



ENVIRONMENTAL NOISE ASSESSMENT ADDENDUM FOR ANGLIA SQUARE, NORWICH

Project Reference:

ENV01-ANGL-049 – Anglia Square, Norwich

Site Address:

Anglia Square
Norwich
Norfolk, NR13 1DZ

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Environmental Noise Assessment Addendum: Comments on Norwich City Council Environmental Protection Team Response on ENA (NCC Ref: 18/00330/F)

A hybrid planning application by Weston Homes and Columbia Threadneedle, to comprehensively redevelop Anglia Square, Norwich (LPA ref: 18/00330/F), was submitted to Norwich City Council on 2nd March 2018. The application comprised a full set of technical documents to assess the potential impacts of the proposals, including an EIA which covered a number of topics. Please refer to the original application documents for further details.

Following submission of the application, and the statutory consultation exercise, the applicant has worked closely with the Council to review the consultation responses received from the local community, statutory consultees and other key stakeholders, and to identify an appropriate response where considered necessary. As a result of on-going discussions with Norwich City Council, a number of changes to the originally submitted scheme are now proposed, including the reduction in height of the proposed landmark building by 5 storeys; amendments to the elevation design of Block A; the inclusion of public conveniences in Block A, resultant amendments to the proposed dwelling mix between the outline and detailed phases; changes to the landscape strategy; additional highways improvements; and greater flexibility for B1 use within the proposed commercial floor space. The application continues to seek consent for up to 1,250 dwellings. These changes comprise the Amended Scheme submitted in August 2018.

This document sets out where necessary a response to the relevant comments received on the originally submitted application proposals, and describes and considers the implications of the changes to the scheme now proposed. It should be noted that where relevant, this document also refers to any updates to national planning policy as set out within the recently published revised National Planning Policy Framework (July 2018).

Stansted Environmental Services (SES) had prepared an Environmental Noise Chapter within the Environmental Statement (ES) forming part of the application, which included in Appendix 9.1 an Environmental Noise Assessment (ENA).

Accordingly, SES has been instructed to prepare this Note to address the consultation comments received in relation to noise, from the Environmental Protection Team at NCC following submission of the Planning Application and its associated documentation.

The NPPF July 2018 Paragraph 180 requires, new development to, inter alia, “mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development, and avoid noise giving rise to significant adverse impacts on health and the quality of life”. Reference is made to the Noise Policy Statement for England 2010, to which NPPF 2012 also referred, and this is addressed in the Environmental Statement Chapter 9 Paragraphs 9.6-9.8.

In preparing this Note, SES has reviewed the two documents forwarded from NCC via email on the 31st May 2018 titled;

- Anglia Square – EP Consultation Response NOISE draft
- EH Noise and contaminated land

The EP Consultation Response has identified a number of “Deficiencies and uncertainties in the ENA that will need clarification and which are worthy of further consideration. Further work will need to be carried out so that all relevant information can be provided, so that the Council can make a properly informed representation as part of the planning application”.

Prior to responding to the points raised in the consultation response, SES note, that no reference is made by the Environmental Planning team to the Environmental Statement Chapter 9: Noise, which formed part of the planning application documentation. This is relevant, because the majority of points raised by the Environmental Planning team have been addressed within the Chapter and reference is made to the appropriate sections of the Chapter as part of this response.

For ease, the same numbering format as used in the EP consultation response has been used and the points have been reproduced in bold italics.

- 1. No consideration was given to the noise climate during the construction phases for the application site which may significantly and adversely impact the occupiers of residential units. For example, the occupiers of residential units in the first phases of the development will effectively living within or adjacent to a considerable sized construction site that will generate significant levels of noise.***

The construction phase impact on the site was identified in Paragraphs 9.23 -9.25 (including Tables 9.3 and 9.4) of the Noise Chapter. In essence, whilst it was too early to detail the exact construction techniques and types of plant to be used, a worst-case scenario was considered.

Construction effects were then discussed in paragraphs 9.31 – 9.34 and a summary of the significance criteria based on the values stated within BS5228 was provided in table 9.6.

Mitigation measures were discussed in paragraphs 9.36 – 9.38, which included;

- Application of controlled working hours for noisy activities, which are typically; Monday – Friday 08.00 to 18.00 hours and Saturday 08.00 to 13.00 hours, with no work on Sundays or Bank Holidays.
- Provision of site boundary barriers as needed.
- Adoption of the principles of “Best Practicable Means”.
- Use of compressors that have silencers or are sound reduced models.
- Fitting of silencers or mufflers to pneumatic tools, when necessary.
- Programming deliveries to arrive only during daylight hours, and acting carefully when unloading vehicles to minimise disturbance to local residents.
- Prohibiting delivery vehicles from waiting within the Site with their engines running.
- Ensuring all plant items will be properly maintained and operated according to the manufacturer’s instructions.
- Siting plant as far as possible, away from noise sensitive receptors. (Plant and machinery noise will be controlled via condition to mitigate impact on the surrounding area).

In addition, confirmation was given in paragraph 9.38 of the Construction Environmental Management Plan implement the above controls for approval by NCC, which would then be implemented by Weston Homes, in order to ensure that noise and vibration limits during construction were monitored and kept to acceptable levels.

- 2. Furthermore, no consideration was given to the cumulative noise impact of the application site on the occupiers of the residential units once the construction phase has been completed. No information has been submitted detailing the installation of plant and machinery including; air handling units, refrigeration etc. which could impact internal and external noise receptors.***

With respect to installed permanent plant, it is intended that this will be addressed at the detailed design stage of the development, via use of planning conditions attached to the current Hybrid and future Reserved Matters consents. Nevertheless, for assurance at the Hybrid application determination stage, reference was made in Environmental Statement paragraph 9.48 to installed plant being designed/selected (or attenuated) to be 5dB below the existing background level.

- 3. The current suggested mitigation measures are not considered to be sufficient because the glazing elements have been considered in isolation rather than taking into account any losses in the sound reduction index due to the fitting of the glazed unit in the window opening which may introduce air gaps and the installation of passive ventilation such as trickle vents etc. resulting an overall reduction in the sound insulation and protection of the occupiers of the properties to external noise sources.***

The mitigation measures refer to the required comprehensive attenuation needed to meet the desired internal noise levels as stated within BS8233:2014. Whilst reference to a standard glazing

window was noted in the ENA and the Noise Chapter (Paragraph 9.39), this is for the whole unit including any trickle ventilators or mechanical ventilation as noted in paragraph 9.42. Furthermore, current Building Regulation requirements for insulation do not allow for "air gaps" between windows and walls, the avoidance of which is guaranteed by required air testing. Accordingly, a planning condition which requires attenuation to an internal level of 30dB at night, 35dB during daytime, can be achieved via specification of appropriate products, and via construction which satisfies Building Regulations.

- 4. The application site will affect the noise climate for the area and there are needs to be some detailed modelling of impact of vehicle movements, changes to traffic flow and the contribution of plant and machinery and other noise sources to the noise climate so that appropriate mitigation measures can be properly considered. It is possible that the changes might not significantly affect the noise climate for the area but any potential changes must be properly considered.**

Environmental Statement Paragraph 9.51-9.53 refer to the Transport Assessment prepared as part of the planning application to identify if there were any cumulative effects during the operational phase of the development. The Transport Assessment Model took account of the agreed modelling of the Norwich Northern Distribution Road (NDR) which will significantly reduce traffic flow within the city centre. The NDR is expected to be fully operational in 2018 and traffic flow in the city centre is forecast to be almost half of that in 2012 which was the base year for the traffic assessment model.

On this basis it was concluded that vehicle movements on St. Crispins Road would be lower from 2018, even with the development. Only Edward Street would experience a material increase in traffic, but this is by comparison with the current situation with the multi-storey car park closed. It is contended that the proposed car club vehicles, the ample cycle storage and the proposed improvements to cycling and walking connectivity between the site and its surroundings, all of which will assist in limiting car usage associated with the site, no other mitigation to the noise climate of the area is needed.

It should also be noted that the parking numbers that have been stated are based on maximum figures and as such the parking allowance on the development may reduce further.

- 5. A number of the proposed residential apartment blocks will have building facades located close to the highway on Pitt Street, New Botolph Street, and St Crispins Road. The noise levels at the facades of these buildings are likely to be significantly higher than those suggested by SES in their submitted ENA. The fixed and spot noise measurements that have been used during the noise survey could have been expanded to include positions much closer to the highway giving more representative building façade noise levels.**

The measurement positions were deemed satisfactory as the fixed noise monitoring positions targeted (Position 1) the St Crispins Road elevation of the proposed development (identified as the primary noise source affecting the site) with Position 2 being a more central position. Seven spot monitoring measurements were also take for thirty minute periods around the boundary of the site which correlated well with the data collected by the fixed monitoring stations.

CadnaA modelling has now been carried out to assess the noise levels at the building facades. Copies of the models have been attached.

As can be seen from the models, the highest daytime level of noise at the facades are within the >65dB banding which correlates with the 67.2dB level referred to in the ENA. This is further broken down as follows;

- Maximum façade levels on the Pitt Street/New Botolph Street elevation elevation = >60dB
- Maximum façade levels on the Edward Street = >65dB
- Maximum façade levels on the St Crispins Road elevation = >65dB
- Maximum façade levels on the Magdalen Street elevation = <60dB

As such, the level of attenuation required remains 32dB as stated within the ENA at the noisiest elevations.

6. ***There does not seem to be a distance correction calculation for the expected increased noise levels at the proposed building facades which front onto the highway. As a consequence, the façade noise levels suggested by SES appear to be significantly lower than would be expected. Previous noise surveys indicate considerably greater levels of noise at the boundary and it is essential that SES confirm whether or not any distance correction has been applied or not. As a consequence, it would appear that the proposed sound insulation i.e. the glazing elements are insufficient unless SES can demonstrate otherwise.***

Please refer to the CadnaA models. It is correct to base these on SES's recent noise surveys rather than previous historic surveys.

7. ***The road traffic noise especially on the southern elevation of the site is particularly challenging. As a consequence some of the proposed residential dwellings will require additional glazing and supplementary ventilation in order to achieve the recommended internal sound levels. An ENA for a previous planning application suggested the sound insulation performance of the facades and windows on the facades of properties located on the St. Crispins elevation will require a maximum SRI rating of 42dB. These proposals are acceptable to provide occupiers of the residential accommodation with adequate protection from road traffic noise. We will require the specification of the glazing and ventilator units to be installed, to include the manufacturers stated sound reduction rating.***

ES Chapter 9 – Noise Operational Phase paragraphs 9.40-9.42 already notes that all dwellings will be provided with acoustically treated trickle vents or mechanical ventilation where external noise survey results dictate that such arrangements are necessary. Further noise surveys can be required by condition prior to the submission of Reserved Matters applications for each phase.

Window specification details will be provided to the developer by the glazing subcontractor once appointed as will the ventilation details once the detailed design of the scheme has been completed.

Planning conditions can be used to enable NCC to consider and approve the specifications of these elements to ensure adequate noise attenuation.

8. ***As a consequence, the building envelope including glazing elements for the block facing the St. Crispins Road will need to be carefully selected to ensure there is sufficient protection from road traffic noise for the occupiers of the proposed residences or otherwise consider alternative uses for this block such as office, leisure etc.***

The southern end of Block F, fronting St Crispins Road between the roundabout and the new St George's Street is already proposed as a hotel. It is proposed that this building will be served by an air source heat pump heating/cooling ventilation system, so windows can be sealed, and specified with appropriate attenuation. Blocks G and J, facing St Crispins Road are set further back and as the CadnaA models demonstrate, noise levels at their respective facades can be adequately attenuated by standard double glazing with acoustic trickle vents. The specification can be approved by NCC via planning conditions.

9. ***No details have been submitted of noise and dust mitigation during the construction phases for the application site. Details of mitigation measures include noise minimisation and dust suppression will need to be submitted as well as operating times for particularly noisy activities.***

As noted in point 1, details of how noise and dust mitigation during construction will be achieved have been provided. Thus a Construction Environmental Management Plan will be prepared for the development which will address construction dust and noise. This will be submitted to NCC for approval via a planning condition.

10. ***No details relating to the type, number and location of on-site plant and machinery has been submitted yet. Detailed plans for the site show a number of roof garden spaces and green or living roof with some of the drawings showing what appears to be small plant rooms on the top of some of the buildings. The contribution of plant and machinery noise to the noise climate of the area needs to be taken into account before the details of the sound insulation for the residential blocks are finalised.***

As noted in point 2, details of plant have yet to be designed, however all plant will be designed/selected (or attenuated) to be 5dB below background levels. The drawings for the Amended Scheme clarify the actual/illustrative locations and scale of roof plant enclosures for the detailed/outline application areas respectively.

11. No details for the ventilation of the three on-site multi-story car parks have been submitted and the contribution of these ventilation systems must also be taken into account before the details of the sound insulation for the residential blocks are finalised.

All three multi-storey car parks will indeed require mechanical ventilation. Of these only Block A is within the detailed element of the application, but as noted in response 10, the details of plant have yet to be designed. Noise limits from plant can be specified by planning condition, as noted, and the details of noise attenuation for the residential units in the scheme can also be considered and controlled by the Local Planning Authority via planning conditions. It is anticipated that plant noise limits, and the specification of suitable insulation can together ensure that appropriate internal residential noise targets are not exceeded.

12. The ENA does state that the podium outdoor amenity areas should be able to meet the WHO guideline level of 55dB. However, this doesn't seem to take into account the potential contribution from plant and machinery located on the roof spaces of the buildings. The buildings located on the southern elevation i.e. facing onto St. Crispins Road do not meet the guideline levels regardless of the contribution of nearby plant and machinery. No mitigation measures have been suggested by SES in reducing noise levels on the St Crispins Road elevation such that the WHO guideline for the outdoor amenity areas can be met.

The CadnaA models demonstrate that the inner areas of the scheme will be afforded attenuation by the buildings themselves with levels not exceeding 50dB, which confirms the findings of the ENA. Within those communal amenity areas, any plant, eg ventilating the car parks, will be controlled by the planning condition suggested in response 10, to ensure that appropriate noise targets are not exceeded. With respect to the amenity spaces on the St Crispins Road elevation, consideration should be given to the following;

- There is no strict planning policy that requires private balcony amenity to all residential units.
- Residential dwellings are benefitted by extensive communal courtyards, offering high levels of amenity that is accessible.
- In line with the above, St Crispins facing balconies can be considered 'additional' not primary amenity.
- Through detailed design, noise levels could be reduced through careful positioning of balconies and material selection to provide screening and enhanced attenuation.

13. No details have been supplied relating to how background ventilation will be provided to the residential properties. For example, details have not been provided of trickle vents or other means of passive ventilation design and installation and how these will affect the internal noise levels in the bedrooms and living rooms of the proposed residential properties. The installation and operation of background ventilators will affect the internal noise levels inside the proposed residential properties and to mitigate this, care should be taken in the selection and installation of background ventilators.

The scheme of ventilation will be drawn up as part of the detailed design and will be in accordance with the requirements of Part F of the Building Regulations. However, the ENA has specifically noted at Paragraph 5.16 that inlets will need to be acoustically treated to ensure that noise does not affect the internal noise levels. Ventilation can be either via trickle ventilators or mechanical ventilation. This can be controlled by a planning condition.

14. No details of purge ventilation have been provided to allow rapid air changes in rooms especially in warmer weather when additional ventilation is required. It is assumed that the method of purge ventilation will be via openable windows which will compromise the internal noise levels especially bedrooms. However, it is likely purge ventilation will generally only be used intermittently reducing the need for active or mechanical ventilation.

This is addressed in the Environmental Statement Noise Chapter at Paragraphs 9.40-9.42. Purge ventilation can be via open-able windows. However, to satisfy BS8233 standards, apartments located on the elevations where high noise levels have been identified will have a ventilation system incorporated that will achieve two air changes per hour, thus negating the need to open windows, and thereby ensuring that the noise attenuation measures can operate continuously, without compromising internal noise levels achieved.

- 15. The commercial use of the public spaces within the proposed development site will need to be controlled to ensure the occupier of the residential properties are not adversely affected by excessive noise such as amplified music, human noise etc. No details have yet been supplied by the applicant but this will need to be taken into account and must be appropriately conditioned if planning permission is granted. This will include suitable and sufficient sound insulation between commercial units and any adjoining / neighbouring residential properties.**

Noted and should be dealt with by condition controlling the future occupiers of the commercial units, and the details of sound attenuation between commercial spaces and adjoining dwellings.

- 16. There should also be some consideration of the use of external areas such as the proposed St George's Square which has been suggested by the applicant may be used by customers of the restaurant and bars. This will generate additional noise which may change the to take into account additional noise sources such as human noise from diners, street entertainment, breakout of amplified music from restaurants / bars. Any permission must be appropriately conditioned to ensure adequate mitigation is provided to reduce the impact of commercial activities described above.**

As above.

- 17. Conditions might include the restrictions on external amplification, the setting of internal sound levels for PA/sound systems by the Environmental Protection team, the provision of sound limiting devices, internal lobbies to reduce the break-out of internal noise from restaurants, bars and other commercial units as well as other means of preventing sound transmission and break-out.**

Noted.

- 18. The ENA is unclear whether all of the proposed balconies meet the WHO guideline for the outdoor amenity areas. It would be very useful if SES could confirm whether or not they meet the WHO guideline level. If they do not then further mitigation measures will be necessary unless this requirement is relaxed.**

The CadnaA model identifies that not all of the elevations will achieve the WHO guideline level, however as noted in point 12, the proposed scheme provides sufficient alternative amenity space, and the Council's planning team have acknowledged that such balconies represent extra amenity space which can be used when traffic levels are low.

- 19. Taking into account the above points, additional sound insulation such as improved glazing / material specification may be required. This may provide the occupiers with the necessary acoustic protection in achieving the internal noise levels recommended by WHO 1999 Guidelines for Community Noise although this may be difficult to achieve for some balconies.**

Please refer to the CadnaA model and the response to 18 above.

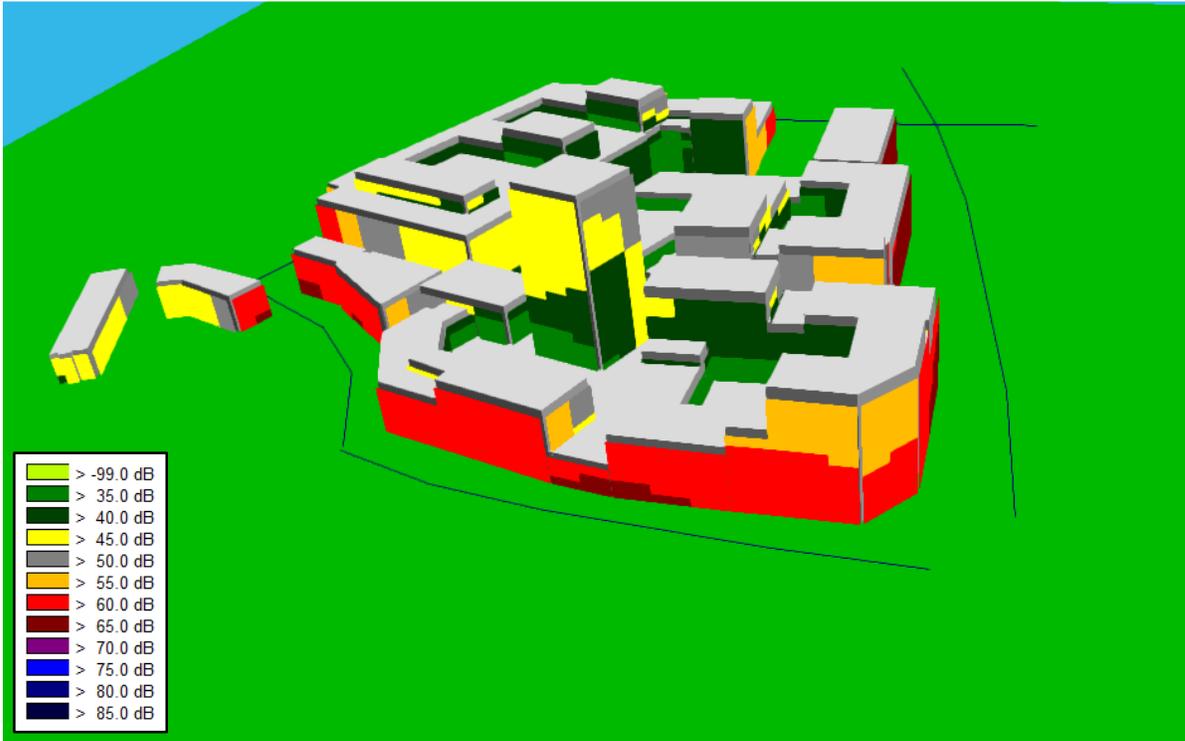
Points 20-26 are conclusions derived from the above points which have now been addressed, e.g for point 20, point 5 confirms that CadnaA modelling has now been carried out, and is attached.

The above information addresses each of the points raised by the NCC Environmental Protection, including confirming where planning conditions are anticipated by the applicants in order to properly mitigate and control noise impact. Accordingly, it is contended that the Environmental Statement Chapter 9 and Environmental Noise Assessment, together with this Note, jointly demonstrate that the Hybrid Application Scheme is acceptable in terms of its construction and operational noise/dust impact, and that a satisfactory

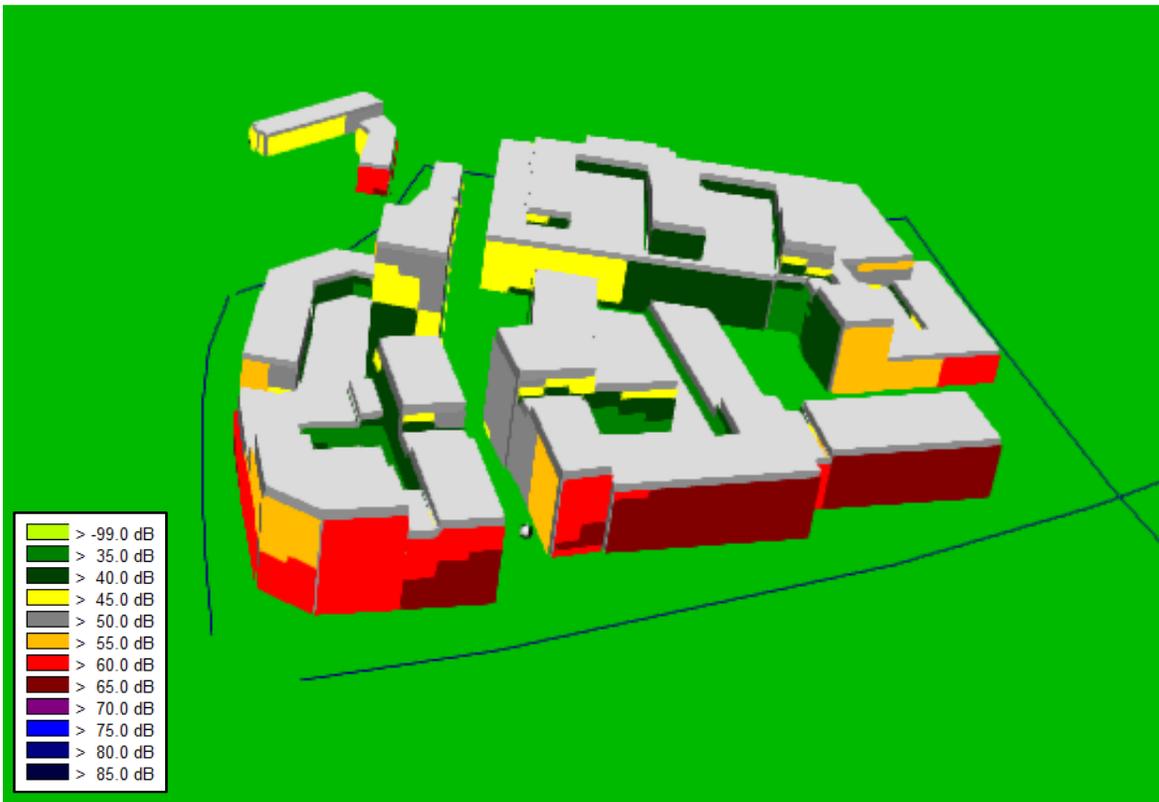
noise environment will be produced both within the proposed dwellings, and in their communal amenity space and private balconies, when the latter are likely to be used.

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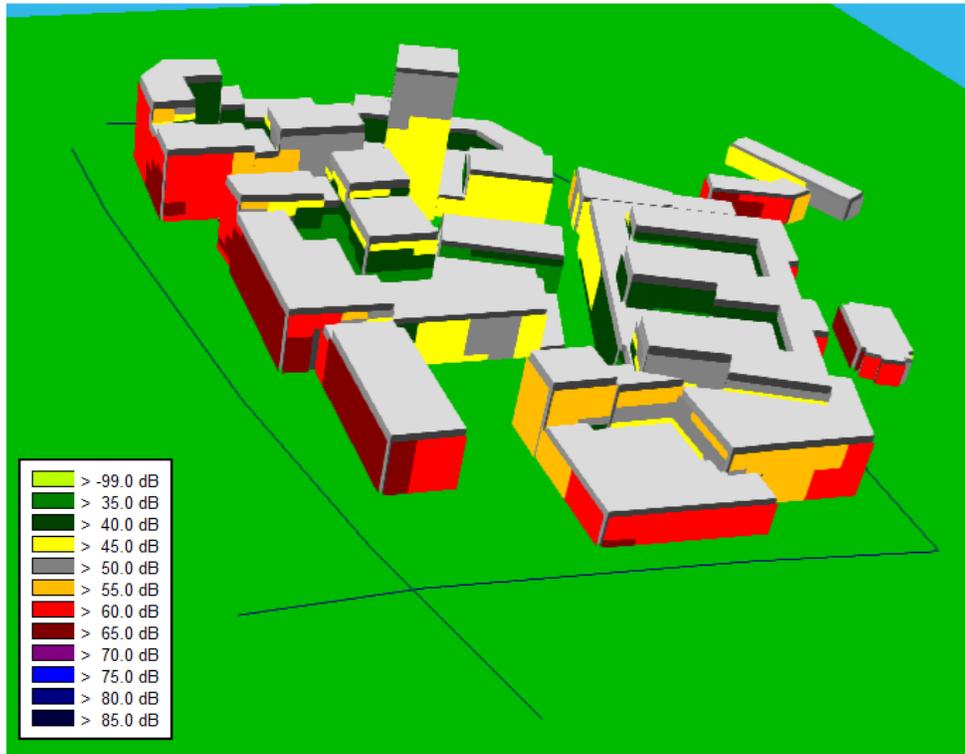
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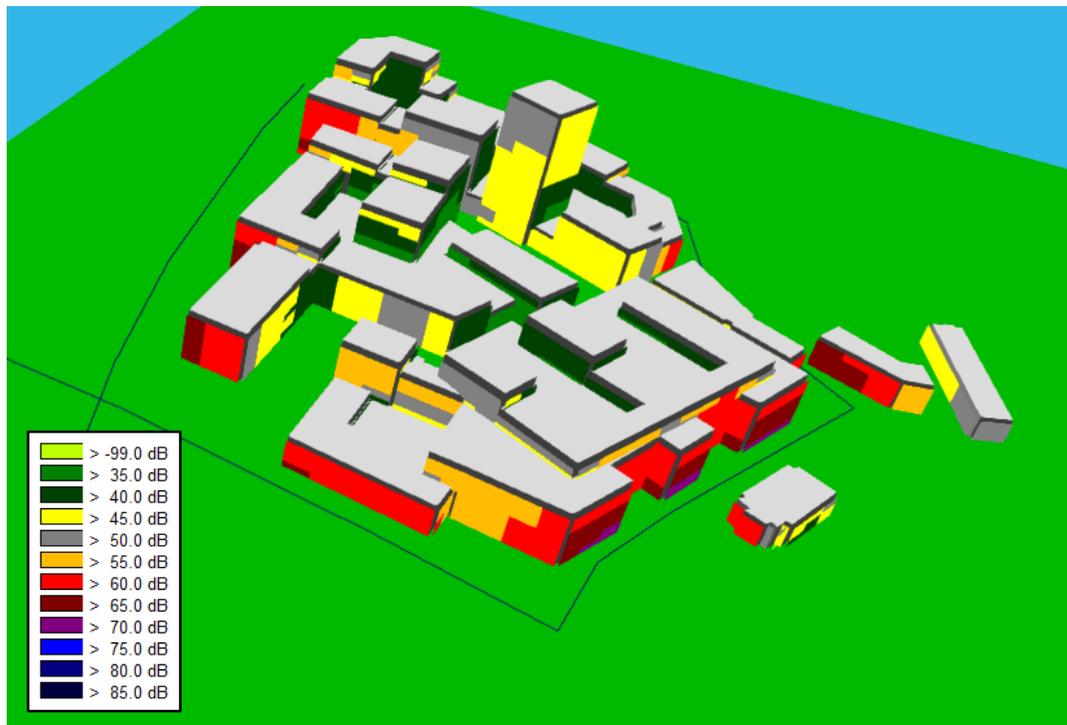
Pitt Street elevation



St Crispins Road elevation



Magdalen Street elevation



Edward Street elevation