym that is solely for the use of the residents of the building, as the users of a residents-only gym can be instructed in the safe use of weights such that the dropping of weights on the floor does not occur frequently. In addition, the ProPG publication post-dates the planning approval date for the development at Trinity Islands.

On this basis, it is not proposed to design for the impact noise targets of the ProPG. However, reasonable and practicable measures are taken to mitigate occasional weight drops by users, as described below.

Figure 6 shows the Level 3 floor plan, including the proposed equipment layout within the gym. The proposed free weights area is highlighted.

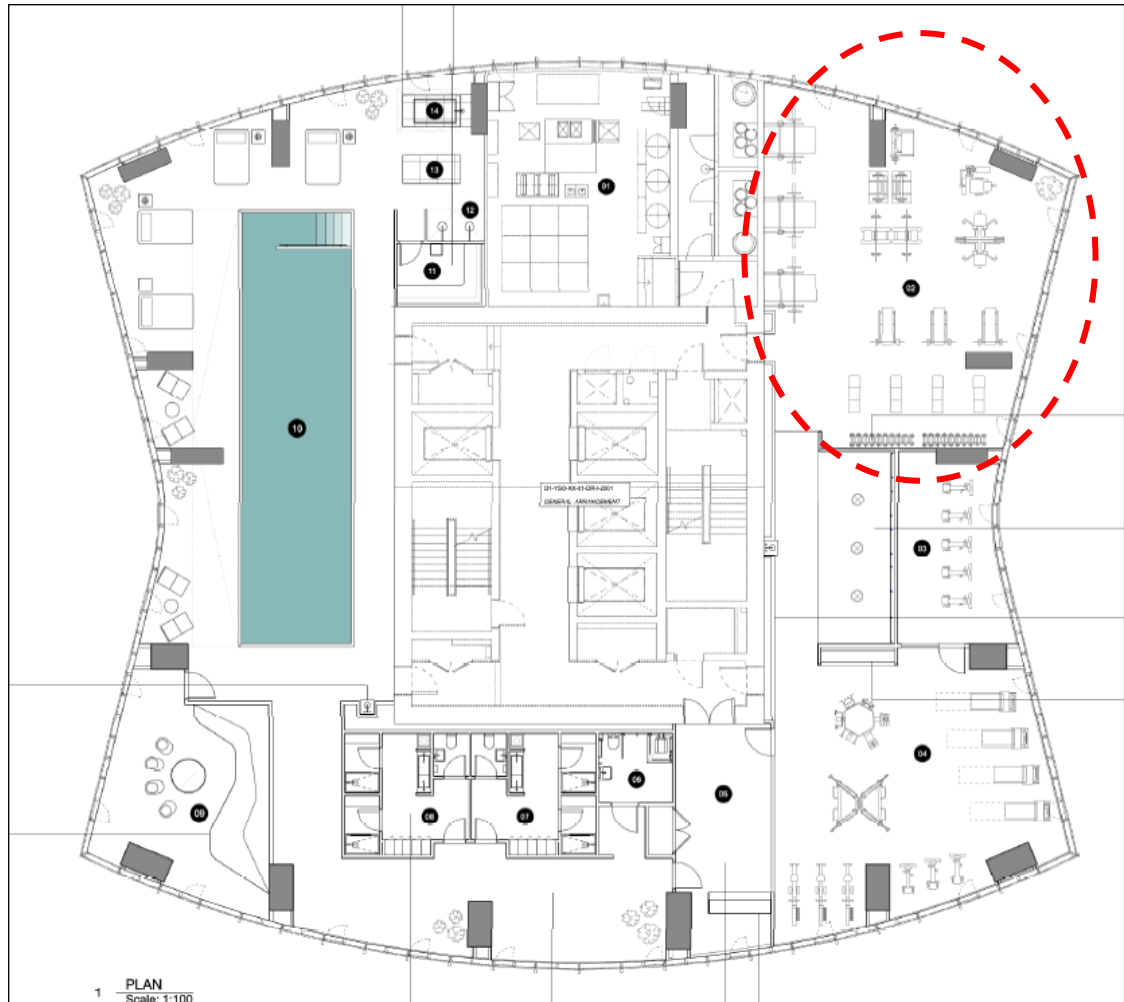


Figure 6: Level 3, Gym floor plan

There are residential apartments directly above the gym. Reasonable mitigation of impact noise due to the dropping of free weights can be achieved by the installation of a proprietary resilient floor coverings in the weights area of the gym.

A suitable resilient floor covering in the free weights area and below selectorised weight resistance machines is identified below.

- GenieMat FIT70 (70 mm thick) on GenieMat FF25 (25 mm thick) by Pliteq

The above resilient floor covering is expected to achieve impact sound levels in the residential areas above the gym that are approximately 8dB greater than the recommended maximum daytime impact sound levels in residential areas identified in the ProPG guidance due to the typical dropping of free weights (eg 20 kg dumbbells dropped from a height of 500 mm). This level of performance is expected for weights benches that are located close to columns.

The identified level of performance relative to the recommendations of the ProPG document is considered acceptable as the building management will be able to influence the conduct of gym users such that weight drops occur infrequently.

12.0 CONCLUSION

Cumulative noise limits for all building services plant serving the Trinity Islands development have been confirmed. Compliance with these noise limits will be required given the operation of all plant at the development, including plant that serves the proposed swimming pool.

The expected internal noise levels within the swimming pool and gym are lower than the identified maximum allowable internal noise levels within the swimming pool to allow compliance with the internal noise requirements of condition 119. In addition, compliance with these internal noise limits is fully expected to allow compliance with the identified external noise limits at the nearest residential facades.

Potential impact noise from the gym due to the dropping of weights is to be controlled by the provision of high performance proprietary resilient gym floor coverings specifically designed to reduce low frequency impact noise.

Therefore compliance with planning conditions 118 and 119 is fully expected due to operation of the proposed swimming pool and gym.

The relocation of the gym does not affect the impact of the gym on residents, as assessed in the noise and vibration chapter of the Environmental Statement for Trinity Islands.