Noise Assessment

to accompany the Planning Application
for the development at

1328 Uxbridge Road UB4 8JG

PROPOSAL:
Conversion (change of use) of the first floor commercial into 2 self-contained residential flats

APPLICANT:
Mr Chitra

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Revision (A)

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1.0 INTRODUCTION

1.1 We have been commissioned to review and assess the suitability of the application site for the conversion (change of use) of a first floor commercial unit into 2no. residential flats in accordance with Permitted Development rights as outlined in Class MA (commercial uses to dwellinghouses) of The Town and Country Planning (General Permitted Development) (England) Order 2021. The noise assessment is to accompany a Permitted Development rights Prior Approval application to the Local Planning Authority which is London Borough of Hillingdon.

1.2 This report provides a summary of the relevant acoustic design criteria, based on guidance such as BS 8233 (2014) 'Guidance on sound insulation and noise reduction for buildings' and the requirements of Approved Document E 'Resistance to the passage of sound' (ADE), 2003 edition (incorporating 2015 amendments) which is an approved publication for the purposes of The Building Regulations 2010. In accordance with the requirements of London Borough of Hillingdon Supplementary Planning Document: Noise April 2006 (referred to as Noise SPD), the noise criteria are set with reference to the guidance of British Standard BS8233:2014 "Guidance on Sound Insulation and Noise Reduction for Buildings".

1.3 The Permitted Development rights requirement relates only to impacts of noise specifically from commercial premises. "Commercial premises" is defined within the GPDO 2015 (as amended 2016) as meaning any premises normally used for the purpose of any commercial or industrial undertaking which existed on the date of the Prior Approval application, and includes any premises licensed under the Licensing Act 2003(a) or any other place of public entertainment.

1.4 There is no Permitted Development rights requirement to consider noise from other sources such as residential premises or infrastructure type noise sources such as from road traffic, aircraft or railways. Notwithstanding this, assessment of noise to the proposed change of use residential flat development as contained within this report unavoidably includes contributions of noise from other sources. This is provided as good practice, for completeness and as informative to the developer.

CDM Regulations

1.5 Although this report may reference specific products and/or manufacturers, these are included as a suitable example only and there will normally be numerous alternative products that could be used.

1.6 The final specifications for construction materials and methods used would be prepared by others. Any potential health and safety issues associated with specified materials and construction methods must be mitigated based on all available information including that from the manufacturer and/or supplier.

1.7 Some of the risks associated with the use of materials and construction methods commonly suggested in relation to achieving acoustic requirements include:

- manual handling of heavy blockwork and boards;
- handling of hazardous substances such as mineral wool, which can be an irritant;
- noisy construction works, where quieter alternatives should be used, and
- protection provided to site operatives where necessary

2.0. SITE

2.1. Site Location

Site Address: 1328 Uxbridge Road UB4 8JG
Local Planning Authority: London Borough of Hillingdon

The figure 1 shows a site location aerial image:

Figure 1

2.2. Site Description

This site is occupied by a three-storey building on the north side of Uxbridge Road which lies within the Developed Area as identified within the Hillingdon Local Plan - Saved UDP Policies (November 2012). The building is not a listed building nor is the application site located in the conservation area. The site is located along a service road off the A4020 (Uxbridge Road) with access gained towards the rear of the site off Hayes End Drive, an unclassified residential road which links to the A4020.

The ground floor has been used as a retail shop called The Discount Store, which is a ground floor double fronted shop unit with stairs and storage area at the rear. It is forming part of a parade of shops, a secondary shopping area. At first floor which is the subject of this application, there is a large storage area, offices and staff facilities serving the ground floor commercial unit. On the second floor, there is a four bedroom flat, accessed by an external staircases with roof terrace areas on first and second floors. Access to the flat and parking is available from the service road to the rear.

The first floor storage area is connected to the ground floor through an internal staircase and conveyor belt at the back of the building. The first floor is currently unoccupied and it has been vacant for the last few months.

The area around the development site is mixed use, with various smaller size commercial/retail premises principally at ground floor fronting New Broadway / A4020 Uxbridge Road, some community use premises, and with multiple existing residential dwellings all around including flats above commercial/retail premises plus houses along New Broadway / A4020 Uxbridge Road, and other streets beyond. Specifically regarding commercial premises; the nearest commercial/retail premises to the development site are at ground floor level within the building block.

3.0. PROPOSED DEVELOPMENT

This report is prepared to support a planning application for the conversion of a first floor commercial unit above a ground floor shop into 2no residential flats. The new first floor flats will be accessed from the back of the building.

A site location plan and proposed layout plan drawing for the development are submitted with the application.

4.0. POLICY REQUIREMENTS AND ACOUSTIC DESIGN CRITERIA

Noise related government Permitted Development policy, Building Regulations ADE, details of the Local Planning Authority noise policy, and British Standards which are considered potentially relevant / applicable to the proposed residential development are provided in the following sections:

4.1. Permitted Development Rights Noise Requirements

The Prior Approval application is in accordance with Permitted Development rights as outlined in Class MA (commercial to dwellinghouses) of The Town and Country Planning (General Permitted Development) (England) Order 2021.

The noise assessment mechanism for the Change of Use; Class MA: Commercial Uses To Dwellinghouses is specifically Condition MA.2(2)(d) as outlined below:

> **Conditions**
>
> **MA.2.**
>
> *(2) Before beginning development under Class MA, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required as to—*
>
> *(a) ……..*
> *(b) ……..*
> *(c)……..*
> ***(d) impacts of noise from commercial premises on the intended occupiers of the development;***
> *(e) ……..*

The Permitted Development rights requirement relates only to impacts of noise specifically from commercial premises. "Commercial premises" is defined within the GPDO 2015 (as amended 2016) as meaning any premises normally used for the purpose of any commercial or industrial undertaking which existed on the date of the Prior Approval application, and includes any premises licensed under the Licensing Act 2003(a) or any other place of public entertainment.

There is no Permitted Development rights requirement to consider or assess any noise from other sources such as other residential premises or infrastructure type noise sources such as from road traffic, aircraft or railways. Notwithstanding this, assessment of noise to the proposed change of use residential flat development as contained within this report unavoidably includes contributions of noise from other sources. This is provided as good practice, for completeness and as informative to the developer.

4.2. Building Regulations Approved Document E

General

4.2.1 The design requirements for the internal acoustics of dwelling-houses, flats and rooms for residential purposes are based on the requirements detailed in ADE and these performance standards are presented below:

Part E1 - sound insulation to be achieved by separating walls and floors between adjacent flats or rooms for residential purposes and common areas;

Part E2 - sound insulation of internal walls and floors within a unit;

Part E3 - control of reverberation in common areas.

Part E1

4.2.2 The sound insulation performance standards specified in ADE, for walls and floors that have a separating function between apartments formed by a material change of use, are presented in Table 1, below:

Table 1 – Sound Insulation Performance Standards for Separating Walls, Floors and Stairs

Separating Structure	Airborne Sound Insulation $D_{nT,w} + C_{tr}$ dB (Minimum Value)	Impact Sound Insulation $L'_{nT,w}$ dB (Maximum Value)
Walls	43	-
Floors and Stairs	43	64

4.2.3 The above performances should also be achieved between apartments and any other part of the same building, and dwellings in an adjacent building.

4.2.4 In order to show compliance with ADE, a proportion of the separating walls and floors in a development need to be pre-completion tested.

4.2.5 Part E1 also identifies requirements for doorsets onto common areas, which should be designed to achieve 29dBRw, or ensure that they have a minimum mass of 25kg/m2 plus good perimeter sealing, including the threshold where practical.

Part E2

4.2.6 ADE confirms that the internal wall and floor constructions within rooms for residential purposes, whether purpose built or formed by material change of use, need to achieve a laboratory value of at least 40dBRw. This is based on manufacturer's laboratory test data and does not require to be checked on site.

Part E3

4.2.7 In addition to the above sound insulation performance standards, a further requirement of Approved Document E is to control reverberation times, to a reasonable level, in common internal parts of buildings containing flats or rooms for residential purposes. This can be achieved by either of the following methods:

Method A: Cover a specified area with an absorber of an appropriate class that has been rated according to BS EN ISO 11654:1997;

Method B: Determine the minimum amount of absorptive material using a calculation procedure in octave bands. This method is intended only for corridors, hallways and entrance halls and is not well suited to stairwells.

4.3. London Borough of Hillingdon Noise Policy

Policy EM8: Land, Water, Air & Noise plus associated supporting paragraphs from Section 8: Core Policies – Environmental Improvement of London Borough of Hillingdon document Hillingdon Local Plan: Part 1 – Strategic Policies (adopted November 2012) includes reference to noise associated with development proposals.

Neither Policy EM8 nor its associated supporting paragraphs provide any noise assessment guidance, methodology or criteria (noise limits) as applicable to development proposals including for new or change of use residential dwellings.

However, and although not referenced by Policy EM8, London Borough of Hillingdon Supplementary Planning Document: Noise April 2006 (referred to as Noise SPD) covers in detail noise issues relating to a wide range of planning scenarios and is commonly referenced / used by the Council and acoustic consultants for the noise assessment of proposed residential developments within the Borough.

Section 5.0: Environmental Protection Unit Advice of the Noise SPD provides details of the standards the Council use in assessing noise levels for various types of development, including British Standard BS4142 and also British Standard BS8233 as potentially applicable for the proposed residential flat change of use development.

British Standards BS4142 and BS8233 both have updated editions now in use (since issue of the Noise SPD) and are referenced by many Local Planning Authorities with regard noise criteria for proposed new residential development.

5.0. NOISE ASSESSMENT

General

To carry out the noise assessment for the proposed development, it is important to note that the Permitted Development rights requirement to consider noise impact relates only to noise from commercial premises. There is no Permitted Development rights requirement to consider infrastructure noise from such as road traffic as being the dominant source of noise to the development site.

Thus, because road traffic is the dominant noise source, then the noise assessment as provided in this report is carried out as good practice, for completeness and as informative to the developer with reference to the protection of future occupants of the proposed development against noise in general, rather than being as required under Permitted Development legislation to protect against any noise from commercial premises.

In terms of a general and qualified subjective observation based noise assessment, noise levels at the development site are predominantly due to road traffic, follow a normal diurnal pattern and are considered relatively low. Although the site is noise affected by traffic on the nearby A4020 Uxbridge Road as well as the adjacent residential streets, it is not affected by exceptional or high noise levels of magnitude that would preclude residential development.

In overall planning context, noise levels to the development site are relatively low as compared with the majority of residential development sites in other urban (or sub-urban) areas or town/city centre locations and/or those closer to (less screened from) roads and/or railway lines etc.

It is the author's experience that the majority of residential development sites granted approval by Local Planning Authorities (albeit often with a condition relating to noise mitigation), are exposed to noise levels higher than, and often much higher than, those to the proposed development.

Specifically with regard to Permitted Development legislation, results of the noise assessment and subjective observations provide a positive indication there would be no adverse impact of noise on intended occupiers of the proposed change of use residential flat development with regard to commercial premises. Any noise contribution to the development from commercial premises is not significant and not generally noticeable as compared with noise from road traffic.

5.1. ASSESSMENT OF WALL CONSTRUCTIONS

Separating Walls

5.1.1. Based on the layout of the building, there are only three types of separating walls as explained below:

Separating Walls between Apartments

5.1.2. The separating wall can follow the below construction build-up:

> *2 layers of 15mm thick British Gypsum (BG) SoundBloc each side of twin Gypframe 'C studs braced at 1200mm centres, with 50mm thick mineral wool insulation (with a minimum density of 10kg/m3) in the cavity.*

5.1.3. This construction is BG system 'A216009' which has a laboratory measured sound insulation performance of 62dBRw. Assuming that on-site detailing is of a high standard, the proposed construction should achieve an airborne sound insulation performance of at least 45dBDnT, w + Ctr, and therefore, meet the requirements of ADE.

Separating Walls between Apartments and Adjacent Building

5.1.4. It would appear that the separating walls between the development and the adjacent buildings are constructed from two leaves of brick.

5.1.5. Assuming that the combined width of the two leafs of brick is at least 220mm, then the requirement of ADE could be achieved on site. However, it would be a marginal situation depending on the internal finishes in the adjacent buildings.

5.1.6. Therefore, it is recommended that a lining consisting of a single layer of 12.5mm thick BG SoundBloc supported off a Gypframe GL1 lining channel fixed to one side, forming a cavity at least 35mm. The cavity should be filled with 25mmm thick mineral wool insulation.

Separating Wall between Apartment and Corridor/Entrance Hallway

5.1.7. The separating walls between the flats and the corridors are proposed to be constructed from concrete block.

5.1.8. In order to meet the sound insulation requirements for these walls, the following lining is proposed:

> Block wall, lined to one side with 2 layers of 12.5mm thick BG SoundBloc supported off a Gypframe GL1 lining channel on Gypline GL9, forming an 85mm wide cavity, partially filled with 50mm mineral wool insulation.

5.1.9. This lining is the same as BG system B226005 which should give an improvement in the airborne sound insulation performance of the wall of around +10dB.

5.1.10. However, this is based on the block wall having a minimum density of 1700kg/m3. If the block has a density significantly below this, it is recommended that an independent lining is installed instead. This would need to be reviewed once the density of the block has been confirmed.

Further Considerations

5.1.11. To maintain the expected sound insulation for separating walls, the following points need to be complied with;

- Each lining to be installed with staggered joints;
- Ensure the absorptive material within partitions and linings to be unfaced mineral wool batts or quilt (which may be wire reinforced), minimum density 10kg/m3 and covers the whole wall area;
- Ensure there are no direct connections between the two leaves other than the acoustic braces;
- Seal all joints in the outer layer with tape or caulk with sealant;
- Stagger the position of sockets on opposite sides of the separating wall and use a similar thickness of cladding behind the socket box. Do not locate sockets back to back. A minimum edge to edge stagger of 200mm is recommended. Do not chase plasterboard;
- Stairs should not be directly fixed to any separating wall.

5.1.12. Control flanking transmission from walls and floors connected to the separating wall. This would require a review of the junction details as prepared by the architect.

Internal Walls

5.1.13. The following internal wall construction is proposed:

Metal Stud Construction; One layer of 12.5mm BG SoundBloc each side of 70mm wide Gypframe.

5.1.14. This wall construction is British Gypsum system A206033 and has a laboratory measured performance of 40dBRw, and therefore, complies with ADE.

Doors

5.1.15. Front doors of the apartments to corridors and hallways should provide a minimum sound insulation of 29dBRw, which could be achieved using a solid core door fitted with appropriate compressible rubber acoustic seals to the head, jambs and threshold.

5.1.16. There are no specific requirements in relation to acoustics for internal doors.

Soil Water Pipe Risers

5.1.17. ADE states that where pipes run between apartments they should be enclosed for their full height in each room.

5.1.18. The enclosure should be constructed from 2 layers of 12.5mm thick BG SoundBloc supported of an independent 'I 'stud with 25mm acoustic insulation in the cavity. In addition, all pipes should be resiliently mounted.

5.2. ASSESSMENT OF FLOOR CONSTRUCTIONS

5.2.1 It is understood that there is two floor construction type on site. The floor constructions are discussed below.

Separating Floor between Flats A&B and the above residential units

5.2.2 In order to meet the requirements of the ADE, it is recommended that the following floor construction is used between the proposed flats and the existing residential units on top floor:

- A floating floor consisting of either 1 layer of 18mm thick T&G board and 1 layer of 19mm plasterboard plank laid on top of a resilient layer (such as a layer of Regupol 3912) or a floating floor system such as such as Monafloor Deck 18;
- Existing timber floorboard, made good where required (no holes);
- Existing timber joists with 50mm mineral insulation (with a density of between 20 to 40kg/m3) laid in between;
- Ceiling formed from 2 layers of 15mm thick BG SoundBloc (or boards of equivalent mass) supported off a resilient bar.

Separating Floor between Flats A&B and Ground Floor Retail

5.2.3 It is understood that the floor construction between the existing ground floor retail unit and the proposed flats on first floor is unknown.

5.2.4 In order to improve the sound insulation performance of the separating floor to meet the recommended noise level limit a floating floor should be installed on top of the existing floor in the first-floor flats. Prior to any floating floor being installed it is recommended that the existing floorboards are taken up and mineral wool insulation (at least 100mm thick) is installed between the existing floor joists. The floorboards should be reinstated and made good, or replaced, where required.

5.2.5 The following floating floor construction should be installed on top of the existing floorboards:

- A layer of T&G floorboard at least 18mm thick;
- A layer of dense plasterboard with a minimum mass of 13.5kg/m2;
- FFT1/2 resilient composite deep battens, such as a Monarfloor Acoustic Cradle system, creating a cavity least 70mm between the existing floorboards and the gypsum-based board. Mineral wool insulation, at least 50mm thick with a density of at least 20kg/m3, must be laid in the cavity.
- Existing floor-boards.

5.3 ASSESSMENT OF THE INTERNAL FINISHES

5.3.1 In order to meet the requirements of Part E3 of ADE, the reverberation time in all common areas (e.g. lobbies, stairwells) should be controlled to a reasonable level. This is usually achieved by adding an absorptive ceiling and carpet to all common areas.

5.3.2 The ceiling should be at least absorption Class C. Alternatively, acoustically absorbent wall panels could be considered.

5.3.3 However, based on similar previous projects, Building Control departments often accept the inclusion of carpets only as a suitable method for controlling reverberation times in the corridors. This will need to be confirmed with the Building Control department.

6.0. CONCLUSIONS

The commercial unit in the ground floor is a retail shop selling everyday goods and operating during the daytime. The shop is closed during the night time and there will be no noise impact from this source at night. No industrial or heavy commercial activities are expected from a retail shop. The building is detached from commercial properties on either side.

Therefore, the noise impact from nearby commercial promises is very limited. Residential flats above shops are very common along the Uxbridge Road. The LPA has granted planning permission to a significant number of residential flats above shops in the area. It is assessed that the noise levels on the application site are quite similar to all other similar residential flats above the shops along the road and there is nothing significantly different.

The noise assessment shows noise levels are not at such a level that would preclude the site from the proposed change of use residential development and that there would be no adverse impact on intended occupiers of the development specifically with regard to noise from commercial premises.

Notwithstanding the above, mitigation measures are proposed to meet the recommended noise levels provided in BS8233 and to protect the proposed habitable spaces from external noise intrusion in particular impacts of noise from commercial premises on the intended occupiers of the development.

It is recommended that a full noise assessment is carried out in Building Control stage, all the mitigation measures in the report are reviewed and updated construction details to improve the noise levels, mitigate the noise impacts and enhance the acoustic proof of the proposed flats are proposed.

If it is deemed necessary by the LPA, further noise assessments/requirements can be secured via a suitable planning condition.