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Octagon House

Planning noise report

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ACOUSTICS

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A	29 May 26		JAP/TS	JA
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Summary

Sandy Brown has been commissioned by Plymouth Grove Residential LLP to provide an assessment of noise in relation to the proposed development at Octagon House, 62 Hathersage Road, Manchester, M13 0FN.

An environmental noise survey has been carried out at the site. The noise survey was carried out between 1 May 2026 and 7 May 2026.

The average ambient noise levels measured during the survey were $L_{Aeq,16h}$ 48-58 dB during the day and $L_{Aeq,8h}$ 44-54 dB at night. Representative background sound levels measured during the survey ranged between $L_{A90,15min}$ 44-48 dB during the day and $L_{A90,15min}$ 40-42 dB at night. Sample measurements were carried out during the day which resulted in noise levels of $L_{Aeq,5min}$ 69 dB close to Hathersage Road to the south of the site.

An assessment has been carried out to determine required acoustic performances for the facades and provide guidance on the ventilation and overheating mitigation strategies.

When compared with the levels set out in Section 3.2 of ADO2021, the results indicate that bedrooms in facade zones 1-3 at night will be such that windows will likely be closed overnight (in regards of overheating mitigation). Therefore, open windows in bedrooms at night can likely not be relied upon as a method to remove excess heat, and the 'dynamic thermal modelling method' (eg, a CIBSE TM59 assessment) will need to be used to demonstrate compliance with the requirements of ADO2021 for facade zones 1-3.

The results of noise survey and acoustic modelling have been used to carry out a Level 1 assessment of noise ingress during an overheating condition for living rooms during the day in line with Association of Noise Consultants *Acoustics Ventilation and Overheating, residential Design Guide*. The Level 1 assessment indicates that facade zones 1-4 fall into medium or high risk categories. Therefore, a Level 2 assessment is required for these areas.

Based on the requirements of Manchester City Council and on the results of the noise survey, limits have been proposed for normally operating plant noise egress outside the nearby sensitive receptors. An initial assessment has been carried out with guidance on mitigation strategies provided.

When considering the good acoustic design process that has been followed and demonstrated within this statement, it is recommended that consent be granted with conditions associated with noise ingress to the proposed residences and plant noise egress to nearby noise sensitive premises.

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1 Introduction

Sandy Brown has been commissioned by Plymouth Grove Residential LLP to provide an assessment of noise in relation to the proposed development at Octagon House, 62 Hathersage Road, Manchester, M13 0FN.

An environmental noise survey has been carried out to establish:

- ambient and maximum noise levels at the site
- background sound levels around the site and by nearby noise sensitive premises.

Ambient and maximum noise levels are used to assess building envelope sound insulation requirements to achieve appropriate internal noise levels for residences. These follow standards set in accordance with Manchester City Council guidelines.

The background sound levels measured during the survey are used as the basis for setting limits for noise emission from proposed building services plant. These limits are set in accordance with the requirements of the Manchester City Council.

This report provides details of the noise survey, including measurement results, and provides recommendations.

2 Site description

2.1 The site and its surroundings

The site location in relation to its surroundings is shown in Figure 1. The existing Octagon House building and the proposed land to be developed is highlighted in red.

The site is bound by Hathersage Road to the south (shown in yellow), Carmoor Road to the west (shown in navy) and Upper Brook Street further to the west (shown in lilac).



Figure 1 Aerial view of site (courtesy of Google Earth Pro)

2.2 Adjacent premises

The majority of adjacent premises are residential, highlighted in cyan in Figure 1. The site is also adjacent to the following existing noise sensitive premises, all shown in Figure 1:

- Victoria Baths, commercial premises, which is considered to be sensitive during the day only, highlighted in orange
- Tatton House student accommodation, highlighted in light green
- 60-74 Hathersage Road commercial and residential properties, highlighted in magenta
- The West Indian Community Centre, highlighted in yellow.

The following nearby residential developments are also either planned or under construction at the time of this report:

- Carmoor road student accommodation development (per planning application 135576/FO/2022), highlighted in dark green
- Victoria Point existing student accommodation, which is due to be re-developed (per planning application 139987/FO/2024), highlighted in blue

3 Development proposals

The development proposal includes the refurbishment and extension of Octagon House and the erection of buildings of up to 11 storeys in height to accommodate a mix of uses comprising Purpose Built Student Accommodation bedrooms (205 studios and 35 apartments accommodating 255 bedrooms) (Sui Generis Use Class); Key Worker accommodation (Sui Generis Use Class) (211 units); Residential units (16 no) (Use Class C3); 2,568 sq m of healthcare use (including the retention of an existing healthcare facility on site) (Use Class Ee); and 394 sq m of commercial or community uses (Use Classes Ea, Eb, Eciii, Ee, Ef, F1e, F2b, F2c) with associated site access, car and cycle parking and landscaping. The site plan of the development proposal is presented in Figure 2.

Levels 0-2 of Octagon House are currently used as medical facilities. It is proposed that these spaces will be maintained as medical facilities.

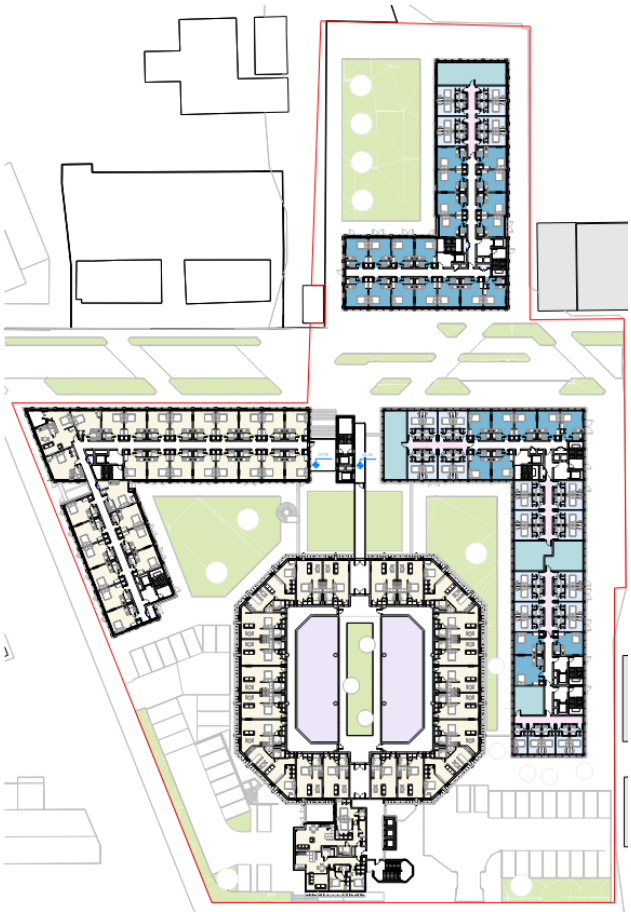


Figure 2 Site plan of the development proposal

3.1 Potential noise sources

The main potential noise sources associated with the scheme is rooftop building services plant on all proposed buildings. The potential impact of these sources has been assessed and mitigation measures have been recommended to minimise impact on existing noise sensitive premises around the development.

4 Assessment criteria

4.1 NPPF and NPSE

The National Planning Policy Framework, August 2026 (NPPF) sets out the UK government's planning policies for England. It supersedes previous guidance notes such as PPG24. No specific noise criteria are set out in the NPPF, or in the Noise Policy Statement for England (NPSE) to which it broadly refers.

The NPPF, Section P1-1 states:

> *'To support efforts to avoid and mitigate risks from natural and man-made hazards, minimise levels of pollution and create clean, liveable and safe places for people to live, work and visit, development plans should:*
>
> - *Consider any wider opportunities to reduce air, water, soil, noise or other forms of pollution, and contribute to compliance with national and local environmental targets and objectives, through the spatial strategy and policies for specific parts of the plan area (such as by identifying opportunities for strategic nature-based solutions).'*

and Section P3 states:

> *'Development proposals should be appropriate for their location, taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, whether these effects are on or off-site; and whether this is as a result of the development itself or the product of preexisting conditions in its vicinity. In assessing the potential effects of pollution, consideration should be given to the potential sensitivity of the site, and its intended occupiers and users, as well as that of the environment and population in the surrounding area (including where certain groups could be particularly vulnerable to its effects, such as children and older people).*
>
> *Within this context development proposals should:*
>
> - *Provide healthy living conditions for occupiers and users in terms of adequate access to light and avoiding exposure to levels of air, noise, artificial light or other sources of pollution which could have an unacceptable adverse effect on health and the quality of life. Where necessary suitable mitigation measures should be incorporated to secure acceptable living conditions.*

- *Not give rise to, or contribute to, an unacceptable level of access to daylight and sunlight for neighbouring residents and occupiers, or unacceptable levels of air, noise, artificial light, water, soil or other forms of pollution on or beyond the site. Adverse impacts of this nature should be avoided where possible, or else mitigated to an acceptable degree. Where possible, opportunities should be taken to reduce pollution affecting the wider area (such as through traffic and travel management or improved external lighting).*
- *Mitigate and reduce to a minimum potential adverse impacts resulting from noise, not result in levels of noise exposure which would have a significant observed adverse effect, and maintain the character of tranquil areas (those areas that have remained relatively undisturbed by noise from human sources and are prized for their recreational and amenity value for this reason.'*

and Section P4 states:

'Existing businesses, community facilities, public services and defence and security activities should not have unreasonable restrictions placed on their current or permitted operation as a result of development being approved after they were established. This means that development proposals should be capable of being integrated effectively with existing business, community and public service activities and infrastructure in their vicinity (including, but not limited to, uses such as pubs, music venues, places of worship, sports clubs, blue light services, defence, electricity network infrastructure and industrial and waste sites).

Where the operation of an existing activity could have a significant adverse effect on a proposed new development in its vicinity, development proposals should:

- *Identify the nature of the potential impacts, informed where necessary by early discussions between the applicant (i.e. the 'agent of change') and those existing uses which could be affected by the proposal to inform the scope for mitigation; and*
- *Be able to demonstrate that suitable mitigation can be provided before first occupation of the development, if it is to be acceptable. Planning conditions or obligations should be used to secure agreed mitigation measures.*

This policy applies to new development involving changes of use of land and property, as well as to new construction, and includes situations where new development may interfere with the operation of electronic communications networks. Both lawful current and permitted levels of operation of existing activities should be taken into account when applying this policy.'

The NPSE states that its aims are as follows:

> *'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.'*

As such, neither document sets out specific acoustic criteria for new residential developments, but they require consideration of the effect of existing noise on the new development and the effect of noise from the development on the surroundings.

4.2 ProPG

ProPG *Planning & Noise (Professional Practice Guidance on Planning & Noise), New Residential Development, 2017* provides guidance to the management of noise within the planning system in England. It is restricted to consideration of new residential developments that will be exposed predominantly to airborne noise from transport sources.

The two stages of the approach are given below

- Stage 1 – Initial noise risk assessment of the proposed development site
- Stage 2 – Systematic consideration of four key elements
  Element 1 – Demonstrating a "Good Acoustic Design Process"
  Element 2 – Observing internal "Noise Level Guidelines"
  Element 3 – Undertaking an "External Amenity Area Noise Assessment"
  Element 4 – Consideration of "Other Relevant Issues".

Following this approach, there are four possible recommendations, the choice of recommendation is as follows:

- Grant without conditions
- Grant with conditions
- Avoid
- Prevent.

Guidance provided in ProPG has been used to assess the proposed development site and recommend mitigation measures to reduce noise levels.

4.3 Noise egress

4.3.1 Standard guidance

BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* (BS 4142) provides a method for assessing noise from items such as building services plant against the existing background sound levels at the nearest noise sensitive premises.

BS 4142 suggests that if the rating noise level is 10 dB or more higher than the existing background sound level, it is likely to be an indication of a significant adverse impact. If the rating noise level is 5 dB above the existing background sound level, it is likely to be an indication of an adverse impact. If the rating noise level does not exceed the background sound level, it is an indication of having a low impact.

The rating noise level is defined as the sum of the specific sound level associated with the operation of the building services plant (or other commercial/industrial activity), and corrections based on the type and impact of 'attention catching features' such as tones, and intermittency.

4.3.2 Local Authority criteria

Manchester City Councils' plant noise egress criteria will be applicable at the noise sensitive receptors outside Octagon House.

Manchester City Council typically stipulate the following criteria for plant noise egress:

> *"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 high rating level of 5 dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location"*

4.4 Noise ingress

4.4.1 British Standard guidance

Guidance on acceptable internal noise levels in residential dwellings is given in BS 8233:2014 *Sound insulation and noise reduction for buildings*. The guidance limits are shown in Table 1. These internal levels are based on annual average data and do not have to be achieved in all circumstances. It is normal to exclude occasional events, such as fireworks night or New Year's Eve.

Table 1 Internal noise criteria for sleeping/resting

Internal space	Indoor ambient noise level, L_{Aeq} (dB)	
	Day (07:00 – 23:00)	Night (23:00 – 07:00)
Living rooms	35	-
Dining room	40	-
Bedrooms	35	30[1]

[1] BS 8233 notes that individual noise events can cause sleep disturbance, and that a guideline value may be set depending on the character and number of events per night, although no specific limit is provided. For regular events, such as scheduled aircraft or passing trains, a guideline value may be set in terms of SEL or $L_{Amax,F}$. Sporadic noise events could require separate values.

The standard states that where development is considered necessary or desirable, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

For external amenity areas, such as gardens and patios, the standard states:

> *'it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.'*

4.4.2 ProPG

Internal noise ingress criteria in ProPG are the same as in BS 8233:2014 but additional guidance is provided. In relation to regular individual noise events the following additional guidance is provided:

> *'In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.'*

4.4.3 Local Authority requirements

Manchester City Council stipulates the criteria provided in Table 2 with regards to internal noise in residential developments.

Table 2 Manchester City Council internal noise criteria for residential developments

Internal space	Internal noise limit, L_{Aeq} (dB)	
	Daytime (07:00-23:00)	Night-time (23:00-07:00)
Living rooms	35	-
Bedrooms	-	30

It is also stipulated that individual noise events in bedrooms should not exceed L_{AFmax} 45 dB more than 10 times per night.

4.4.4 Approved Document O – Overheating

Approved Document O 2021 Edition (to the Building Regulations 2010) states the following in relation to noise ingress during overheating periods:

> *'In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (23:00-07:00 hours).*
>
> *Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.*
>
> a. $L_{Aeq,T}$ *40 dB average over 8 hours (between 23:00-07:00)*
> b. L_{AFmax} *55 dB more than 10 times a night (between 23:00-07:00).'*

The above applies to residential dwellings, institutional residential accommodation, and other types of residential accommodation, such as student accommodation.

Guidance on assessments to be undertaken in accordance with Approved Document O is provided in the *Approved Document O Noise Guide* Version 1.1 dated November 2024, produced by the Association of Noise Consultants. This responds to the method set out in Approved Document O whereby a simplified method based can be used if external noise levels are sufficiently low.

The simplified method sets out external noise levels below which internal noise would fall within the Approved Document O criteria when open windows are used to mitigate overheating. Where external noise levels exceed this, then the dynamic thermal modelling method set out in Approved Document O would be needed to determine whether openable windows are suitable as a means of mitigating overheating.

The external free-field noise levels presented in the guide below which the simplified method can be used are:

- $L_{Aeq,8h}$ 45 dB and L_{AFmax} 60 dB in High Risk locations, and
- $L_{Aeq,8h}$ 50 dB and L_{AFmax} 65 dB in Moderate Risk locations.

The L_{AFmax} levels should not be exceeded more than 10 times per night. The High Risk and Moderate Risk locations are as defined in Approved Document O.

4.4.5 Acoustics, ventilation and overheating

Guidance on external noise levels from transport noise sources and the assessment of risk in an overheating condition is given in the Association of Noise Consultants *Acoustics Ventilation and Overheating, Residential Design Guide* (AVO Guide). The guidance for internal noise levels during the night for an overheating condition set out in AVO Guide is superseded by the requirements set out in ADO2021 and therefore is provided for information only.

A Level 1 assessment comprises assessing the external free-field noise levels to guideline thresholds. External noise levels and the associated risk categories for a Level 1 assessment are adapted and summarised in Table 3, though consideration also has to be given the duration and frequency of any overheating periods.

Table 3 Guidance for Level 1 assessment of noise from transport sources relating to overheating condition

Risk category for Level 1 assessment	External free-field noise level	
	Day (07:00 – 23:00)	Night (23:00 – 07:00)
Negligible	L_{Aeq} ≤ 52 dB	L_{Aeq} ≤ 47 dB
Low	L_{Aeq} > 52 dB and L_{Aeq} ≤ 57 dB	L_{Aeq} > 47 dB and L_{Aeq} ≤ 52 dB
Medium	L_{Aeq} > 57 dB and L_{Aeq} ≤ 62 dB	L_{Aeq} > 52 dB and L_{Aeq} ≤ 55 dB
High	L_{Aeq} > 62 dB	L_{Aeq} > 55 dB

If a Level 1 assessment finds that the development falls into a 'Medium' or 'High' risk category a Level 2 assessment should be carried out, assessing the expected internal noise levels for an overheating condition and the associated risk of adverse effect. The Level 2 assessment would consider the following:

- Duration of period where additional ventilative cooling is required (to be assessed by others, typically part of a CIBSE TM59 assessment)
- How wide the external windows would need to be open to control overheating (to be assessed by others, typically part of a CIBSE TM59 assessment).

The guidance for suitable internal noise levels in order that noise ingress can be suitably controlled for an overheating condition are provided in AVO Guide.

These are adapted and summarised in Table 4, though are not supposed to be taken as limits, rather guidelines to be assessed while also considering the adverse effect of any overheating (duration and severity).

The lowest observed affect level (LOAEL) and the significant observed affect level (SOAEL) for increased noise levels associated with controlling overheating are specific to each project as these depend on the magnitude of the increased internal noise levels and the duration for which they occur.

Table 4 Guidance for Level 2 assessment of noise from transport sources relating to overheating condition

Effect level	Internal noise level from transport sources		
	Day (07:00 – 23:00)	Night (23:00 – 07:00)	
LOAEL (noise can be heard, but does not cause any change in behaviour)	L_{Aeq} ≤ 35 dB	L_{Aeq} ≤ 30 dB	L_{AFmax} 45 dB not normally exceeded
SOAEL upper limit for longer overheating durations	L_{Aeq} > 35 dB and L_{Aeq} ≤ 40 dB	L_{Aeq} > 30 dB and L_{Aeq} ≤ 35 dB	-
SOAEL upper limit for shorter overheating durations	L_{Aeq} > 40 dB and L_{Aeq} ≤ 50 dB	L_{Aeq} > 35 dB and L_{Aeq} ≤ 42 dB	-
Exceeds SOAEL (noise causes a material change in behaviour)	L_{Aeq} > 50 dB	L_{Aeq} > 42 dB	L_{AFmax} 65 dB normally exceeded

The AVO Guide illustrates that there is a link between adverse effects, increasing internal ambient noise levels and the duration of exposure to noise for an overheating condition. These are indicated in Figure 3.

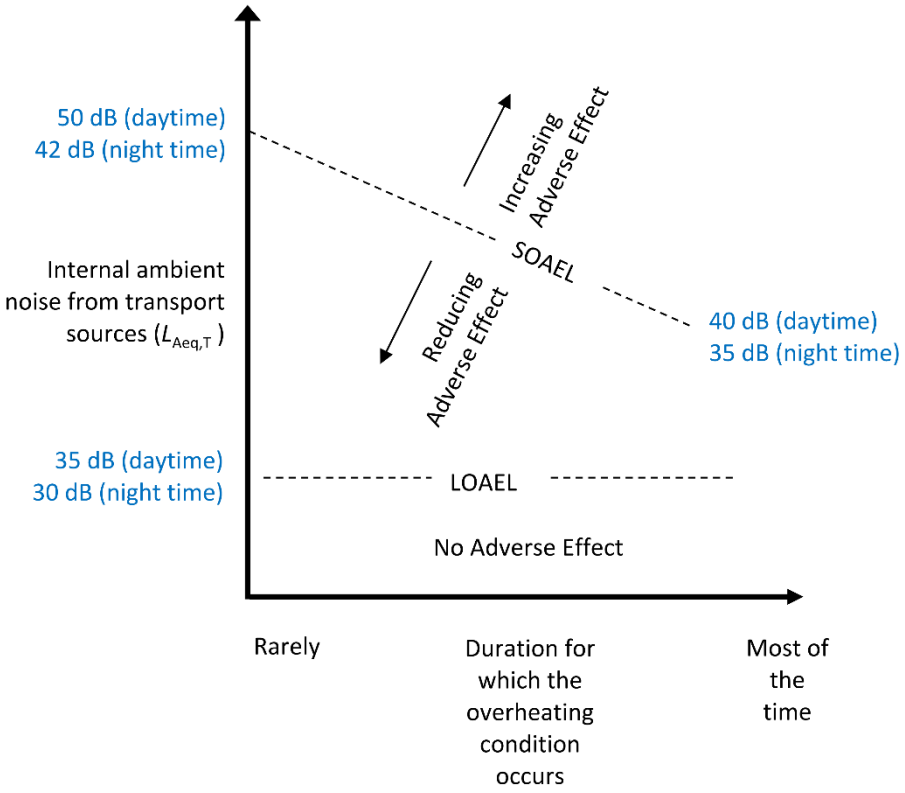


Figure 3 Internal ambient noise levels and increasing adverse effects for an overheating condition

When internal noise levels are above Significant Observed Adverse Effect Level (SOAEL), it is likely that there will be a high potential for an adverse outcome. These adverse outcomes will include:

- Material change in behaviour and/or attitude, eg avoiding certain activities during periods of intrusion
- Where there is no alternative ventilation, having to keep windows closed most of the time because of the noise
- Potential for sleep disturbance and difficulty in getting back to sleep
- Quality of life diminished.

As illustrated, the potential for adverse risk increases with the duration of exposure to noise, ie, a shorter exposure will result in a lower risk of adverse outcomes.

5 Survey method

5.1 Measurement method

The survey included unattended and attended noise measurements.

The measurements and information provided in this report are in accordance with requirements of BS 7445, as referenced in Appendix A.

5.1.1 Unattended measurements

Unattended noise monitoring was undertaken at the site over 7 days at two positions on the roof of Octagon House.

The measurements were taken over 15-minute periods between 12:15 on 1 May 2026 and 15:15 on 7 May 2026.

The microphones for the sound level meters were installed on a tripod which were approximately 1.5 m above the roof.

The measurement positions are indicated in Figure 1, denoted by the letters 'A' and 'B'. Photographs showing the measurement positions are provided in Figure 4 and Figure 5. These locations were chosen to be reasonably representative of noise levels at the site and outside the nearest noise sensitive premises.

Details of the equipment used and the noise indices measured are provided in Appendix A.

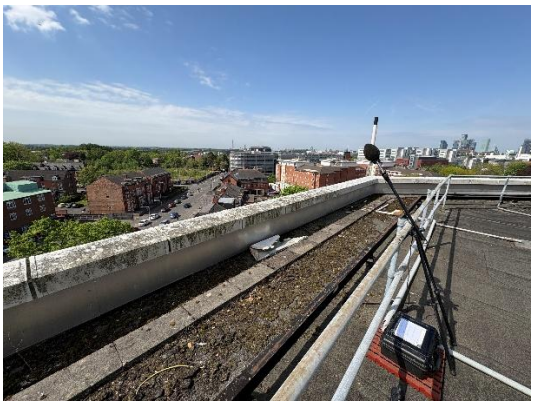


Figure 4 Measurement position A

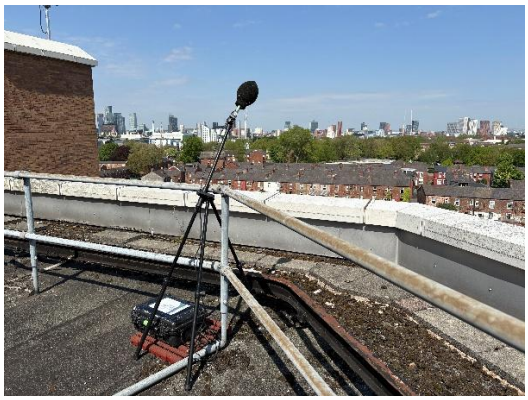


Figure 5 Measurement position B

5.1.2 Attended measurements

Attended sample measurements were taken at 9 positions around the Octagon House development to supplement the unattended measurement positions. These are indicated in Figure 1 as positions 1 to 9. The measurements were carried out on 7 May 2026. All measurements were 5 minutes in duration.

At each position, the microphone was mounted on a tripod approximately 1.5 m above the ground level and at least 3.5 m from any other reflective surface.

Photographs of measurement positions 1, 2 and 4 are presented in Figure 6, Figure 7 and Figure 8, respectively.

Details of the equipment used and the noise indices measured are provided in Appendix A.

Dominant noise sources occurring during the measurements were noted.



Figure 6 Measurement position 1



Figure 7 Measurement position 2



Figure 8 Measurement position 4

5.2 Weather conditions

Weather conditions during the survey are described in Appendix A.

6 Measurement results

6.1 Observations

6.1.1 Noise

The dominant noise sources observed at the site during the survey were from road traffic on Carmoor Road, Hathersage Road and Upper Brook Street.

Less significant noise sources included pedestrians and birdsong. It should be noted that noise from the transformer station was observed to be barely audible at positions in close proximity.

Construction noise was also noted at the proposed student accommodation development site, shown in green in Figure 1. The attended measurements were carried out at a time to ensure that they were not impacted by construction noise. Analysis of the unattended measurement results indicates that they were not significantly affected by construction noise at the nearby site.

No noise associated with the West Indian Community Centre was observed during the survey works, though it is understood that they occasionally host events with amplified sound/music.

6.2 Noise measurement results

6.2.1 Unattended measurement results

Graph showing the results of the unattended measurements for both measurements positions are provided in Appendix B.

Ambient noise levels measured during the unattended survey are presented in Table 5 and Table 6. The measurement results are presented as free-field levels.

Table 5 Ambient noise levels measured during the unattended survey at position A

Date	Day (07:00 – 23:00) $L_{Aeq,16h}$ (dB)	Night (23:00 – 07:00) $L_{Aeq,8h}$ (dB)
Friday 1 May 2026	49 [1]	44
Saturday 2 May 2026	48	47
Sunday 3 May 2026	50	46
Monday 4 May 2026 [2]	48	46
Tuesday 5 May 2026	50	45
Wednesday 6 May 2026	49	44
Thursday 7 May 2026	50 [1]	-
Average	49	45

[1] Measurement not made over full period due to monitoring start and end time (the measurement on 1 May 26 was over 11 hours, and on 7 May 26 over 8 hours); not included in the average.

[2] Monday 4 May 2026 was a national bank holiday

Analysis of night-time maximum noise levels indicates that the maximum noise level at night not normally exceeded 10 times a night is $L_{AFmax,2min}$ 61 dB.

Table 6 Ambient noise levels measured during the unattended survey at position B

Date	Day (07:00 – 23:00) $L_{Aeq,16h}$ (dB)	Night (23:00 – 07:00) $L_{Aeq,8h}$ (dB)
Friday 1 May 2026	58 [1]	53
Saturday 2 May 2026	57	53
Sunday 3 May 2026	56	52
Monday 4 May 2026 [2]	56	54
Tuesday 5 May 2026	56	51
Wednesday 6 May 2026	56	51
Thursday 7 May 2026	57 [1]	-
Average	57	52

[1] Measurement not made over full period due to monitoring start and end time (the measurement on 1 May 26 was over 11 hours, and on 7 May 26 over 8 hours); not included in the average.

[2] Monday 4 May 2026 was a national bank holiday

Analysis of night-time maximum noise levels indicates that the night-time maximum noise level not normally exceeded 10 times a night is $L_{AFmax,2min}$ 69 dB.

In line with BS 4142:2014+A1:2019, representative background sound levels have been determined using statistical analysis of the continuous measurements.

Day and night statistical analysis of representative values for the site are given in Figure 9 and Figure 10.

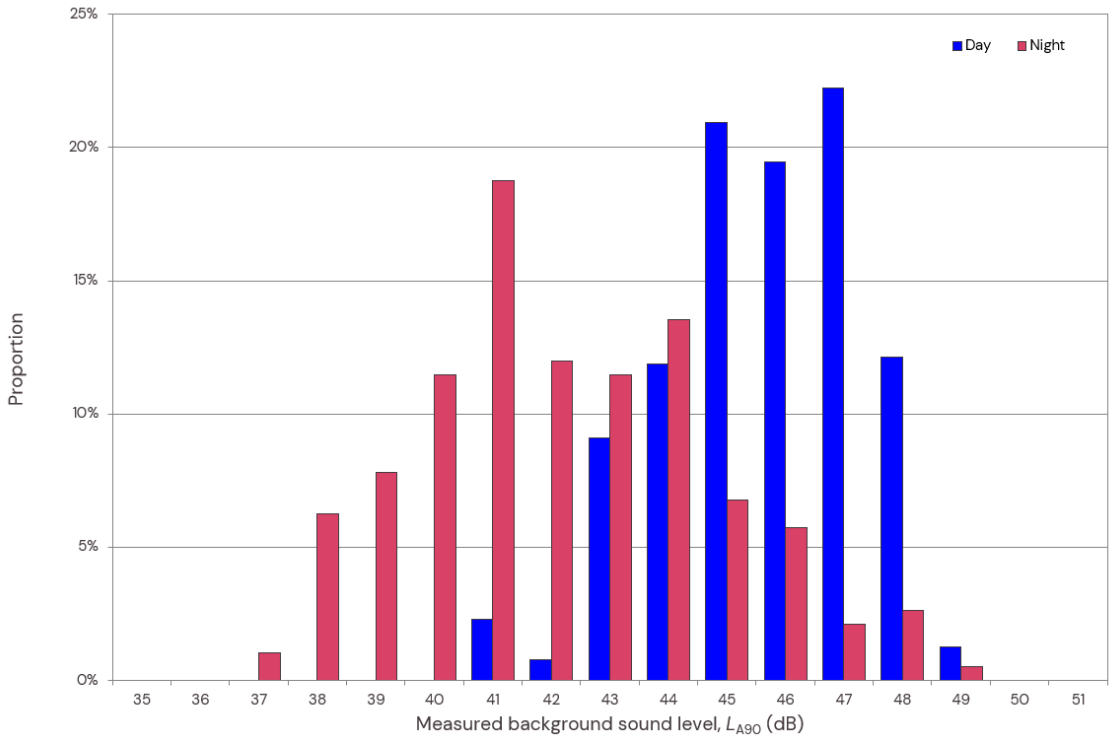


Figure 9 Day and night measured background level at unattended measurement position 'A'

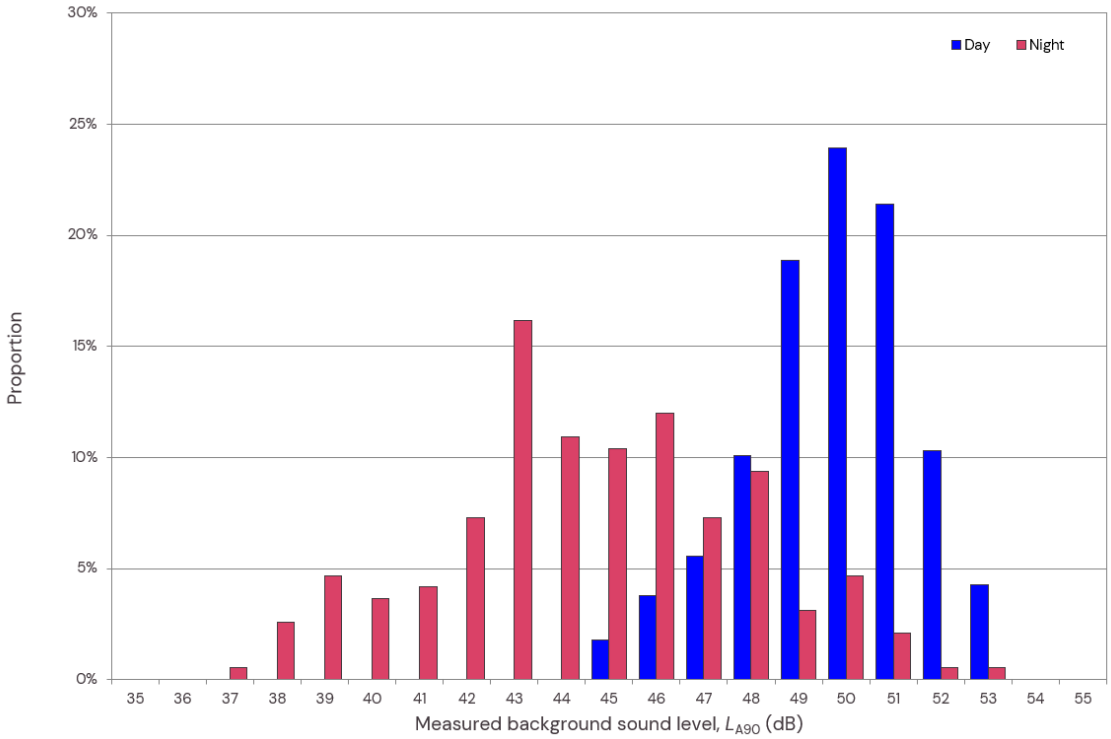


Figure 10 Day and night measured background level at unattended measurement position 'B'

From this analysis, the representative background sound levels measured during the survey were:

- $L_{A90,15min}$ 44 dB during the day and $L_{A90,15min}$ 40 dB at night for position 'A'
- $L_{A90,15min}$ 48 dB during the day and $L_{A90,15min}$ 42 dB at night for position 'B'.

6.2.2 Attended measurement results

Noise levels and key sources recorded during the attended measurements are summarised in Table 7. These measurements are free-field measurements.

Table 7 Noise levels and key noise sources from attended measurements

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,5min}$	$L_{AFmax,5min}$	$L_{A90,5min}$	
1	16:10	68	78	58	Dominated by traffic noise on Upper Brook Street. Contributions from pedestrians and aircraft noise. Maximum noise levels caused by passing vehicles.
	16:15	68	76	57	
	16:20	68	80	59	
2	16:35	68	79	51	Dominated by traffic noise on Hathersage Road. Maximum noise levels caused by passing vehicles.
	16:40	69	78	53	
	16:45	69	79	51	
3	17:25	47	62	44	Dominated by distant road traffic noise. Contributions from birdsong, overhead aircraft and noise from the transformer station. Max at 17:35 caused by car door slam.
	17:30	46	60	43	
	17:35	49	72	44	
4	17:50	58	76	48	Dominated by traffic noise on Carmoor Road. Contributions from pedestrians and overhead aircraft. Maximum noise levels caused by passing vehicles.
	17:55	59	77	48	
	18:00	57	74	46	
5	18:05	51	65	45	Dominated by distant road traffic noise. Contributions from pedestrians, bird song and noise from the transformer station.

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,5min}$	$L_{AFmax,5min}$	$L_{A90,5min}$	
6	18:10	50	62	45	Dominated by passing vehicles within the car park. Contributions from distant road traffic and noise from the transformer station.
7	18:20	46	54	44	Dominated by distant road traffic noise. Contributions from noise from the transformer station.
8	18:25	50	68	47	As above
9	18:30	50	55	50	Dominated by distant road traffic noise and noise from the transformer station. Contributions from overhead aircraft and birdsong.

7 Plant noise egress

7.1 Limits

Based on the above criteria and the measurement results, the cumulative noise level from the operation of all new normally operating plant should not exceed the limits set out in Table 8.

The limits apply at 1 m from the worst affected windows of the nearest noise sensitive premises and are presented as facade levels. These have been corrected relative to the measured free-field background sound levels by the addition of 3 dB (as per the guidance provided in BS 8233:2014 Section G.2.1).

Table 8 Plant noise limits at 1 m from the nearest noise sensitive premises

Receptor	Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB)	
	Day (07:00-23:00)	Night (23:00-07:00)
Residential premises to the north and east Victoria Point proposed developments	42	38
Residential premises to the west (Carmoor Road) Residential premises to the south (Hathersage Road) West Indian Community Centre Carmoor Road proposed development	46	40

[1] The limits set out in Table 8 do not include any attention catching features. The penalty corrections for attention catching features may be significant, and will need to be considered as the building services design progresses. This is discussed in Appendix C.

7.2 Assessment

7.2.1 Basis and proposals

Indicative plant selections were received via email from Ridge and Partners LLP on 28 April 2026. No emergency or life-safety plant items are proposed.

The most recent set of architectural drawings, which form the basis of the 3D environmental noise model were provided by Hodder and Partners on 12 May 2026.

For the purposes of this assessment, it has been assumed that all proposed plant will be continuously operational, as such the assessment has been completed based on compliance with the most onerous criteria.

Based on the latest architectural drawings and correspondence with Hodder and Partners, it is understood that parapets are proposed to the perimeter of each roof. The parapets have been modelled to extend at least 1.5 m above the roof level. The screening effects provided by these parapets have been considered as part of the 3D environmental noise model.

Based on the latest architectural and plant layouts, it is understood that perforated plant screens have been proposed to some of the rooftops and plant items. These screens have been considered as part of the following noise egress assessment.

Based on the plant information received from Ridge and Partners LLP, it is understood that the indicative plant items set out in Table 9 are proposed.

Table 9 Proposed plant item locations

Location	Proposed plant items
Block A roof	2 x EAHV-M1500YCL-N
Block B roof	2 x EAHV-M1500YCL-N
Block C roof	3 x EAHV-M1500YCL-N
Block D roof	2 x EAHV-M1500YCL-N

The received noise level data for the EAHV-M1500YCL-N unit is presented in Table 10.

Table 10 Plant item noise level data for EAHV-M1500YCL-N

	Sound pressure level at 1 m, L_{eq} (dB) Octave-band centre frequency (Hz)							
Unit	63	125	250	500	1000	2000	4000	8000
EAHV-M1500YCL-N	75	71	70	66	64	60	56	42

Following recent design development, it is understood that an attenuation package is to be provided to the Block B plant items. This is understood to provide 4 dB of attenuation and increase the height of the unit by 300 mm.

7.2.2 Assessment method

An assessment has been carried out to predict plant noise egress at the nearby noise sensitive premises for normally operating plant noise. Calculations are based on all plant items running simultaneously.

A 3D environmental noise model of the site has been produced using the computational acoustic modelling package CadnaA (version 2026).

The software carries out calculations using a ray tracing technique, and considers the effects of topography, reflections, screening and distance attenuation for noise sources to predict noise levels in three dimensions. Calculations are carried out in accordance with ISO 9613 *Attenuation of sound during propagation outdoors*.

As mentioned above, the following future schemes have been included in the model due to their proximity to the site:

- Victoria Point student accommodation (planning ref. 139987/FO/2024)
- Carmoor Road student accommodation (planning ref. 135576/FO/2022).

A screenshot from the model is provided in Figure 11.



Figure 11 Screenshot from 3D environmental noise model

7.3 Results

7.3.1 Predicted noise levels at noise sensitive premises

The predicted cumulative noise levels at 1 m from the facade of the nearby worst affected premises are shown in Table 11. This is for normally operating plant.

Table 11 Predicted noise egress level from proposed normally operating plant equipment

Noise sensitive premises	Highest predicted plant noise egress level, L_{Aeq} (dB)	Maximum plant noise criteria (at night), L_{Aeq} (dB)
Victoria Point block 4	45	38
Victoria Point block 6	38	38
The West Indian Community Centre	38	40
Carmoor Road proposed development	39	40
60 to 74 Hathersage Road	38	40

Plant noise egress criteria are predicted to be exceeded at Victoria Point Block 4 by 7 dB at night. Plant noise contributions at both receptors are dominated by rooftop plant from Block A and Block C. Mitigation will be required to meet the plant noise egress criteria.

All building services plant will need to be designed to achieve the noise limits set out above, including any corrections for attention catching features. Outline noise control measures to be considered within the design are:

- Localised acoustic screening
- Low noise equipment
- Acoustic canopies/attenuation packages to equipment
- In-duct attenuators
- Select attenuators so that regenerated noise from the attenuator does not increase the resultant noise level
- Limiting airflow across louvres
- Reduced operating duty (eg, could night operation be limited to a single unit per block or a set back mode implemented at night).

8 Facade sound insulation – noise ingress

This section describes an assessment of facade sound insulation to control noise ingress. The required facade specification largely depends on the external noise levels and the internal noise criteria.

The following assessment is based on achieving the internal noise levels recommended in BS 8233 and by Manchester City Council, which are set out in Section 4.2.

8.1 External noise levels

Predicted external noise levels at the facades of the proposed development are summarised in Table 12 and are shown in Appendix D. The levels in Table 12 are presented as facade noise levels and are based on the levels measured during the environmental noise survey.

Note that the values shown below are facade noise levels with free-field noise levels being 3 dB lower than those presented (for comparison to the ADO and AVO overheating and noise criteria).

Table 12 Predicted external noise levels

Facade zone	Predicted facade noise levels		
	Day, $L_{Aeq,16h}$ (dB)	Night, $L_{Aeq,8h}$ (dB)	Night not normally exceeded maximum, L_{AFmax} (dB)
1	≤68	≤63	≤83
2	≤68	≤63	≤78
3	≤63	≤58	≤73
4	≤58	≤53	≤68
5	≤53	≤48	≤63

8.2 Facade sound insulation

Minimum facade sound insulation requirements for the facades of accommodation units only, under the background ventilation condition, are given in Table 13. These have been determined to achieve the internal noise criteria for bedrooms and living areas using predicted external noise levels at the facades.

At this site, the facade performance requirements are typically driven by maximum noise levels during the night. The facade specification has been determined to ensure that maximum noise level criteria at night is exceeded on no more than 10 occasions based on the worst affected night during the survey.

Where accommodation units are to be mechanically ventilated, minimum sound insulation performances at least 3 dB higher than those given in Table 13 are recommended. This would allow for equal noise contributions between environmental noise ingress and building services noise.

Where individual rooms in accommodation units have dual aspect facades, minimum sound insulation performances at least 3 dB higher than those given in Table 13 are recommended.

Table 13 Facade sound insulation performance requirements

Facade zone	Overall minimum sound insulation performance
1	R'_w 38 dB, R'_w+C_{tr} 33 dB
2	R'_w+C_{tr} 33 dB
3	R'_w+C_{tr} 28 dB
4	R'_w+C_{tr} 23 dB
5	R'_w+C_{tr} 18 dB

8.3 Guidance on facade construction, glazing, and ventilation strategy

Table 14 sets out some examples of glazing configurations and ventilation strategies that could achieve the required sound insulation performances.

Table 14 Example glazing configurations and whole dwelling ventilation strategies for overall facade sound insulation

Overall facade sound insulation on site, R'_w+C_{tr} (dB)	Example facade strategy
18-23	R'_w+C_{tr} 27 dB glazing. Acoustically attenuated passive ventilation (eg, trickle vents) or mechanical ventilation (eg, MVHR).
28	R'_w+C_{tr} 28 dB glazing. Acoustically attenuated passive ventilation (eg, trickle vents) or mechanical ventilation (eg, MVHR).
33	R'_w+C_{tr} 33 dB glazing. High performance acoustically attenuated passive ventilation or mechanical ventilation (eg, MVHR).

The performance required by each element will depend on the relative areas of glazed and non-glazed elements, and the ventilation strategy. If applicable, this includes the acoustic performance of trickle ventilators and the number of ventilators per room. As a guide, for a mechanically ventilated room with a 50% glazed facade, the glazing sound insulation requirement would typically be 3 dB lower than the overall facade sound insulation requirement. This is provided the non-glazed external wall elements provide at least 10 dB more sound insulation than the glazed elements.

A more detailed facade assessment will be needed as the design develops to ensure the overall performance requirements are met.

Table 15 Example glazing configurations

Glazing laboratory sound insulation	Glazing site sound insulation (ref. Tables 13 and 14)	Example glazing configuration
R_w+C_{tr} 29 dB	R'_w+C_{tr} 27 dB	6 mm glass/16 mm cavity/6 mm glass
R_w+C_{tr} 30 dB	R'_w+C_{tr} 28 dB	8 mm glass/16 mm cavity/6 mm glass
R_w+C_{tr} 35 dB, R_w 40 dB	R'_w+C_{tr} 33 dB, R'_w 38 dB	8.8 mm acoustic laminate glass/16 mm cavity/10 mm glass

9 Acoustics, ventilation and overheating

ADO2021 sets out requirements for internal noise levels in bedrooms during the night, and therefore takes precedence over AVO Guide. For living rooms during the day, the guidance in AVO Guide has been used to inform the recommendations provided.

9.1 Approved Document O 2021 (during the night)

Although demonstrating compliance with ADO2021 is not strictly a requirement of planning, achieving the requirements will likely have implications on the building's design. This may include impacts on the appearance of the facade and requirements for additional building services plant (eg, external heat rejection plant, mechanical ventilation with/without cooling units within apartments).

The results of noise survey and acoustic modelling have been used to assess internal noise levels within bedrooms at night, assuming windows are open and based on inputs associated with the 'simplified method' as described in ADO2021.

The impact of the proposed rooftop plant items on the proposed facades has been considered as part of the assessment. The outcomes presented below are provided on the basis that sufficient mitigation is provided to meet the noise egress limits presented in Table 11.

When compared with the levels set out in Section 3.2 of ADO2021, the results indicate that bedrooms in facade zones 1-3 at night will be such that windows will likely be closed overnight.

Therefore, open windows in bedrooms at night can likely not be relied upon as a method to remove excess heat, and the 'dynamic thermal modelling method' (eg, a CIBSE TM59 assessment) will need to be used to demonstrate compliance with the requirements of ADO2021 for facade zones 1-3.

When compared with the levels set out in Section 3.2 of ADO2021, the results indicate that bedrooms in facade zones 4 and 5 at night are expected to meet the required thresholds and therefore demonstrate compliance with ADO2021.

Therefore, open windows in bedrooms at night can be relied upon as a method to remove excess heat in facade zones 4 and 5.

9.2 Acoustics, ventilation and overheating assessment (during the day)

The results of noise survey and acoustic modelling have been used to carry out a Level 1 assessment of noise ingress during an overheating condition for living rooms during the day in line with Association of Noise Consultants *Acoustics Ventilation and Overheating, residential Design Guide*.

The Level 1 assessment indicates that some facades in the proposed development fall into medium or high risk categories, as shown in Table 16. Therefore, a Level 2 assessment is required for facade zones 1-4.

Table 16 Outcomes of Level 1 AVO assessment

Facade zone	AVO risk category
Zone 1	High
Zone 2	High
Zone 3	Medium
Zone 4	Medium
Zone 5	Low

For facade zones 1-4 a more detailed, Level 2 assessment is required and will need to consider the following:

- Duration of period where additional ventilative cooling is required (to be assessed by others, typically part of a dynamic thermal model, eg, a CIBSE TM59 assessment)
- How wide the external windows would need to be open to control overheating (to be assessed by others, typically part of a dynamic thermal model, eg, a CIBSE TM59 assessment)
- Design, extent and construction of attenuated passive ventilation.

9.3 Recommendations

Based on the results of the ADO2021 simplified assessment open windows in bedrooms at night will likely need to be closed in facade zones 1-3.

It is recommended that measures other than the use of opening windows, that are to be incorporated within the design that reduce overheating within the apartments. Typically these measures will include:

- Minimising internal heat generation through energy efficient designs
- Reducing the amount of heat entering the building by:
    - Reducing the proportion of glass and/or adjusting the depth of window reveal
    - Reducing the glazing's G-value
    - Installing internal blinds
    - Utilising fixed shading devices, eg, shutters, external blinds, overhangs, awnings.
- Exposing thermal mass within the apartments

- Removing exceed heat via:
    - Ventilation louvres in external walls
    - A mechanical ventilation system
    - A mechanical cooling system (mechanical cooling is expected only to be used where insufficient heat is capable of being removed via openings).
- Providing shared amenity which will be comfort cooled.

Through a combination of the above the total amount of time that windows will need to be open to control overheating is expected to be reduced. It is recommended that the overheating strategies be developed during subsequent design phases provide feedback on the duration of time when overheating is expected to occur and the extent of opening required, so that further analyses of internal noise levels and their effects can be provided.

It is understood that a mechanical ventilation system is proposed to control overheating in all bedrooms at night.

10 ProPG Acoustic Design Statement

10.1 Stage 1 assessment

The predicted external noise levels, as detailed in Section 8.1, indicate that the site would be exposed to a low-high risk of adverse noise effects.

10.2 Stage 2 assessment

This section discusses the assessed external noise levels at the facades of the proposed development and the good acoustic design processes adopted so that appropriate conditions for a residential development (internal noise levels and external noise levels in amenity areas) are provided.

10.2.1 External noise level evaluation

The existing environmental noise sources in the vicinity of the proposed development comprise:

- Road traffic noise from Hathersage Road and Carmoor Road
- Noise traffic noise from surrounding minor roads.

The environmental noise modelling indicates that due to the geometry of the proposed buildings and distances from roads, there are areas of the development that will be exposed to higher noise levels, such as the south and west facades of Octagon House, and areas with low risk of adverse noise effect, such as the north and east facades of Block 1.

10.2.2 Noise levels in the vicinity of the residential development

Based on the predicted noise level across the site, the external noise levels at 1 m from the facade during the day fall between L_{Aeq} 53-68 dB, and between L_{Aeq} 48-63 dB at night.

The measured not-normally exceeded maximum noise levels at night range were $L_{AFmax,2min}$ 61 dB at position A and $L_{AFmax,2min}$ 69 dB at position B.

These levels need to be controlled to achieve internal noise level in line with the requirements of Manchester City Council, BS 8233: 2014 and ProPG.

10.2.3 Element 1 – Good Acoustic Design

Acoustic 3D modelling has been undertaken to predict noise levels across the scheme and specific facade requirements have been developed for each residential space. Guidance has been provided including indicative glazing configurations.

10.2.4 Element 2 – Internal noise levels

Based on the measured and assessed external noise levels and internal noise criteria presented in Section 4.4, the facade sound insulation requirements can be determined. Compliance with Section 4.4 criteria will meet Element 2 requirements of the Stage 2 assessment.

10.2.5 Element 3 – External amenity area noise levels

Based on the measured and assessed external noise levels and external amenity area noise criteria presented Section 4.4.1, the external noise levels are minimised as much a practicable without significantly reducing the building footprint or omitting external terraces. BS 8233:2014 states that the development should be '*designed to achieve the lowest practicable levels … but should not be prohibited*', which infers that permission should not be refused on this basis.

10.2.6 Element 4 – Assessment of other relevant issues

Overheating assessments are presented in Section 9.

10.2.7 Recommendation to the decision maker

When considering the good acoustic design process that has been followed and demonstrated within this statement, it is recommended that consent be granted with conditions associated with noise ingress to the proposed residences and plant noise egress to nearby noise sensitive premises.

11 Conclusion

The representative measured background sound levels were:

- $L_{A90,15min}$ 44 dB during the day and $L_{A90,15min}$ 40 dB during the night at position A
- $L_{A90,15min}$ 48 dB during the day, and $L_{A90,15min}$ 42 dB during the night at position B.

Based on the requirements of the Local Authority, the relevant plant noise limits at the worst affected existing noise sensitive premises are:

- $L_{Aeq,15min}$ 42 dB during the day and $L_{Aeq,15min}$ 38 dB during the night for residential premises to the north and east
- $L_{Aeq,15min}$ 46 dB during the day and $L_{Aeq,15min}$ 40 dB during the night for residential premises to the south and west.

These have been corrected relative to the measured free-field background sound levels by the addition of 3 dB (as per the guidance provided in BS 8233:2014 Section G.2.1. These limits are cumulative and apply with all plant operating under normal conditions. If plant items contain tonal or attention catching features, the limits will be more stringent.

An initial assessment of the proposed plant items associated with the development has been carried out. Mitigation measures are expected to be required to comply with the relevant noise limits which will need to be developed as part of the design.

When compared with the levels set out in Section 3.2 of ADO2021, the results indicate that bedrooms in facade zones 1-3 at night will be such that windows will likely be closed overnight. Therefore, open windows in bedrooms at night can likely not be relied upon as a method to remove excess heat, and the 'dynamic thermal modelling method' (eg, a CIBSE TM59 assessment) will need to be used to demonstrate compliance with the requirements of ADO2021 for facade zones 1-3.

When compared with the levels set out in Section 3.2 of ADO2021, the results indicate that bedrooms in facade zones 4 and 5 at night are expected to meet the required thresholds and therefore demonstrate compliance with ADO2021. Therefore, open windows in bedrooms at night can be relied upon as a method to remove excess heat in facade zones 4 and 5.

The results of noise survey and acoustic modelling have been used to carry out a Level 1 assessment of noise ingress during an overheating condition for living rooms during the day in line with Association of Noise Consultants *Acoustics Ventilation and Overheating, residential Design Guide*.

The Level 1 assessment indicates that facade zones 1-4 fall into medium or high risk categories. Therefore, a Level 2 assessment is required for these areas.

When considering the good acoustic design process that has been followed and demonstrated within this statement, it is recommended that consent be granted with conditions associated with noise ingress to the proposed residences and plant noise egress to nearby noise sensitive premises.

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Appendix A

Survey details

Reference standards

- BS 7445 Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*
- BS 7445: Part 2: 1991 *Description and measurement of environmental noise, Part 2. Guide to the acquisition of data pertinent to land use*.

Equipment

The unattended and attended noise measurements were taken using Rion NL-52 sound level meters.

Calibration details for the equipment used during the survey are provided in Table A1.

Table A1 Equipment calibration data

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	NL-52/01143564	Rion	12 Dec 26	TCRT24/1898
Microphone	UC-59/10153	Rion	12 Dec 26	TCRT24/1898
Pre-amp	NH-25/43581	Rion	12 Dec 26	TCRT24/1898
Calibrator	NC-74/34257023	Rion	12 Dec 26	TCRT24/1895
Sound level meter	NL-52/01010788	Rion	24 Sep 27	TRAC25/09422
Microphone	UC-59/20416	Rion	24 Sep 27	TRAC25/09422
Pre-amp	NH-25/11436	Rion	24 Sep 27	TRAC25/09422
Calibrator	SV30A/10559	Svantek	24 Sep 27	TRAC25/09422

Calibration of the meters used for the measurements is traceable to national standards. Calibration certificates for the sound level meters used in this survey are available upon request.

Calibration checks were carried out on the meters and their measurement chains at the beginning and end of the survey. No significant calibration deviation occurred.

Noise indices

Noise indices recorded included the following:

- $L_{Aeq,T}$ The A-weighted equivalent continuous sound pressure level over a period of time, T.
- $L_{AFmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a fast time weighting.
- $L_{A90,T}$ The A-weighted sound pressure level exceeded for 90% of the measurement period. Indicative of the background sound level.

Sound pressure level measurements are normally taken with an A-weighting (denoted by a subscript 'A', eg L_{A90}) to approximate the frequency response of the human ear.

A more detailed explanation of these quantities can be found in BS 7445: Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*.

Weather conditions

During the unattended noise measurements, weather reports for the area indicate that temperatures varied between 4°C at night and 21°C during the day, and the wind speed was typically less than 2.5 m/s.

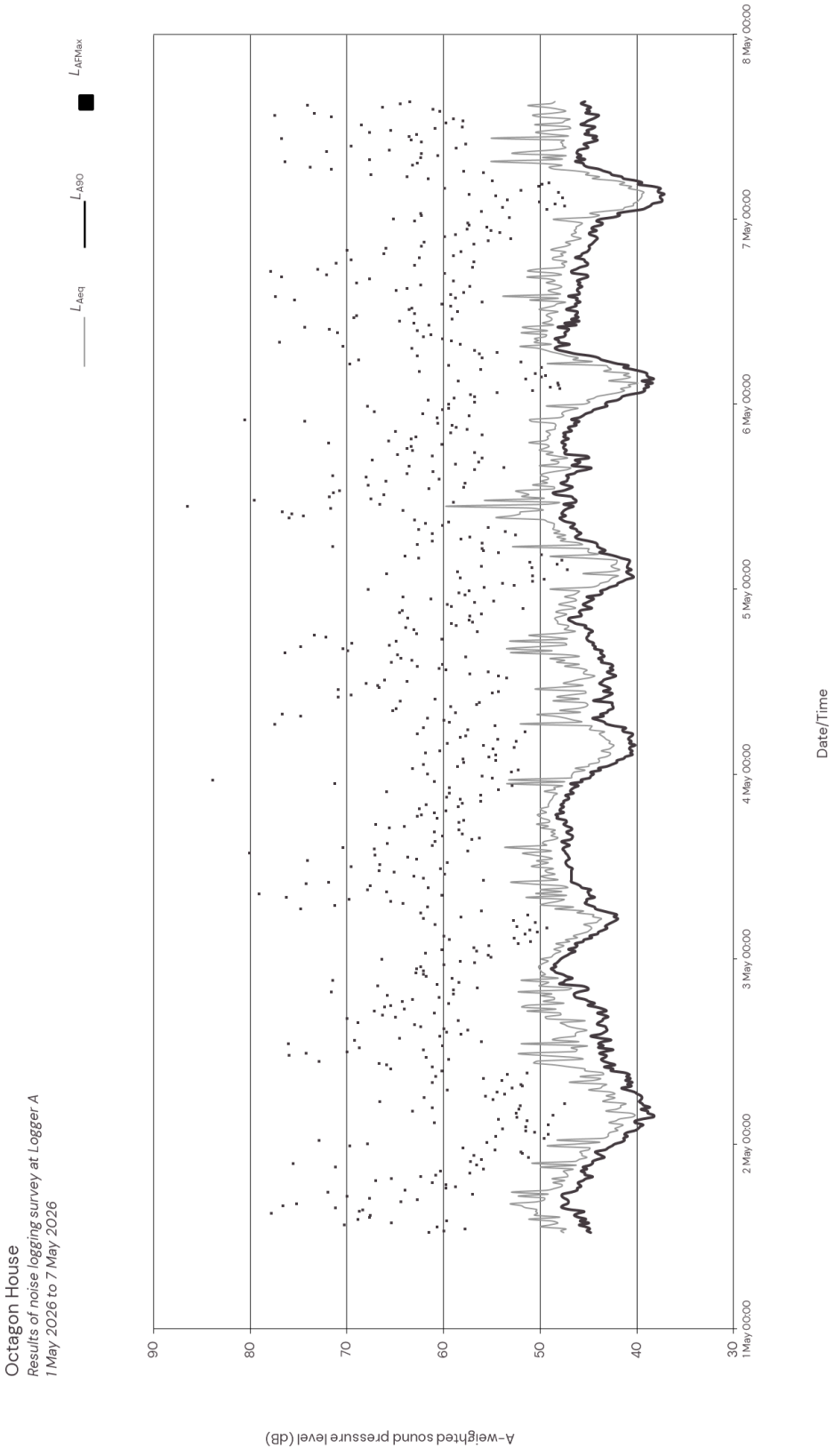
During the attended noise measurements, the weather was generally clear and dry and no rain occurred. Wind speeds were measured at each position and varied between 2 m/s and 3 m/s.

These weather conditions are considered suitable for obtaining representative measurements.

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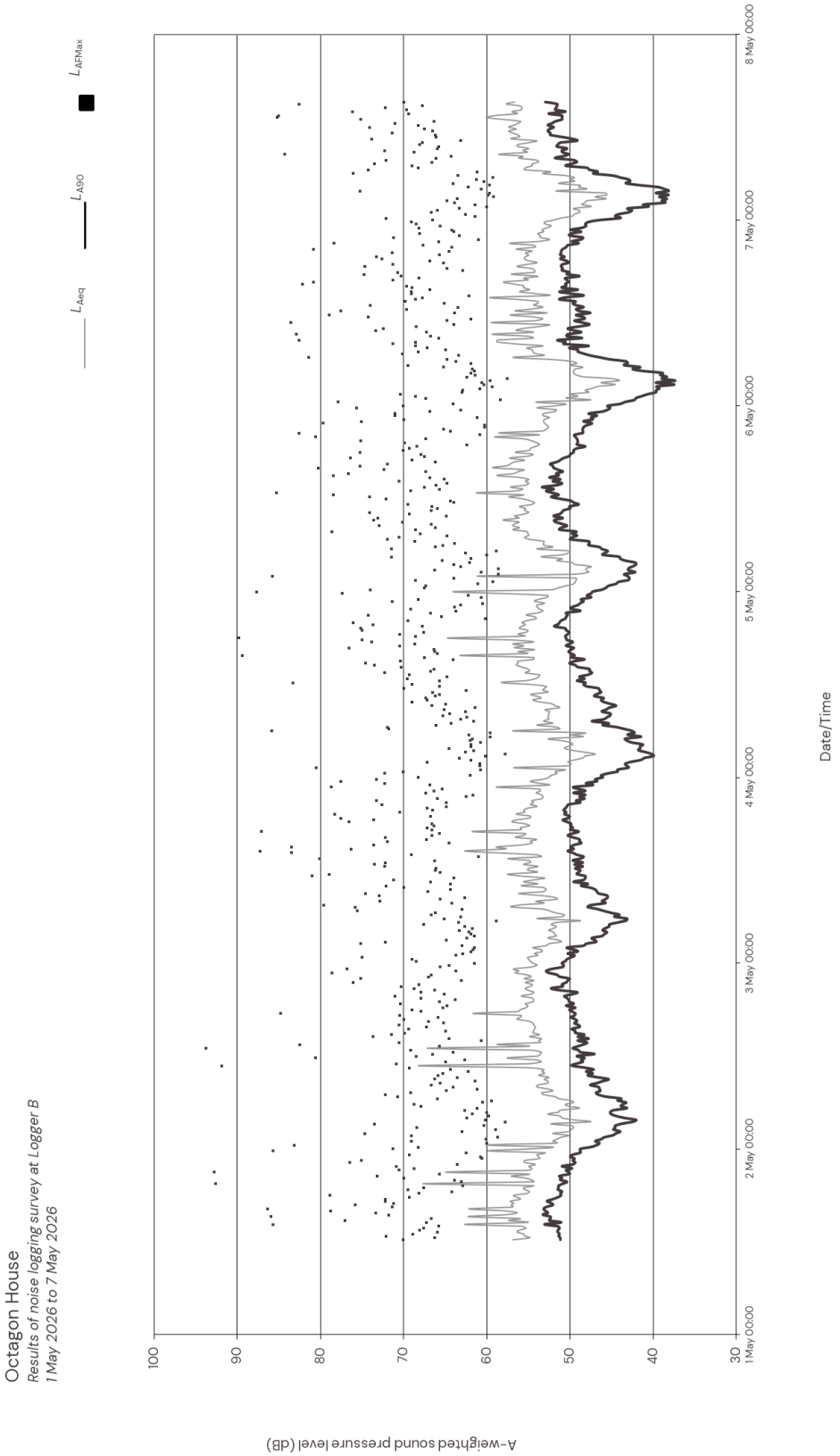
Appendix B

Results of unattended measurements at Position A


Octagon House
Results of noise logging survey at Logger A
1 May 2026 to 7 May 2026
L_{Aeq}
L_{A90}
L_{AFMax}
A-weighted sound pressure level (dB)
90
80
70
60
50
40
30
1 May 00:00
2 May 00:00
3 May 00:00
4 May 00:00
5 May 00:00
6 May 00:00
7 May 00:00
8 May 00:00
Date/Time

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Results of unattended measurements at Position B


Octagon House
Results of noise logging survey at Logger B
1 May 2026 to 7 May 2026
L_{Aeq}
L_{A90}
L_{AFMax}
A-weighted sound pressure level (dB)
100
90
80
70
60
50
40
30
1 May 00:00
2 May 00:00
3 May 00:00
4 May 00:00
5 May 00:00
6 May 00:00
7 May 00:00
8 May 00:00
Date/Time

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Appendix C

BS 4142 corrections for attention catching features

The following applies where plant noise is assessed in accordance with BS 4142:2014+A1:2019.

If the proposed plant noise contains attention catching features (such as tonal elements, whines, whistles, bangs etc), penalty corrections should be applied based on the type and impact of the features to derive a rating noise level.

If appropriate, a subjective assessment of the plant features can be adopted. Where the plant noise contains tonal elements, the following corrections can be made depending on how perceptible the tone is at the residential receptor:

- 0 dB where the tone is not perceptible
- 2 dB where the tone is just perceptible
- 4 dB where the tone is clearly perceptible
- 6 dB where the tone is highly perceptible.

Where the plant noise is impulsive, the following corrections can be made depending on how perceptible the impulsivity is at the residential receptor:

- 0 dB where the impulse is not perceptible
- 3 dB where the impulse is just perceptible
- 6 dB where the impulse is clearly perceptible
- 9 dB where the impulse is highly perceptible.

For noise which is equally both impulsive and tonal, then both features can be accounted for by linearly summing the corrections for both characteristics.

If the plant has other distinctive characteristics, such as intermittency, then a 3 dB correction can be made.

If a subjective assessment of tonality is not appropriate, an objective assessment can be made by analysis of time-averaged, third-octave band sound pressure levels. A noise source is deemed to be tonal if the level in a third-octave band exceeds the level in adjacent third-octave bands by the level differences given below:

- 15 dB in the low frequency third-octave bands (25 Hz to 125 Hz)
- 8 dB in the mid frequency third-octave bands (160 Hz to 400 Hz)
- 5 dB in the high frequency third-octave bands (500 Hz to 10000 Hz).

If an objective assessment identifies the plant noise to be tonal then a 6 dB correction must be made.

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Appendix D

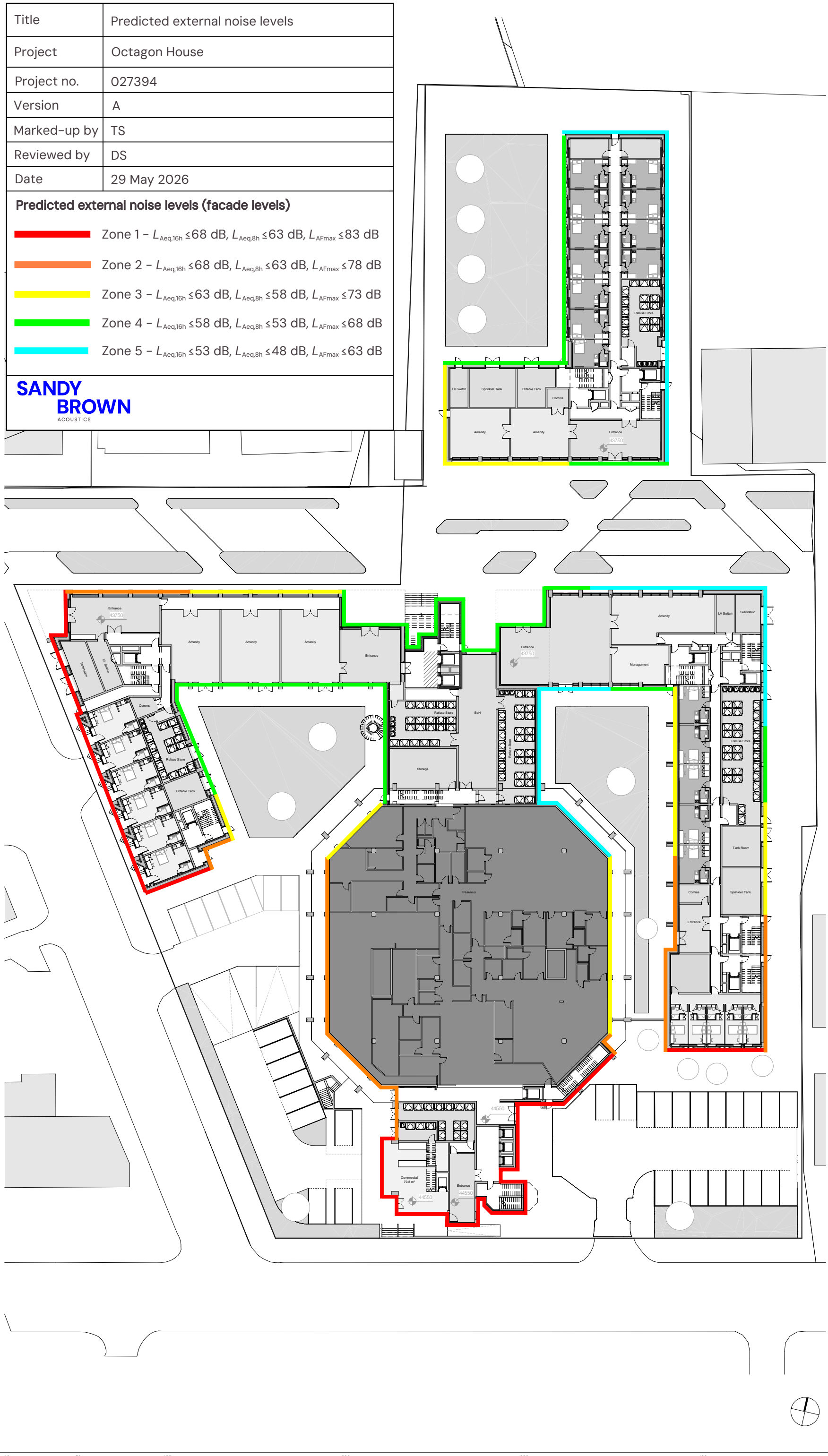
Predicted external noise levels

Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

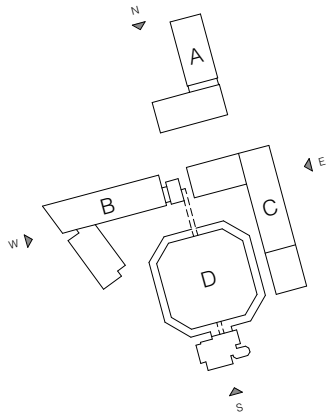
Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

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DO NOT SCALE
Work to annotated dimensions only. Read drawings in conjunction with relevant specification, Structural Engineers' and Services Engineers' drawings. Confirm all dimensions before commencement of any work on site or fabrication.



Unit Type

- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 00

scale: 1 : 250 @ A1

drawn by: RM

drawing number:
0670-HOD-XX-00-DR-A-20200

current revision date: 28/04/26

revision: 02

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28/04/2026 18:25:10

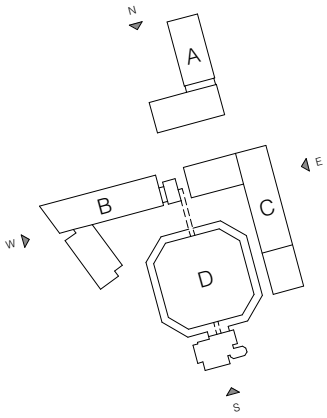
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

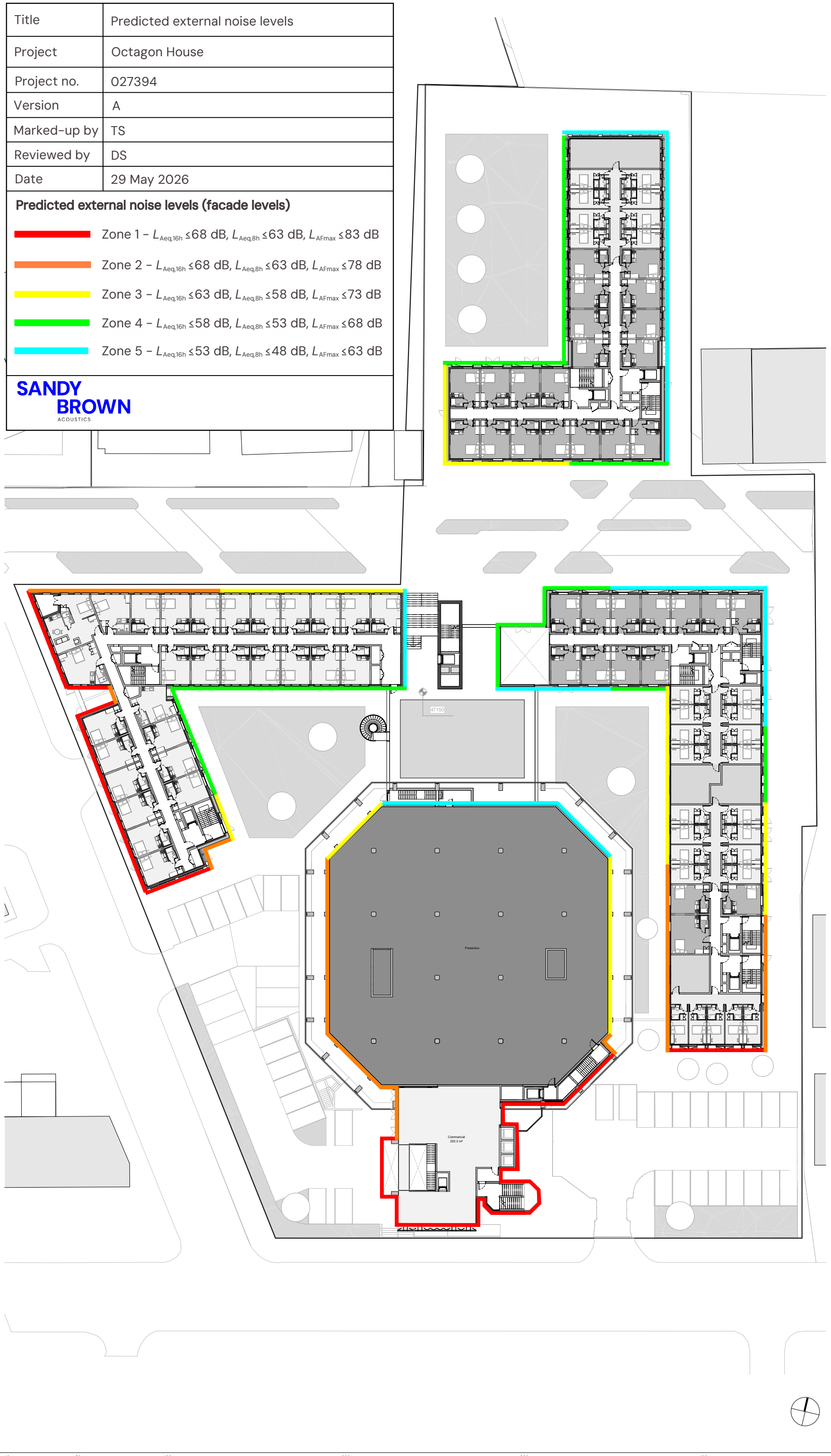
Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

SANDY BROWN ACOUSTICS

DO NOT SCALE
Work to annotated dimensions only. Read drawings in conjunction with relevant specification, Structural Engineers' and Services Engineers' drawings. Confirm all dimensions before commencement of any work on site or fabrication.





Unit Type

- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 01

scale:
1 : 250
@ A1

drawn by:
RM

drawing number:
0670-HOD-XX-01-DR-A-20201

current revision date:
28/04/26

revision:
02

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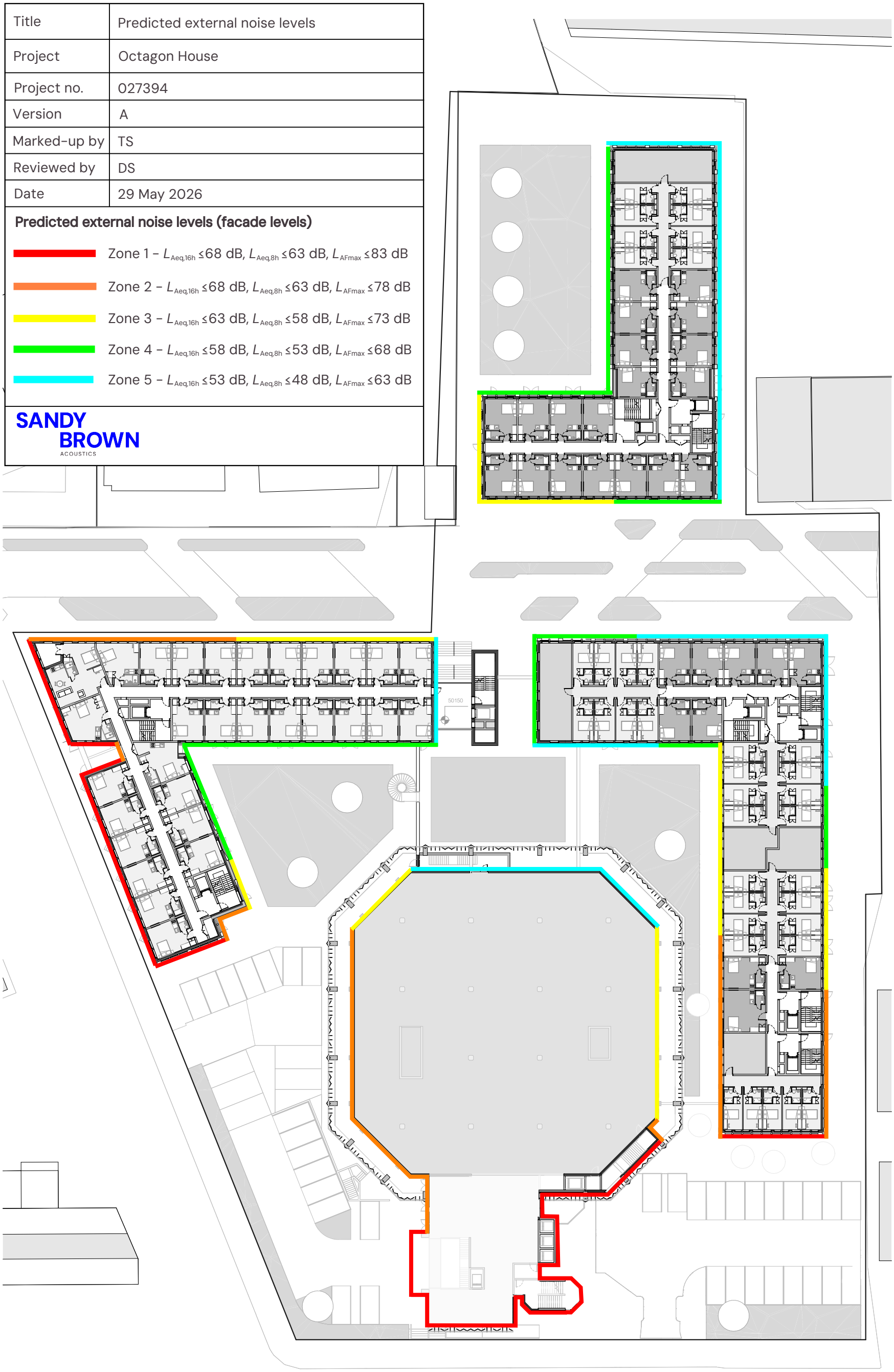
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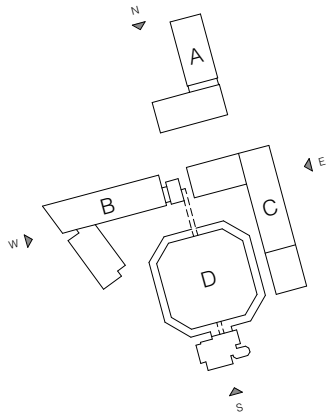
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

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Unit Type
- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 02

scale: 1 : 250 @ A1

drawn by: RM

drawing number:
0670-HOD-XX-02-DR-A-20202

current revision date: 28/04/26

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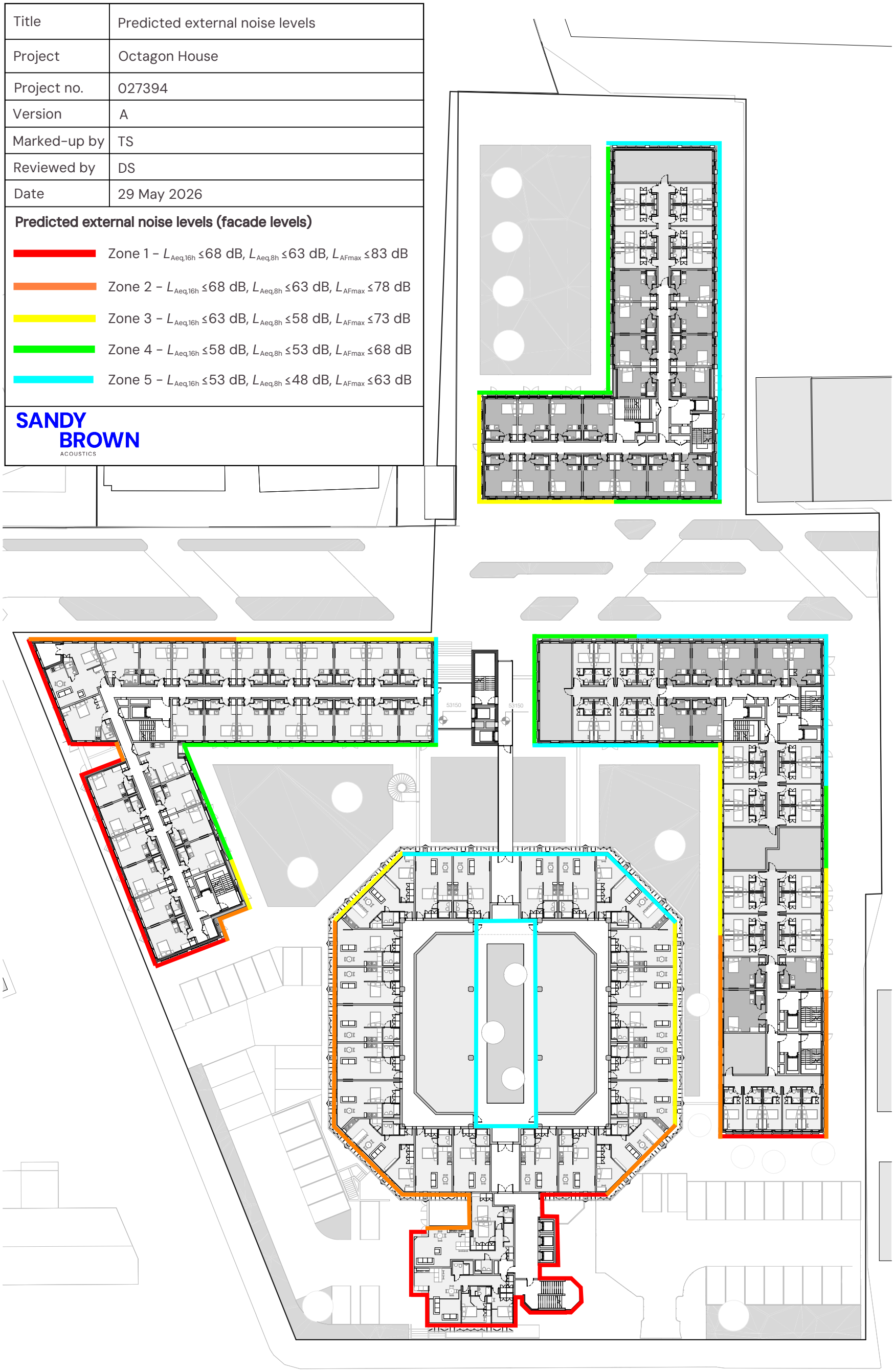
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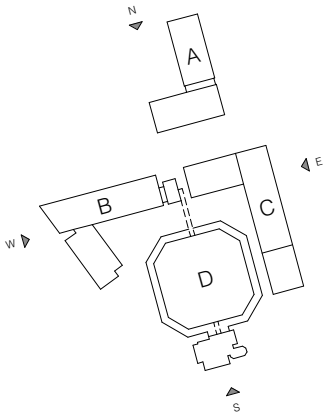
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

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Unit Type
- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 03

scale:
1 : 250
@ A1

drawn by:
RM

drawing number:
0670-HOD-XX-03-DR-A-20203

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revision:
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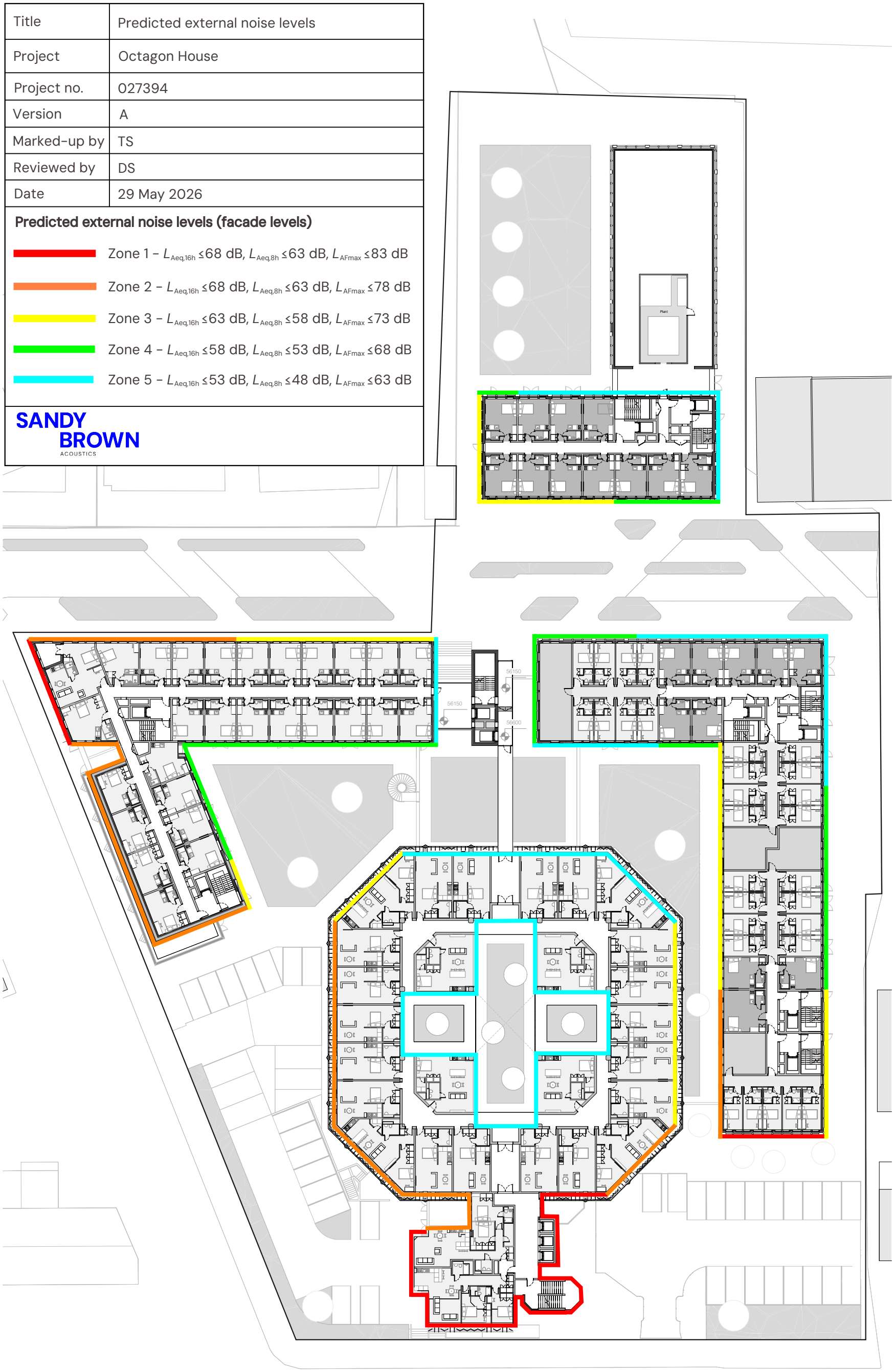
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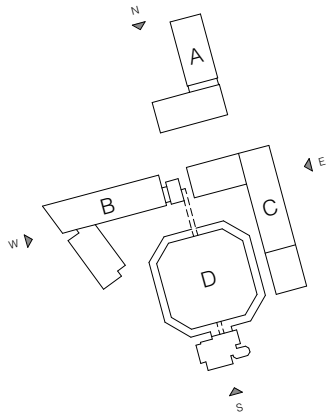
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

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Unit Type
- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 04

scale:
1 : 250
@ A1

drawn by:
RM

drawing number:
0670-HOD-XX-04-DR-A-20204

current revision date:
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revision:
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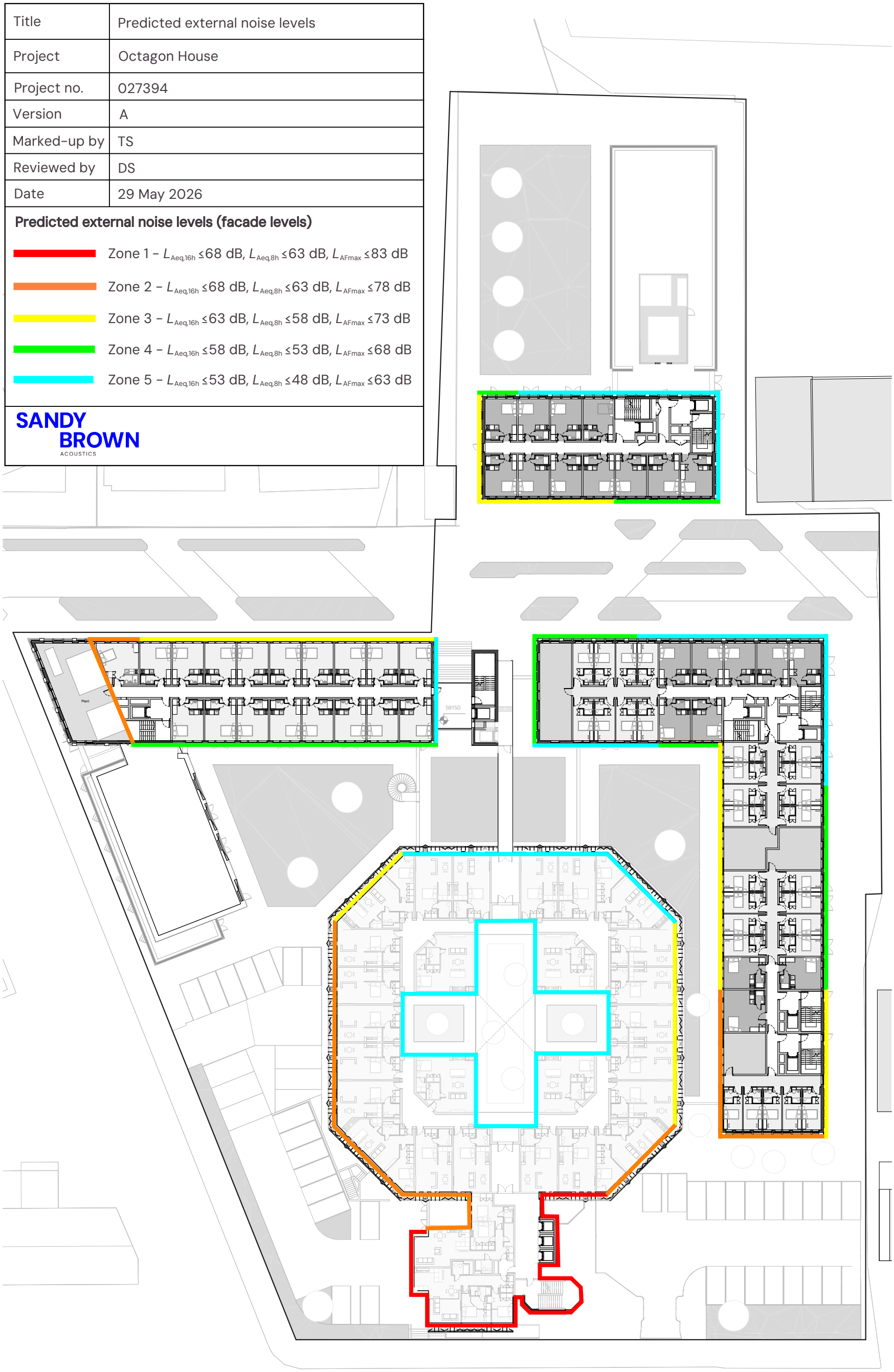
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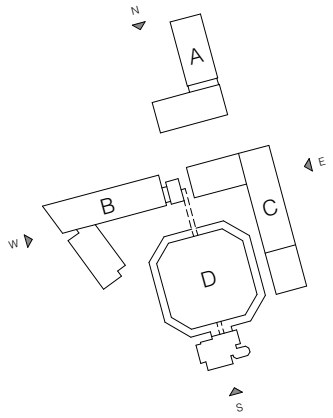
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

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Unit Type

- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 05

scale:
1 : 250
@ A1

drawn by:
RM

drawing number:
0670-HOD-XX-05-DR-A-20205

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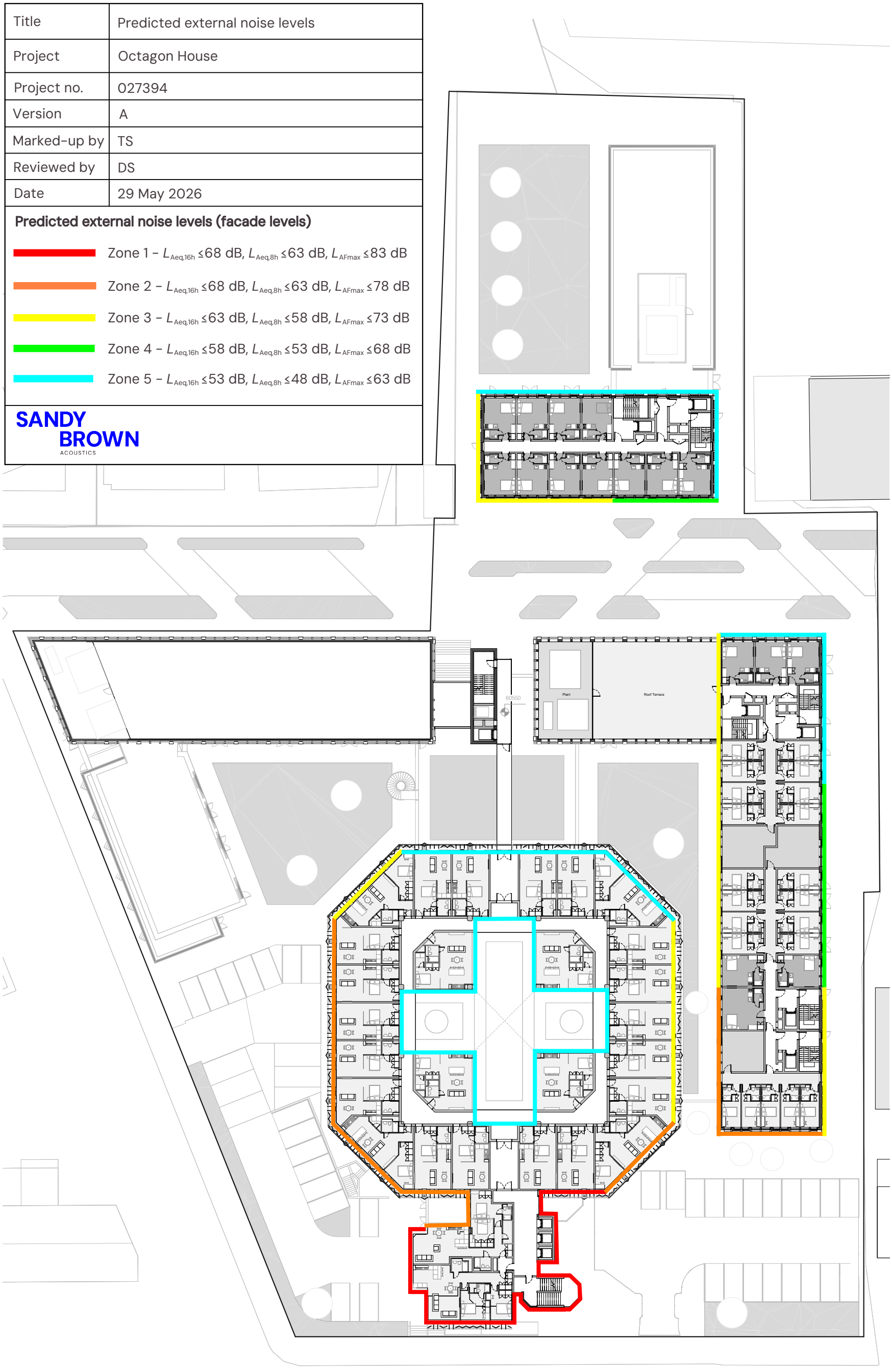
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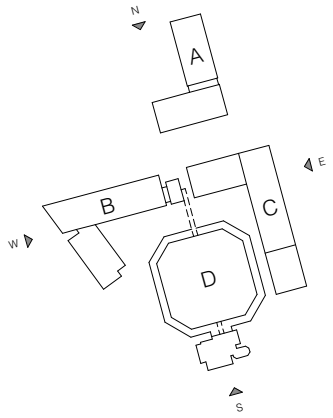
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

SANDY BROWN ACOUSTICS





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Unit Type

- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 06

scale:
1 : 250
@ A1

drawn by:
RM

drawing number:
0670-HOD-XX-06-DR-A-20206

current revision date:
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revision:
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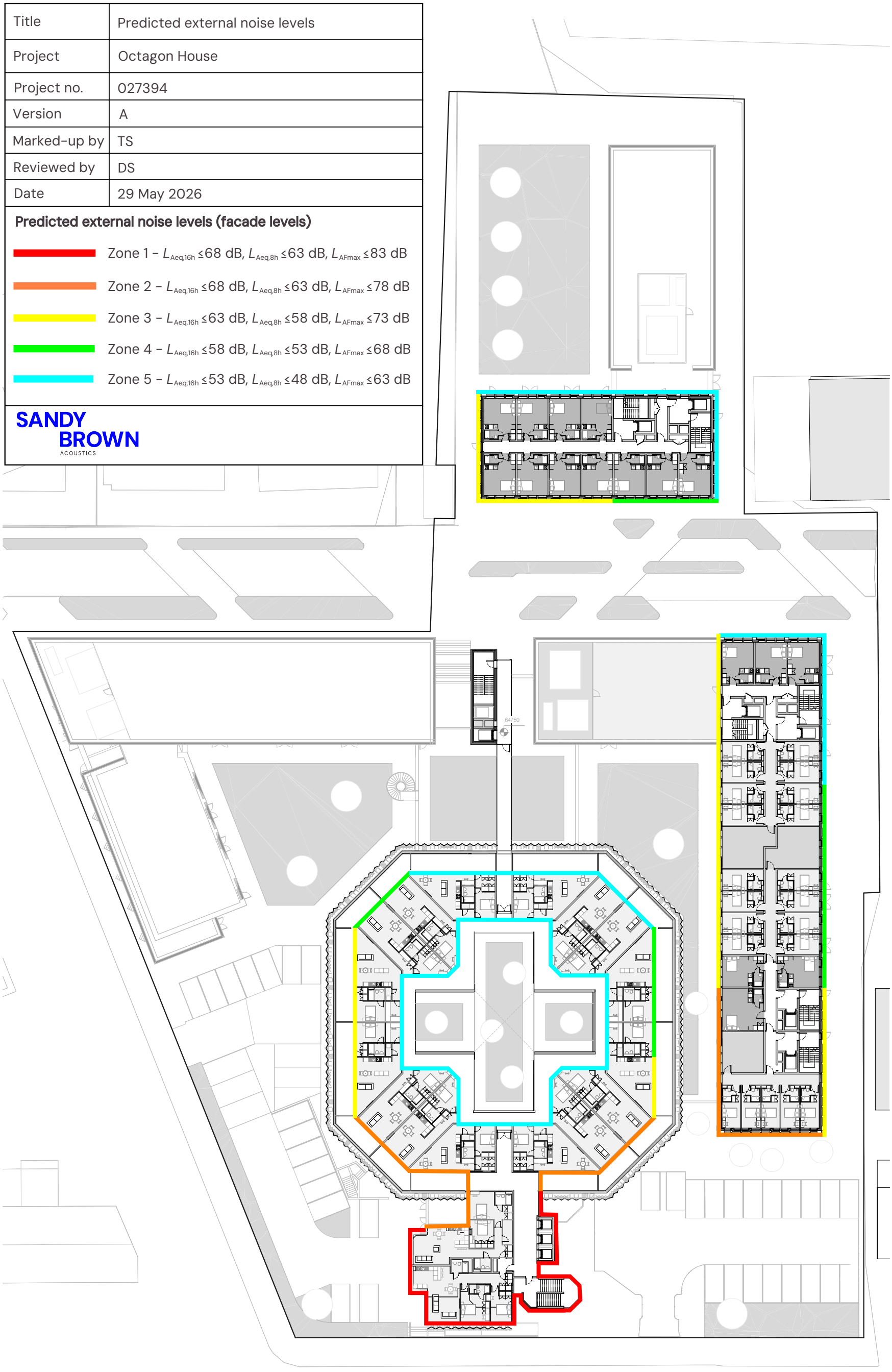
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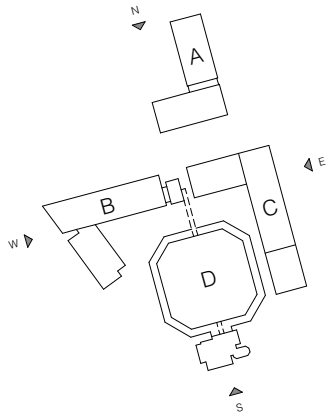
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

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Unit Type
- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 07

scale: 1 : 250 @ A1

drawn by: RM

drawing number:
0670-HOD-XX-07-DR-A-20207

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revision: 02

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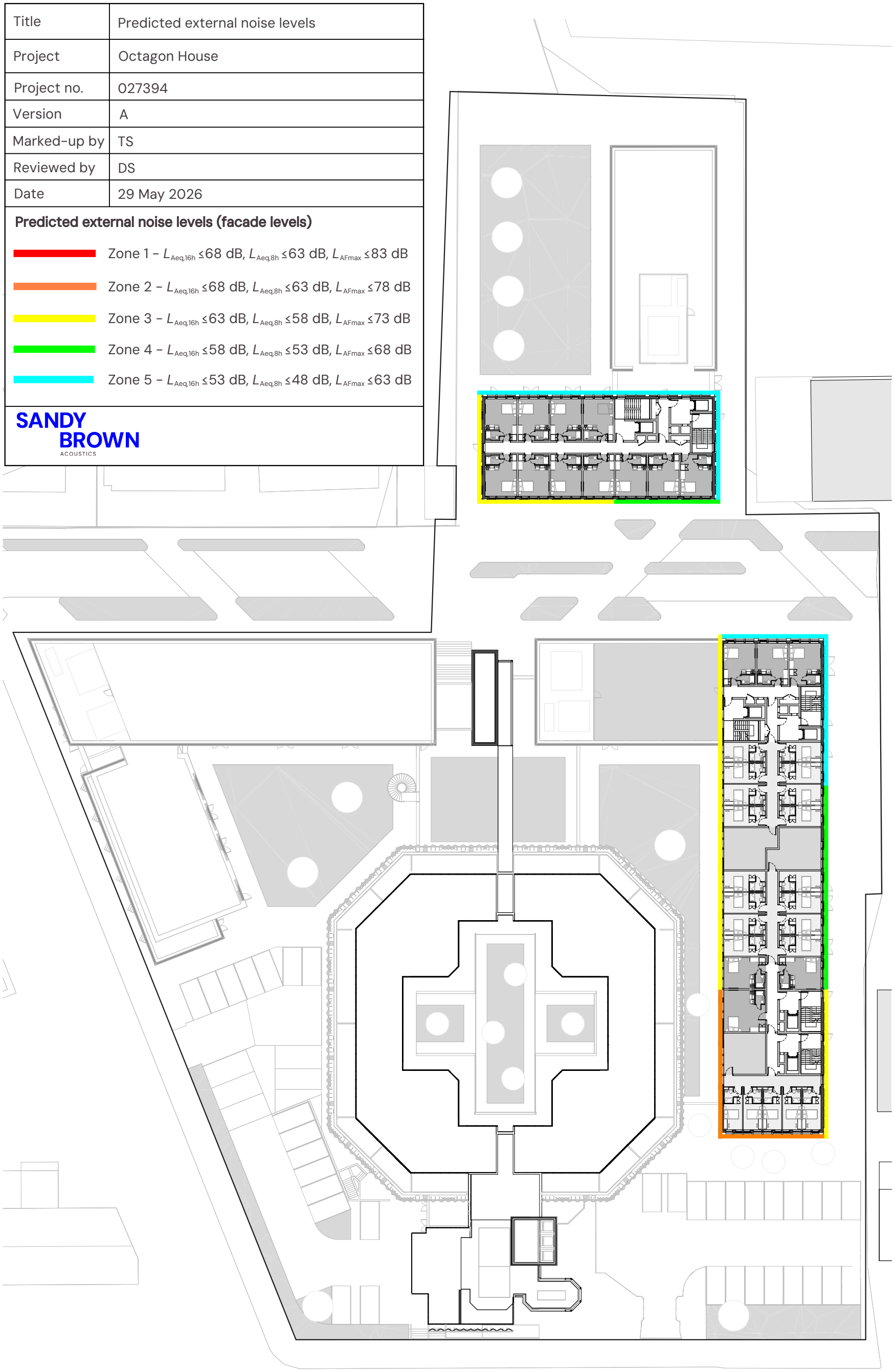
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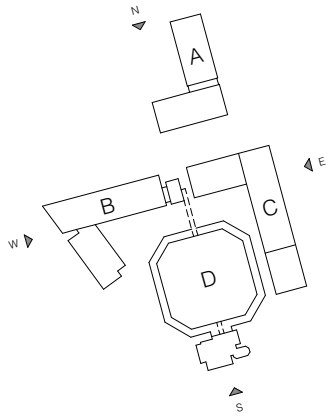
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Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

SANDY BROWN ACOUSTICS





DO NOT SCALE
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Unit Type
- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 08

scale:
1 : 250 @ A1

drawn by:
RM

drawing number:
0670-HOD-XX-08-DR-A-20208

current revision date:
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revision:
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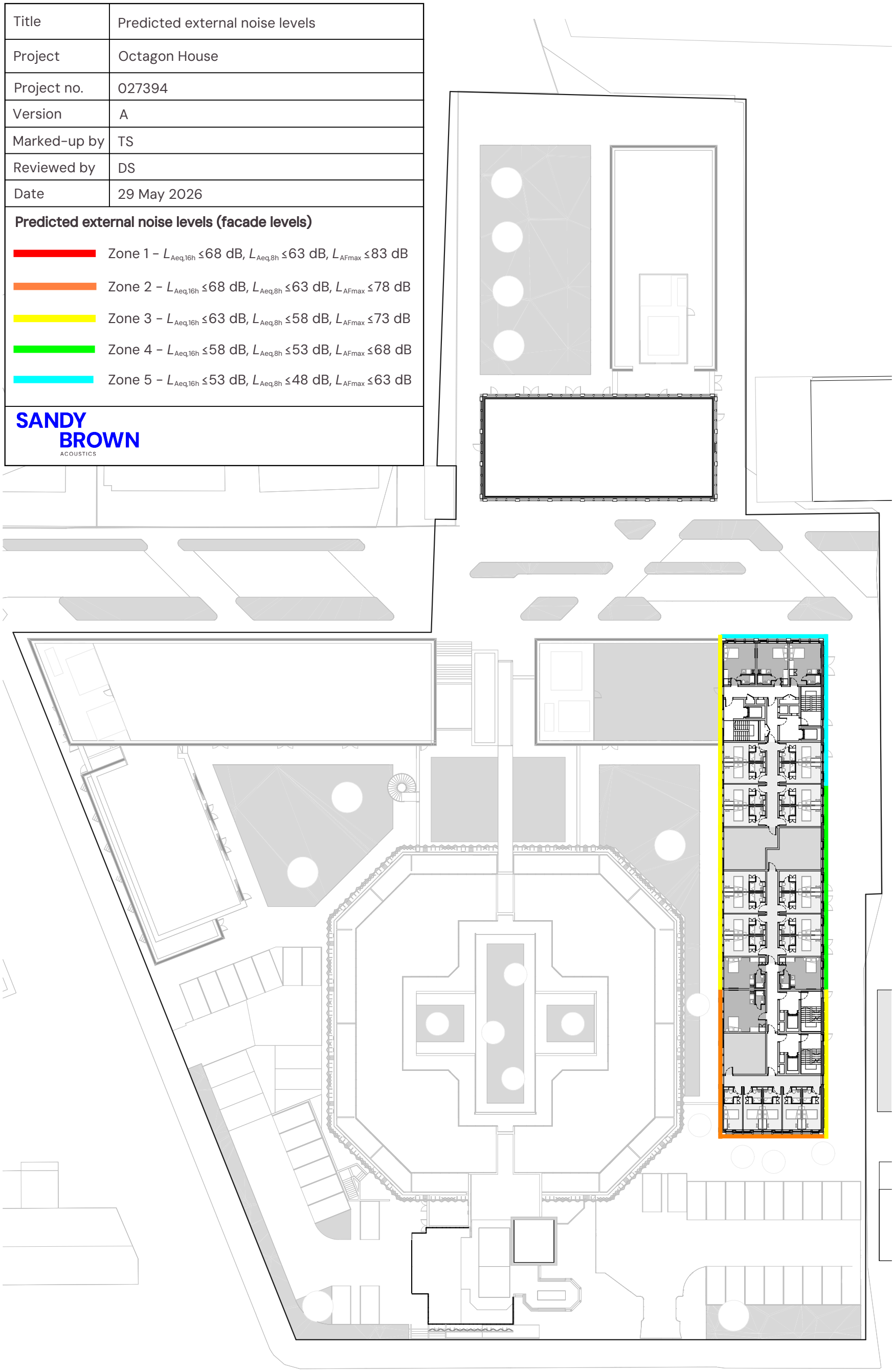
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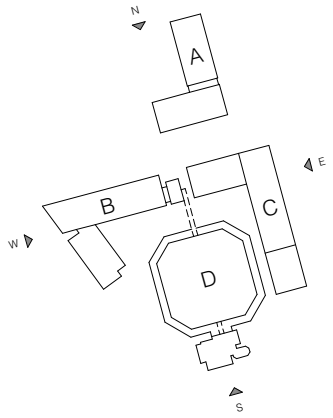
Title	Predicted external noise levels
Project	Octagon House
Project no.	027394
Version	A
Marked-up by	TS
Reviewed by	DS
Date	29 May 2026

Predicted external noise levels (facade levels)

- Zone 1 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤83 dB
- Zone 2 – $L_{Aeq,16h}$ ≤68 dB, $L_{Aeq,8h}$ ≤63 dB, L_{AFmax} ≤78 dB
- Zone 3 – $L_{Aeq,16h}$ ≤63 dB, $L_{Aeq,8h}$ ≤58 dB, L_{AFmax} ≤73 dB
- Zone 4 – $L_{Aeq,16h}$ ≤58 dB, $L_{Aeq,8h}$ ≤53 dB, L_{AFmax} ≤68 dB
- Zone 5 – $L_{Aeq,16h}$ ≤53 dB, $L_{Aeq,8h}$ ≤48 dB, L_{AFmax} ≤63 dB

SANDY BROWN ACOUSTICS





Unit Type
- Studio
- Cluster
- LKD
- Cluster Corridor
- Key Worker
- Back of House

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Rev:	Details:	Date:
02	GA Plans updated to design team coordination. Plant locations updated to M&E comments. Cores updated to fire engineers comments. New building levels updated.	28/04/26
01	First issue for information	21/04/26

client:
Octagon Project

project:
Octagon House

job number:
0670

status:
Feasibility

title:
Proposed GA Plan - Level 09

scale: 1 : 250 @ A1

drawn by: RM

drawing number:
0670-HOD-XX-09-DR-A-20209

current revision date: 28/04/26

revision: 02

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