Acoustic Consultancy Partnership Ltd
Ground Floor, Building 1000, Lakeside North Harbour
Western Road, Portsmouth, Hampshire, P06 3EZ
Tel: 023 9270 4133 | Fax: 023 9270 4001 | info@acpltd.org.uk

# Acoustic Consultancy Report

## Environmental Noise Survey Results and
## Noise Impact Assessment for Proposed Fixed Plant

| | |
|---|---|
| Client: | Adonis Restaurants Limited |
| Project: | 335, Kentish Town Road<br>London<br>NW5 2TJ |
| Our Ref: | 11639 |
| Revision: | A |
| Report Prepared By | N. Fowler M.I.O.A. |
| Date: | 16th July 2021 |

## 1.0 Introduction

1.1 Acoustic Consultancy Partnership Ltd were appointed to undertake an environmental noise survey and carry out a noise impact assessment for the proposed fixed plant at 335 Kentish Town Road, London.

1.2 This report provides the results of our environmental noise surveys and establishes the cumulative noise levels for the proposed plant in accordance with the requirements of the London Borough of Camden.

1.3 The predicted noise levels for the proposed plant have been established based on the latest plant selections and noise data provided to us. A plant noise assessment has been included within this report detailing the resultant noise levels at the nearest affected noise sensitive property.

1.4 This report provides a noise assessment and mitigation proposals that will achieve the requirements of the London Borough of Camden at 1metre from the façade of the nearest affected noise sensitive property.

## 2.0 Environmental Noise Survey Measurement Procedure

2.1 The environmental noise survey adopted the procedure and methodology stated within BS4142:2014. This report has been prepared to provide the existing ambient and background noise levels covering the periods of operation of the proposed plant at the rear of the premises.

## 3.0 Site Description and Nearest Noise Sensitive Buildings

3.1 The premises would occupy the ground floor area within a parade of retail, commercial and food/drink premises fronting the west side of Kentish Town Road. The rear of the premises does have a locked, gated access from York Mews.

3.2 The proposed air conditioning and refrigeration condensers will be located on the rear ground floor roof of the premises. The kitchen supply, kitchen extract, toilet extract and basement extract fans would be located internal to the building. The intake for the kitchen supply system and discharges for the kitchen, toilet and basement extracts would be located on the rear flat roof. The nearest residential to the plant intake and discharges will be the rear façade of the three storey building above the proposed premises. The rear windows of the residential will have line of site to the proposed fixed plant on the ground floor flat roof, together with the intake and discharges from the internal plant, at a distance of 9m.

3.3 Full details of the individual plant items, operating periods and plant locations relative to the receptor position are given in sections 4.0, 5.0 and 6.0.

## 4.0 Receptor Position

4.1 Based on our comments given in section 3.2 above, we have adopted one receptor position as the nearest noise sensitive property to the proposed plant locations.

RPA Second and third floor habitable rear windows above the proposed premises.

4.2 The preliminary distance and sight line to the proposed plant items are given in Table 1 below.

| Plant | Plant | Distance to RPA | Sight Line |
|---|---|---|---|
| CR1 | Refrigeration Condenser No 1 | 9m | Line of sight |
| CR2 | Refrigeration Condenser No 2 | | |
| CU1 | A/C Condenser No 1 | | |
| CU2 | A/C Condenser No 2 | | |
| CU3 | A/C Condenser No 3 | | |
| EF1 | Kitchen Extract Discharge | 9m | Line of sight at 180 degrees |
| SF1 | Kitchen Supply Intake | | |
| EF1 | Kitchen Extract Discharge | | |
| EF2 | Toilet Extract Discharge | | |
| EF3 | Basement Extract Discharge | | |

**Table 1 – Distance and Sight Lines**

## 5.0 Plant Information

5.1 The plant models and location are given below.

| Plant | Plant Item | Sound Pressure Level, dBA |
|---|---|---|
| CR1 | Freezer Unit-Duet JEH2-0175 | 35 dBA at 10m |
| CR2 | Chiller Unit-Duet JEHR-0050 | 30 dBA at 10m |

**Table 2 – Refrigeration Plant Sound Pressure Levels at 10m**

| Plant | Plant Item | Sound Pressure Level, dB at 1m | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| CU1 | Toshiba RAVGM1404ATP-E condenser | 58 | 59 | 57 | 54 | 50 | 46 | 40 | 33 |
| CU2 | Toshiba RAVGM1404ATP-E condenser | 58 | 59 | 57 | 54 | 50 | 46 | 40 | 33 |
| CU3 | Toshiba RAVGM1404ATP-E condenser | 58 | 59 | 57 | 54 | 50 | 46 | 40 | 33 |

**Table 3 – A/C Plant Sound Pressure Levels at 1m**

5.2 The above manufacturers noise data for units CR1, CR2, CU1, CU2 and CU3 are measured under free field conditions over a reflecting plane. These units will be located on the flat roof at first floor level.

| Unit No | Plant Item | Sound Power Level, dB | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| SF1 | SEL355/2 Kitchen Supply | - | 47 | 64 | 70 | 75 | 74 | 71 | 64 |
| EF1 | SEL355/2 Kitchen Extract | - | 54 | 70 | 76 | 80 | 77 | 72 | 64 |
| EF2 | HIT125 Toilet Extract | 73 | 65 | 63 | 55 | 49 | 42 | 34 | 25 |
| EF3 | HIT125 Basement Extract | 73 | 65 | 63 | 55 | 49 | 42 | 34 | 25 |

**Table 4 – Plant Sound Power Levels**

5.3 The Kitchen Supply, Kitchen Extract, Toilet Extract and Basement Extract fans would be located internal to the premises.

## 6.0 Plant Operating Periods

6.1 We have been advised the proposed operating hours of the premises will be 09.00-midnight.

6.2 We have allowed for the HVAC plant to operate for the proposed trading hours. The refrigeration plant, items CR1 and CR2 serving the Freezer and Chiller coldrooms, will operate 24 hours a day, 7 days a week upon demand.

## 7.0 Environmental Noise Survey Monitoring Position

7.1 There was no access to the roof at the rear of the proposed premises due to a locked, gated, rear access from York Mews. We were, however, able to locate the meter on the edge of the flat roof adjacent to York Mews. The monitoring position is confirmed on the site plan in Appendix 2.

## 8.0 Monitoring Equipment

8.1 The noise monitoring equipment comprised of a Svantek 957 type 1 real time analyser, serial number 21434, with a weatherproof microphone protection system. The microphone was mounted on a tripod with an extension pole so that it was 1.5m above the roof level. A weatherproof windshield and bird spike were used.

8.2 The meter calibration was verified before and after the measurement period by a Svantek SV31 acoustic calibrator, serial number 24687. Any deviation was within an acceptable tolerance.

8.3 The meter and calibrator have current calibration certificates available upon request.

## 9.0 Noise Monitoring Period and Survey Weather Conditions

9.1 The survey was carried out between 22.45 to midnight and 02.00-03.00 hours on Wednesday 23rd June and Thursday 24th June 2021.

9.2 The weather during the survey was dry and still with variable cloud cover. The temperature was steady at 19°C.

9.3 The weather was acceptable for environmental noise monitoring.

## 10.0 Noise Measurement Parameters

10.1 The survey established the prevailing $L_{AFmax}$, $L_{Aeq,T}$, $L_{A10,T}$, and $L_{A90,T}$ noise levels, measured using F time weighting, with a 15 minute reference time period.

## 11.0 Monitoring Observations and Results

11.1 We consider the survey results to be representative of the typical background and ambient noise levels affecting the nearest noise sensitive property as detailed in Section 4.0.

11.2 During the evening survey existing plant noise was audible but the location was not able to be identified. There were occasional car movements on Regis Road and very frequent train movements. No car movements on Kentish Town Road were audible. At night there were infrequent car movements on Regis Road and two HGV movements. There were two train movements.

11.3 The results of the survey are provided in Appendix 1 and the lowest measured background noise levels for the operating periods of the plant are summarised below.

| | |
|---|---|
| All plant (trading hours up to midnight) | 45dB $L_{A90,15min}$ |
| Plant CR1 and CR2 (continuous operation) | 41dB $L_{A90,15min}$ |

## 12.0 Local Authority Criteria for Proposed Plant

12.1 We note that the London Borough of Camden do provide plant external noise requirements as follows.

*"Noise levels at a point 1 metre external to sensitive facades shall be at least 10dB(A) less than the existing background measurement (LA90), expressed in dB(A) when all plant/equipment (or any part of it) is in operation unless the plant/equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, thumps), then the noise levels from that piece of plant/equipment at any sensitive façade shall be at least 15dB(A) below the LA90, expressed in db(A)"*

12.2 Based on the requirements given above, and the results of our environmental noise survey given in Appendix 1, the plant noise criteria to be achieved at 1m from the façade of the nearest noise sensitive property, as detailed in Section 4.0 of this report, would be:

| | |
|---|---|
| All plant (trading hours up to midnight) | 35dB $L_{A90,15min}$ |
| Plant CR1 and CR2 (continuous operation) | 31dB $L_{A90,15min}$ |

12.3 Achievement of these external criteria would ensure compliance with the requirements of the London Borough of Camden.

## 13.0 Predicted Plant Noise Levels

13.1 The predicted **un-attenuated** cumulative free field plant noise levels are given below.

| Receptor Position | Plant Operating Period | Predicted Total Plant Noise Level $L_{Aeq(15min)}$ dB | Target Plant Noise Level $L_{Aeq(15min)}$ dB |
|---|---|---|---|
| RPA | Up to midnight | 55 | 35 |
| | Continuous | 43 | 31 |

**Table 5 – Cumulative Plant Noise Levels at Receptor Position**

## 14.0 Mitigation

14.1 It can be seen from the table above, the predicted un-attenuated cumulative plant noise levels will exceed the requirements of the London Borough of Camden at the receptor position.

14.2 To achieve the design criteria, it will be necessary to provide mitigation measures to the following plant items.

14.3 Our proposed mitigation measures are as detailed below:

a) In duct attenuators on the atmosphere side of the systems detailed in Table 6. The minimum attenuation performances figures are detailed below:

| Plant | Minimum Required Insertion Loss, dB | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| SF1-Kitchen Supply SEL355/2 | 7 | 10 | 20 | 41 | 41 | 31 | 20 | 15 |
| EF1-Kitchen Extract SEL355/2 | 10 | 14 | 27 | 55 | 55 | 44 | 26 | 19 |
| EF2-Toilet Extract HIT125 | 7 | 10 | 20 | 41 | 41 | 31 | 20 | 15 |
| EF3-Basement Extract HIT125 | 7 | 10 | 20 | 41 | 41 | 31 | 20 | 15 |

**Table 6– Fan Minimum Attenuator Insertion Loss Requirements**

b) The A/C condensers (CU1, CU2 and CU3) need to be installed within a four-sided acoustic louvre housing complete with 16g solid steel top.

The internal face of the solid enclosure roof is to be lined with 75mm thick acoustic lining comprising 75mm thick 45kg/m$^3$ rockwall slab infill material with fibreglass tissue facing retained by 0.8mm thick 35% free area expanded metal. The infill is to be inert, non-hygroscopic, rot proof, vermin proof and have Class 1 fire rating.

The rockwall slab minimum coefficient of absorption is to be as detailed below

| 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k Hz |
|---|---|---|---|---|---|---|---|
| 0.17 | 0.54 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.84 |

The acoustic louvres for the A/C Condenser housing are to be 304mm deep and manufactured by Gilberts (Blackpool) Ltd type ALDH/30 or similar product of equal specification and acoustic performance. The minimum sound reduction index (SRI) of the louvres are as follows.

| Plant | Minimum SRI, dB | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Acoustic Louvre enclosure | 7 | 7 | 13 | 15 | 22 | 29 | 26 | 27 |

c) The refrigeration condensers (CR1 and CR2) need to be installed within a four-sided acoustic louvre housing complete with 16g solid steel top.

The internal face of the solid enclosure roof is to be lined with 75mm thick acoustic lining comprising 75mm thick 45kg/m$^3$ rockwall slab infill material with fibreglass tissue facing retained by 0.8mm thick 35% free area expanded metal. The infill is to be inert, non-hygroscopic, rot proof, vermin proof and have Class 1 fire rating.

The rockwall slab minimum coefficient of absorption is to be as detailed below

| 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k Hz |
|---|---|---|---|---|---|---|---|
| 0.17 | 0.54 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.84 |

The acoustic louvres for the refrigeration condenser housing are to be 152mm deep and manufactured by Gilberts (Blackpool) Ltd type ALSH/15 or similar product of equal specification and acoustic performance. The minimum sound reduction index (SRI) of the louvres are as follows.

| Plant | Minimum SRI, dB | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Acoustic Louvre enclosure | 6 | 6 | 8 | 10 | 14 | 18 | 15 | 15 |

d) Consideration should be given to externally lagging the internally mounted kitchen extract fan and kitchen supply fan casings and associated ductwork up to and including the attenuators with one layer of Allaway Transmat Acoustic Damping sheet beneath one layer of Transhield acoustic insulation with staggered/overlapped joints.

14.4 The predicted **attenuated** cumulative plant noise levels, allowing for the mitigation measures detailed in Section 14.3 above, are given below and the calculations shown in Appendix 3.

| Receptor Position | Plant Operating Period | Predicted Total Plant Noise Level $L_{AeqT}$ dB | Target Plant Noise Level $L_{AeqT}$ dB |
|---|---|---|---|
| RPA | Up to midnight | 35 | 35 |
| | Continuous | 29 | 31 |

**Table 7 – Cumulative Plant Noise Levels at Receptor Position**

## 15.0 Vibration

15.1 As the ground floor premises are structurally connected to the flats above, it is necessary to provide suitable vibration isolation to the Kitchen Extract and Supply fans associated with this development and any supports located between the fans and the flexible connections.

15.2 The Kitchen Supply (SF1) and Kitchen Extract (EF1) fans are to be suitably vibration isolated using proprietary mountings. The mounting systems are to provide a static deflection suitable to achieve a minimum 98% isolation efficiency at the fans running speed.

15.3 The supports for the vertical kitchen extract ductwork are to incorporate rubber turret mountings so that the ductwork is de-coupled from the support framework.

15.4 The Refrigeration and A/C condensers at ground floor roof level are to be supported on small rubber turret mountings with all pipework isolated from the building structure and where associated pipework passes through the enclosures and the adjacent building structure the openings are to be sleeved and backfilled with non- hardening mastic to prevent the pipework coming into contact with the structure.

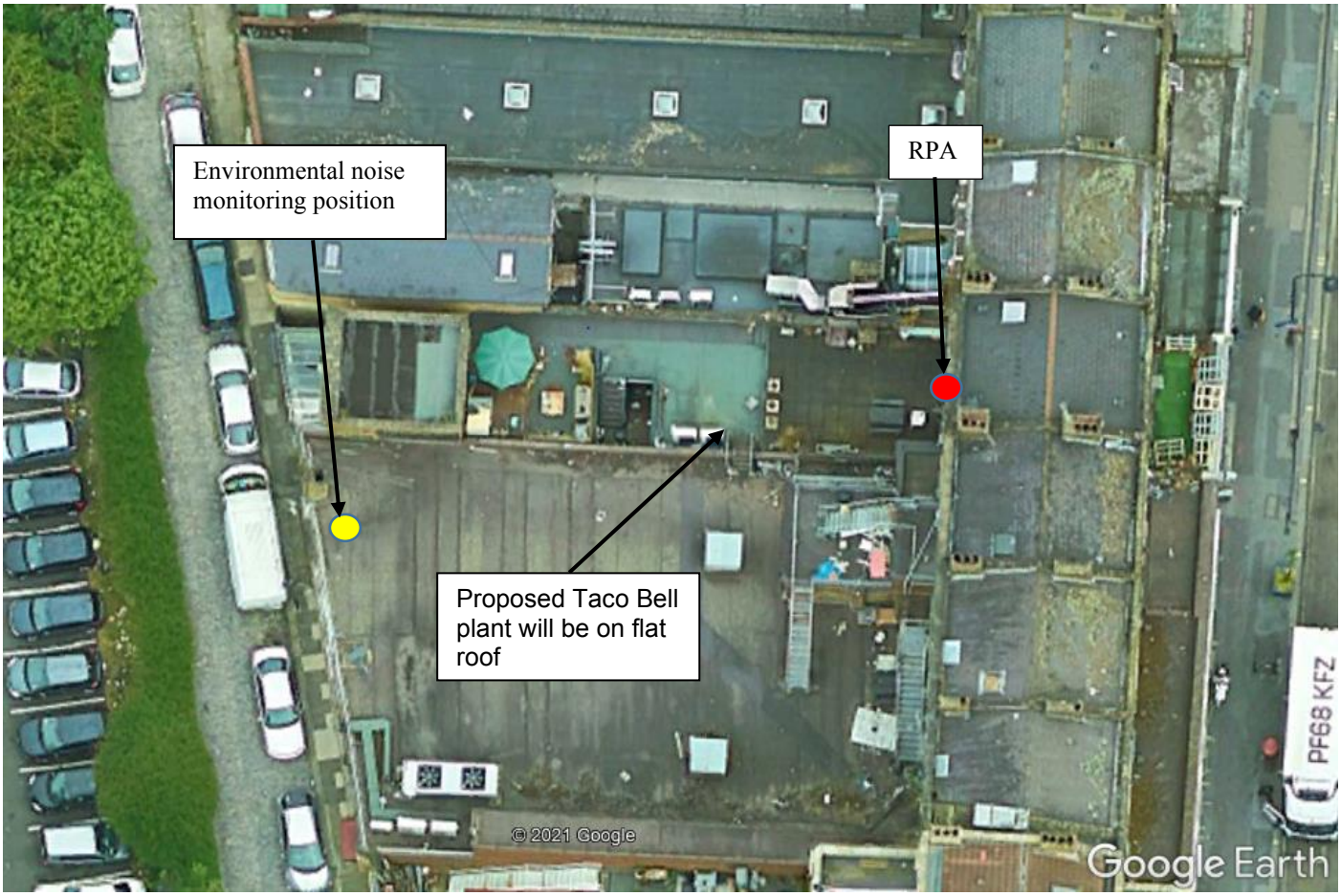
## 16.0 Conclusions

16.1 Providing the mitigation measures detailed in section 14.0 are implemented in full, the requirements of London Borough of Camden would be achieved.

## Appendix 1 – Survey Results

| Time | | | Measured Sound Pressure Level, dB | | | |
|---|---|---|---|---|---|---|
| | | | $L_{AFmax}$ | $L_{Aeq,T}$ | $L_{A10,T}$ | $L_{A90,T}$ |
| 22.45 | to | 23.00 | 72.6 | 53.3 | 56.2 | 45.3 |
| 23.00 | to | 23.15 | 65.0 | 49.7 | 52.2 | 44.6 |
| 23.15 | to | 23.30 | 67.9 | 50.1 | 51.0 | 46.0 |
| 23.30 | to | 23.45 | 71.0 | 51.4 | 53.2 | 46.3 |
| 23.45 | to | 00.00 | 63.2 | 49.3 | 51.6 | 45.7 |
| | | | | | | |
| 02.00 | to | 02.15 | 64.7 | 46.1 | 46.2 | 42.1 |
| 02.15 | to | 02.30 | 63.4 | 44.7 | 44.6 | 41.1 |
| 02.30 | to | 02.45 | 74.6 | 49.2 | 47.6 | 41.3 |
| 02.45 | to | 03.00 | 58.5 | 44.8 | 46.5 | 41.8 |

**Appendix 2 – Site Plan**



## Appendix 3 – Plant Noise Level Calculations – RPA

| Plant Calcs for Octave Band Sound Pressure Level | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project: Taco Bell - 335 Kentish Town Road (ATTENUATED) | | | | | | | | | | | | |
| Date: 19.07.2021 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Section Total, dBA | | Day | 32.6 | | Nigh | -113.0 | | | | | | |
| ALL PLANT TOTAL | | Day | 34.9 | | Nigh | 29.1 | | | | | | |
| | | | | | | | | | | | | |
| RPA | | | | | | | | | | | | |
| CU1 - A/C Condenser | | | | | | | | | | | Day "y" | Night "y" |
| Lp at 1m, Q=2 | | 58 | 59 | 57 | 54 | 50 | 46 | 40 | 33 | | | |
| A weight | | -26 | -16 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | | |
| Directivity Q= | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| Barrier (enter as +ve) | a | | | | | | | | | | | |
| Distance correction m | 9 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | | y | |
| Other Correction (+ve or -ve) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Other Correction (+ve or -ve) | | -7.0 | -7.0 | -13.0 | -15.0 | -22.0 | -29.0 | -26.0 | -27.0 | | | |
| Resultant dBA | | 12 | 23 | 22 | 23 | 15 | 5 | 2 | -8 | | | |
| Overall dBA | | 27.8 | | | | | | | | | | |
| 602.1456223 | | 14.9 | 192 | 171 | 188 | 31.2 | 3.26 | 1.56 | 0.15 | 602.1 | | |
| | | | | | | | | | | | RPA | |
| CU2 - A/C Condenser | | | | | | | | | | | Day | Night |
| Lp at 1m, Q=2 | | 58 | 59 | 57 | 54 | 50 | 46 | 40 | 33 | | | |
| A weight | | -26 | -16 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | | |
| Directivity Q= | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| Barrier (enter as +ve) | a | | | | | | | | | | | |
| Distance correction m | 9 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | | y | |
| Other Correction (+ve or -ve) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Other Correction (+ve or -ve) | | -7.0 | -7.0 | -13.0 | -15.0 | -22.0 | -29.0 | -26.0 | -27.0 | | | |
| Resultant dBA | | 12 | 23 | 22 | 23 | 15 | 5 | 2 | -8 | | | |
| Overall dBA | | 27.8 | | | | | | | | | | |
| 602.1456223 | | 14.9 | 192 | 171 | 188 | 31.2 | 3.26 | 1.56 | 0.15 | 602.1 | | |
| | | | | | | | | | | | RPA | |
| CU3 - A/C Condenser | | | | | | | | | | | Day | Night |
| Lp at 1m, Q=2 | | 58 | 59 | 57 | 54 | 50 | 46 | 40 | 33 | | | |
| A weight | | -26 | -16 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | | |
| Directivity Q= | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| Barrier (enter as +ve) | a | | | | | | | | | | | |
| Distance correction m | 9 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | -19.1 | | y | |
| Other Correction (+ve or -ve) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Other Correction (+ve or -ve) | | -7.0 | -7.0 | -13.0 | -15.0 | -22.0 | -29.0 | -26.0 | -27.0 | | | |
| Resultant dBA | | 12 | 23 | 22 | 23 | 15 | 5 | 2 | -8 | | | |
| Overall dBA | | 27.8 | | | | | | | | | | |
| 602.1456223 | | 14.9 | 192 | 171 | 188 | 31.2 | 3.26 | 1.56 | 0.15 | 602.1 | | |
| | | | | | | | | | | | RPA | |

| Plant Calcs for Broadband Sound Pressure Level | | | | | |
|---|---|---|---|---|---|
| Project: Taco Bell - 335 Kentish Town Road (ATTENUATED) | | | | | |
| Date: 19.07.2021 | | | | | |
| | | | | | |
| Section Total, dBA | Day | 29.1 | Night | 29.1 | |
| ALL PLANT TOTAL | Day | 34.9 | Night | 29.1 | |

| RPA | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item | Lp, Q=2 | Data Distance | Assessment Distance | | Barrier Attenuation (enter +ve) | Directivity Q= | | Night Reduction (enter +ve) | Other Correction (+ve or -ve) | Resultant Day dBA | Day "y" | Night "y" | |
| CR1 | 35 | 10 | 9 | 0.915 | 14 | 4 | 3 | | 3 | 27.9 | y | y | ## ## |
| CR2 | 30 | 10 | 9 | 0.915 | 14 | 4 | 3 | | 3 | 22.9 | y | y | ## ## |

ACP

| Fan Calcs for In duct Sound Power Levels | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project: Taco Bell - 335 Kentish Town Road (ATTENUATED) | | | | | | | | | | | |
| Date: 19.07.2021 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Section Total, dBA** | | **Day** | | **26.9** | | **Night** | | **-115.5** | | | |
| **ALL PLANT TOTAL** | | **Day** | | **34.9** | | **Night** | | **29.1** | | | |
| | | | | | | | | | | | |
| **RPA** | | | | | | | | | | | |
| EF1 - Kitchen Extract | | | | | | | | | | Day "y" | Night "y" |
| Induct Lw | | 76 | 78 | 78 | 78 | 76 | 74 | 69 | 63 | | |
| End reflection loss (enter +ve) | | 9 | 5 | 1 | | | | | | | |
| Directivity (enter +ve) | | -3 | -3 | -5 | -10 | -15 | -15 | -15 | -15 | | |
| Distance correction | 3 | -20.5 | -20.5 | -20.5 | -20.5 | -20.5 | -20.5 | -20.5 | -20.5 | | |
| Barrier attenuation | a | | | | | | | | | | |
| Other correction (enter + or -) | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | y | |
| Other correction (enter + or -) | | | | | | | | | | | |
| A weighting | | -26.2 | -16.1 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | |
| Attenuation IL (enter +ve) | | 10 | 14 | 27 | 55 | 55 | 44 | 26 | 19 | | |
| Resultant dBA | | 10.3 | 22.4 | 18.9 | -7.7 | -11.5 | -1.3 | 11.5 | 10.4 | | |
| Overall dBA | | 24.6 | | | | | | | | | |
| 285.9104481 | | 10.6 | 172 | 77 | 0.17 | 0.07 | 0.74 | 14 | 10.9 | 286 | |
| | | | | | | | | | | **RPA** | |
| SF1 - Kitchen Supply | | | | | | | | | | Day | Night |
| Induct Lw | | 61 | 63 | 63 | 63 | 62 | 59 | 55 | 49 | | |
| End reflection loss (enter +ve) | | 9 | 5 | 1 | | | | | | | |
| Directivity (enter +ve) | | 4 | 2 | 6 | 7 | 8 | 9 | 9 | 9 | | |
| Distance correction | 9 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | | |
| Barrier attenuation | a | | | | | | | | | | |
| Other correction (enter + or -) | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | y | |
| Other correction (enter + or -) | | | | | | | | | | | |
| A weighting | | -26.2 | -16.1 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | |
| Attenuation IL (enter +ve) | | 7 | 10 | 20 | 41 | 41 | 31 | 20 | 15 | | |
| Resultant dBA | | -4.3 | 6.8 | 12.3 | -1.3 | 1.9 | 11.1 | 17.9 | 14.8 | | |
| Overall dBA | | 21.1 | | | | | | | | | |
| 129.8594543 | | 0.37 | 4.81 | 17.1 | 0.75 | 1.56 | 13 | 62 | 30.4 | 130 | |
| | | | | | | | | | | **RPA** | |
| EF2 - Toilet Extract | | | | | | | | | | Day | Night |
| Induct Lw | | 73 | 65 | 63 | 55 | 49 | 42 | 34 | 26 | | |
| End reflection loss (enter +ve) | | 9 | 5 | 1 | | | | | | | |
| Directivity (enter +ve) | | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 9 | | |
| Distance correction | 9 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | | |
| Barrier attenuation | a | | | | | | | | | | |
| Other correction (enter + or -) | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | y | |
| Other correction (enter + or -) | | | | | | | | | | | |
| A weighting | | -26.2 | -16.1 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | |
| Attenuation IL (enter +ve) | | 7 | 10 | 20 | 41 | 41 | 31 | 20 | 15 | | |
| Resultant dBA | | 7.7 | 11.8 | 12.3 | -9.3 | -11.1 | -5.9 | -3.1 | -8.2 | | |
| Overall dBA | | 15.9 | | | | | | | | | |
| 39.30789047 | | 5.92 | 15.2 | 17.1 | 0.12 | 0.08 | 0.26 | 0.49 | 0.15 | 39.3 | |
| | | | | | | | | | | **RPA** | |
| EF3 - Basement Extract | | | | | | | | | | Day | Night |
| Induct Lw | | 73 | 65 | 63 | 55 | 49 | 42 | 34 | 26 | | |
| End reflection loss (enter +ve) | | 9 | 5 | 1 | | | | | | | |
| Directivity (enter +ve) | | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 9 | | |
| Distance correction | 9 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | -30.1 | | |
| Barrier attenuation | a | | | | | | | | | | |
| Other correction (enter + or -) | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | y | |
| Other correction (enter + or -) | | | | | | | | | | | |
| A weighting | | -26.2 | -16.1 | -8.6 | -3.2 | | 1.2 | 1 | -1.1 | | |
| Attenuation IL (enter +ve) | | 7 | 10 | 20 | 41 | 41 | 31 | 20 | 15 | | |
| Resultant dBA | | 7.7 | 11.8 | 12.3 | -9.3 | -11.1 | -5.9 | -3.1 | -8.2 | | |
| Overall dBA | | 15.9 | | | | | | | | | |
| 39.30789047 | | 5.92 | 15.2 | 17.1 | 0.12 | 0.08 | 0.26 | 0.49 | 0.15 | 39.3 | |
| | | | | | | | | | | **RPA** | |